S T A N D A R D F R O N T P A G E
F O R
E X A M I N A T I O N P A P E R S

To be filled in by the student(s). Please use capital letters.

Subjects: (tick box)	Project	Synopsis	Portfolio	Thesis **X**	Written Assignment

Study programme:	Master Programme Tourism (CPH) / Global Tourism Development	
Semester:	10	
Exam Title:	Master Thesis	
Name and date of birth/ Names and dates of birth of group members:	Name(s)	Date(s) of birth
	Michaela Šrámková	10-14-1993
Hand in date:	03-06-2019	
Project title /Synopsis Title/Thesis Title	Adaptation Responses to Water Crisis of the Hospitality Industry in Cape Town	
According to the study regulations, the maximum number of keystrokes of the paper is:	192.000	
Number of keystrokes (one standard page = 2400 keystrokes, including spaces) (table of contents, bibliography and appendix do not count)*	143.228	
Supervisor (project/synopsis/thesis):	Thi Linh Giang Phi	

I/we hereby declare that the work submitted is my/our own work. I/we understand that plagiarism is defined as presenting someone else's work as one's own without crediting the original source. I/we are aware that plagiarism is a serious offense, and that anyone committing it is liable to academic sanctions.
Rules regarding Disciplinary Measures towards Students at Aalborg University:
http://www.plagiarism.aau.dk/Rules+and+Regulations/

Date and signature(s):

3rd June, 2019

* Please note that you are not allowed to hand in the paper if it exceeds the maximum number of keystrokes indicated in the study regulations. Handing in the paper means using an exam attempt.

AALBORG UNIVERSITY
DENMARK

Tourism Master Thesis with a Specialisation in Global Tourism Development

Adaptation Responses to Water Crises of the Hospitality Industry in Cape Town, South Africa

By Michaela Šrámková

Supervisor / Thi Linh Giang Phi

June 2019

ABSTRACT

The thesis is concerned with adaptation responses to water crises of the hospitality industry in Cape Town. It deals with a specific issue of water scarcity which was especially eminent during 2017 and 2018 when the city government at one point put in place water restrictions as low as 50 l per person per day. This water crisis caused a big risk to not only local residents but also to the majority of industries among them to the hospitality. This project in analysing how the hospitality industry reacted, what measures and water saving techniques it implemented by comparing data gained through qualitative interviews with managers from twelve of different size and operations. For the analysis, it also uses data obtained during desk research and by participant observation. Adaptation responses of the interviewed facilities were varying in the type and nature, also some were individual and some collective. The study aims to discuss the potential of these different techniques. Furthermore, the project is focused on barriers and limits which restricted the adaptation responses. These are divided among political, technological, informational and cognitive, eco-physical and economic limits and barriers. The research is discussing how these factors influenced the industry´s decision making towards adaptation to the water crisis. It aims to provide findings which can have beside theoretical contribution also a practical contribution by sharing the information which could be used by the hospitality industry in Cape Town or in other water sensitive cities.

KEY WORDS

Hospitality Industry / Cape Town / Sustainable Tourism / Climate Change / Adaptation Responses / Water Management / Direct Water Use / Indirect Water Use / Barriers to Climate Adaptation / Limits to Climate Adaptation

ACKNOWLEDGEMENTS

In memoriam of my loyal partner, moonlight rider and desert knight Benny.

I am very thankful to all the participants of the research who were not hesitating to share information with me and who inspired me with their engagement for sustainability. Moreover, I am profoundly grateful to my supervisor Thi Linh Giang Phi for a great deal of patience and constructive feedback.

Is it helpful to have to choose between bad and improving? Definitely not. It´s both. It´s both bad and better. Better, and bad, at the same time. That is how we must think about the current state of the world. - Hans Rosling (Factfulness)

TABLE OF CONTENT

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

Water scarcity is a pressing issue all around the world, in connection to that was adopted a term water sensitive cities which for example refers to some of the Australian cities, Californian or Brazilian cities. South Africa and concretely Cape Town was added on this list recently when media put out a message about ´first world´s metropolis to run dry´. No matter how this media campaign was close to reality Cape Town was experiencing water stress situation from 2017 on and was compelled to employ adaptation responses. This concerned all sectors, starting with the city government, households, agriculture to particular industries including tourism.

Although tourism accounts only for one percent of water use of many destinations around the world (Global Water Forum, 2011), its involvement in the stress situation is crucial when we talk about setting an example of the best practices in water saving techniques. The hospitality industry has, in particular, a great potential to reduce its water consumption – even by 50 % (De Stefano, 2004). During the water scarcity event in Cape Town, all industries had to invest in the water management, cut production and focus on the sustainability practices in order to ensure the viability of its business.

The tourism industry was undeniably hit during 2017 up to now by series of different risks – from physical (threat of running out of water) to reputational. Reputational risk entailed the message which was sent to the key markets of the South African hospitality industry by the campaign Day Zero. This campaign was published by the city´s government in order to ensure the involvement of local residents and trigger water conscious behaviour, however, it also caused exaggerated panic outside of South Africa. This thesis, however, does not aim to research what were the impacts of water crisis on the hospitality industry but it is looking at the issue from the other point of view – what the hospitality industry did once the stress situation developed, what adaptation responses it adopted and what represented the constraints and limits to their decision making towards adaptation. Therefore the problem of this project is connected to the complex issue of climate change. It concretely tries to address how the hospitality industry is able to adapt to a specific event of the water crisis in Cape Town: what water saving techniques it employes and how these adaptation responses were restricted by concrete barriers and limits.

1.1 AIM AND OBJECTIVES OF THE RESEARCH

The aim of the project is expressed by the following research question:
"How was the hospitality industry in Cape Town, South Africa reacting in order to adapt to an immediate stress event triggered by the water crises in 2017 and 2018 and what limits, and barriers influenced these adaptation responses?"

The direction to the overall aim of the research is also supported by the following objective:

- Objectives for the literature review chapter:

"What adaptation responses to water crisis are considered as the best practice in the scientific literature?"
"To identify, by way of a literature review, what are limits and barriers which can restrict the hospitality industry from adaptation to climate change"

- The objective of the methods chapter:

"What research approach is most appropriate for exploring the nature of adaptation responses and their limits and barriers in the hospitality industry?"

- The objective of the analysis chapter:

"What influenced what nature of the adaptation responses the hospitality industry implemented?"

1.2 SCOPE OF THE RESEARCH

The research area of the thesis is climate change adaptation of the hospitality industry, then concretely adaptation to water scarcity. The study aims to analyse the nature of the adaptation responses and limits and barriers which were preventing the hospitality industry from adaptation. However, climate change adaptation of the hospitality industry could be studied from several different angles (e.g. focus on the whole tourism industry) and it would be contributing if more research were done in Cape Town also in regards to the rapidly changing state of affairs during recent years.

1.3 SIGNIFICANCE OF THE RESEARCH

Value of this project lies in the contemporary relevance and specific linkage to a concrete event, stress event of water scarcity timed from 2017 when the city government started to set restrictions for

water use up until now (June 2019). Water management is a burning issue in Cape Town and even though there were released academic articles on water management for example from the city governance perspective or urban planning for this concrete water crisis in Cape Town there is a gap in research when we talk specifically about tourism or the hospitality industry. Also, we lack macroeconomic data on tourism and climate change adaptation, including water use by the industry in Cape Town.

Furthermore, there is not enough statistics and tools on the impact of the tourism industry on water resources and more in general on the environment and natural resources (Eurostat, 2009). Therefore, this study aims to fill this gap with a qualitative focus on adaptation responses to water scarcity by the hospitality industry and limits and barriers to decision making. Cape Town and its hospitality industry can set an example not only to the other South African water sensitive cities such as Durban but to other destinations around the world. The significance of this project is not only in theory development but moreover lies in practical implications providing data for the tourism sector, the hospitality industry, DMOs, governments, and NGOs who can use the information to more investigate this pressing issue and implications in the tourism industry.

1.4 THESIS STRUCTURE

After the introduction into tourism in Cape Town and water crisis of 2017/18, the thesis provides a review on tourism and climate change adaptation, then concretely on water scarcity. The main research body is concerned with the analysis of qualitative interviews involving a sample of twelve accommodation enterprises of different size and location. The aim was to make qualitative interviews proportionally with facilities functioning under different conditions to get representative sample and data on various adaptation responses and limits and barriers. The time frame of the research is from 2017 up until now whilst the geographical frame of the thesis is the coastal city of Cape Town, including the hospitality facilities in different parts of the metropolis – concretely neighbourhoods of Greenpoint, Waterfront, CBD (central business district), Observatory, Newlands and Seapoint.

2. BACKGROUND INFORMATION

2.1 TOURISM IN CAPE TOWN

Cape Town which located on the coast in Western Cape province is the second biggest city in South Africa with an estimated population of the City of Cape Town Metropolitan Municipality to be 4,524,111 (World Population Review, 2019). Cape Town is not only a legislative centre of South Africa but it is also important from the economical point of view, its contribution to the nation´s GDP is 11 % (UNWTO, 2015). The city has one of the most multicultural population in the world with 42 % of Coloured people, 39 % Black African, 16 % Whites, and 3 % Asian and other (UNWTO, 2015). The cosmopolitan appeal makes the city to be a popular international destination when nearly four million people visit its shores every year (Responsible Tourism Cape Town, 2015).

Tourism is already important industry for Africa as a continent, according to Wesgro, the official tourism, trade & investment promotion agency for Cape Town and the Western Cape its importance lies especially in creation of employment, increase in standard of living, in its role of preserving culture, improvement of infrastructure and financially supporting role to the other traditional industries (WESGRO, 2017). The industry increased in arrivals by 8 % in 2017 with the record in international arrivals being 62 million in 2016 (WESGRO, 2017). However, tourism has much more potential for growth looking for example at the visitor-citizen ratio which is still very low in comparison to the benchmarked destinations (City of Cape Town, 2018). That assumes that the destination can accommodate a larger number of visitors. Tourists typically make up less than 2.5 % of Cape Town´s proportion of the population (WESGRO, 2018).

According to UNWTO (2015), Cape Town has 4,000 tourism enterprises which include 2,742 guest accommodations, 389 restaurants, 424 tourist attractions, and 170 conference venues. Among accommodation are 1,127 guesthouses, 975 self-catering units, 340 B&Bs, 183 hotels, 70 lodges, 30 backpackers and 17 camping sites and caravan parks (UNWTO, 2015). The accommodation sector needs to cope with significant seasonality which makes the average occupancy levels drop from 71.8 % during the high season to 55.2 % during the low season (UNWTO, 2015). According to Wesgro (2017), the Western Cape secured eight new hotel investments whereas the steady growth in a number of accommodation establishments is projected for the whole South Africa averaging 4.6 %

between 2017 and 2021. Occupancy rates of the hospitality industry in Cape Town are the highest in South Africa with annual rates close to 70 % in 2016 and 2017 (wesgro, importance of tourism).

Tourism is estimated to brought ZAR 15 billion (USD 1.1 billion) to the city´s economy in 2015 and contributed by 15 % to Western Cape´s GDP. By data from 2015 direct employment in tourism was over 54,000 in Cape Town in 2015 (UNWTO, 2015), sustaining 3-5 % of all jobs in Cape Town (City of Cape Town, 2018). Tourism is growing steadily in South Africa since the democratic transition in the 1990s with annual growth between 8 % and 10 % per annum during late 1990s and early 2000s, dropping down to average between 2% and 5 % growth between 2009 and 2017 (WESGRO, 2017), the growth was even more significant in 2010 when FIFA World Cup brought to South Africa - 14 % more tourists visited the country in comparison to the previous year (UNWTO, 2015).

In 1996 South Africa released Tourism White Paper becoming the first country to include responsible tourism in its national policy (Responsible Tourism Cape Town, 2015). Cape Town was a city where was held first International Conference on Responsible Tourism in Destinations in 2002. The delegates from 20 countries endorsed the Cape Town Declaration on Responsible Tourism (UNWTO, 2015). Cape Town responsible tourism set seven priority areas including among other conservation of water (Responsible Tourism Cape Town, 2015). Cape Town has several responsible tourism initiatives including Green Map showcasing natural and cultural resources of the city, information sessions for tourism businesses during Responsible Tourism Week, and awareness-raising tool in the form of Responsible Tourism website (UNWTO, 2015). However, the city is lacking indicators on performance of the industry as only 18 % of the industry is using the grading criteria for environmentally responsible practices from Tourism Grading Council of South Africa (TGCSA) and 1 – 2 % complies with Fair Trade Tourism certification and Heritage & Greenline Certification Standards (UNWTO, 2015 – data from 2017). The number of tourists per 100 residents was counted as 18.1 by CTT in 2015 which estimates rather low potential pressure on the environmental and social resources to the destination (UNWTO, 2015). Also, 22 % of the city´s land is covered by protected area which preserves the city´s environment.

The city of Cape Town's Water and Sanitation Department publishes data on water consumption within the city but there are no specific statistics on water use per sector, such as tourism. Also, there is no data on the percentage of tourism enterprises taking actions in water saving techniques to reduce their consumption or on the percentage which uses recycled water (UNWTO, 2015). However, the city in its Tourism Development Framework for 2019-2023 mentions water frequently as its weakness, threat and opportunity, concretely threat of water shortages, damage of its brand and reputation through water concerns and the opportunity in joint communication campaign launched in the response of water crisis (City of Cape Town, 2018).

2.2 THE GLOBAL WATER SCARCITY

The water crisis was recognized as the third most impactful global risk by the World Economic Forum Global Risk Report from 2016. According to International Tourism Partnership (2018), 40 % of the world´s population suffer water shortages at least one month every year. The global demand for water is expected to grow by 50 % by 2030, furthermore, the Organisation for Economic Co-operation and Development (OECD) estimates that by 2050 four billion of people can be living in water-scarce areas (International Tourism Partnership, 2018). Water risks occur on two levels, one of them is the supply of drinking water and the other is the decrease in available water in general. The current pollution and lack of water treatment currently make 12 % of the world´s population lacking drinking water (International Tourism Partnership, 2018). Regarding the second issue, the reason water is scarce is for example because of increased evaporation, salination of coastal aquifers or/and depletion of resources. Destinations experience droughts and floods, changes in temperature can then bring also fires.

Africa is after Australia the driest continent; it accommodates 15 % of the global population whilst has only 9 % of global renewable water resources. Also, water is unevenly distributed across the continent with circa 50 % of the continent's water being located in Central Africa, then only circa 3 % in Northern Africa. Approximately 66 % of Africa is classified as arid or semi-arid (UNEP, 2010). The African climate highly varies over the year, also the rainfall can vary remarkably over the years, decades or longer periods. Some regions of Africa are experiencing extreme wet and dry seasons. Some regions are hit by short to several years-lasting droughts. Weak planning, water management and competition between sectors such as industry, agriculture, tourism, domestic use, and hydro-energy production results in water stress and scarcity (UNEP, 2010).

Moreover, scarcity and poor quality of water limit the economic development of African countries. South Africa is one of the only countries in the world which recognizes water as a human right. In South Africa 91 % of the population is served with drinking water, the country improved this statistic by 8 % from 1990 to 2008. By statistics from 2000 62.7 % of water is withdrawn by the agricultural sector, 31.2 % is used in the municipal sector and the rest 6.1 % in the industrial sector (UNEP, 2010). Nevertheless, South Africa is experiencing water stress or even water scarcity which is influenced by the fast population growth, an expanding economy, excessive water consumption, weak water management, poor sanitation and by increased evaporation. The precipitation is very limited (only 495 mm of rainfall each year) and strictly seasonal (UNEP, 2010).

2.3 WATER CRISIS IN CAPE TOWN

The significant role concerning the water crisis in Cape Town which peaked at the beginning of 2018 played the exponential population growth, from 1995 to 2008 Cape Town´s population grew by 79 % which massively increased the demand for water (Pulitzer Center, 2018). In 2007 the Department of Water and Sanitation issues a warning about the city´s potential water supply shortages. The dam levels declined from 71.9 % in 2014 to 50 % in 2015 which lead to the implementation of Level 2 water restrictions by the city in January 2016, elevated to Level 3 in November of the same year (Pulitzer Center, 2018). The shortage was caused by an immense shortage of rainfall in the past two years (2016, 2017) when the city received half of the normal annual rainfall. But also by other long-lasting processes such as the above-mentioned urbanisation, depletion of local resources, by the aging of the existing infrastructure, increase in water consumption as the living standards rise but then importantly because of industrialization and farming, specifically by growing non-native water demanding crops and growing demand for meat.

In 2016 Cape Town started to plan the use of alternative water sources, lead by the construction of three desalination plants. The dam levels dropped further in 2017 resulting in Level 4 restrictions being put in place in June which limited the usage of water per 100 litres per person per day, altered to Level 5 in September 2017 decreasing the water use to 50 litres (Pulitzer Center, 2018). Level 6 restrictions were put in place at the beginning of January 2018 followed by the announcement of Day Zero setting a date in mid-April 2018 when the city was planning to restrict water supply to 25 litres

per person per day provided at 200 designed distribution points to ensure large scale reduction of guaranteed water.

The campaign was aiming to inform about the worst case scenario which is however well planned and organised with a serious focus on fair distribution whilst the city will take over the management of the remaining water resources. It was used as a scare tactic to ensure 100 % participation (WESGRO, 2018). However, Day Zero was connected to campaign caused that the media were releasing articles stating that Cape Town will become the world´s first big metropolis to go dry and exaggerating the issue to external observers.

On the city governance level there have been implemented or are planned to be adopted several strategies in water management such as investing in additional water supply such as building of desalination plans, groundwater extraction, diversifying its water sources, using innovative water technologies, encouraging water saving and efficiency, pressure management, water restrictions, grey water recycling, removal of alien vegetation and preservation of existing water source quality (Fruschki, 2018).

According to Wesgro (2017) current drought can only be broken by 3-4 years of good rain whilst the effects of the current drought are long-term and restrictions are here to stay and tariffs to increase. South Africa will demand an extra 17 % of the water that exists in 2030, water supplies are now almost fully allocated. The drought causes risks to water, economic, job, food and social security. City´s long term plan 2011/12 to 2020/21 includes the capital expenditure of R3.2b for water management and water savings of 70 million m^3 per annum (WESGRO, 2018).

3. LITERATURE REVIEW

3.1 TOURISM AND CLIMATE CHANGE ADAPTATION

The tourism industry is influenced by climate change, but at the same time can contribute significantly to the happening of climate change and to the mitigation of its effects. Climate change impacts of tourism activities can be divided into two sections. One of them is an impact linked to the movements and traveling which contribute to the greenhouse gas emissions and then impact linked to

the tourist activities that take place at the destinations. The impacts related to the stay at the destination relates to the use of the local resources, but also to additional pressure on water resources and natural environments. With regards to water consumption, the accommodation and leisure activities such as golf courses, swimming pools, aquatic centres are of the biggest concern (Eurostat, 2009).

Tourism as an industry needs to consider several hotspots which are concerning climate change and interconnect its strategies to improve its adaptation capacity. Among these areas are for instance air pollution, resource depletion, ecotoxicity, water scarcity, water pollution, soil degradation or biodiversity loss (Styles, Schönberger and Galvez Martos, 2013). Because the frequency and severity of natural events caused by climate change are increasing, the hospitality industry must be at some locations prepared for both ´too little´ and ´too much´ water, meaning droughts and floods. However, through appropriate management systems, infrastructure, resilience plans and networks the tourism industry can significantly adapt to climate change and contribute to Sustainable Development Goals (11.5, 13.1) (International Tourism Partnership, 2018).

3.2 WATER CONSUMPTION AND TOURISM

Although tourism´s share of global water consumption is only 1 % compared to agriculture 70 % (UNWTO, 2013), the challenge is rather to be found on a destination level. The pressure of tourism activities is caused because of the concentration during a particular season (summer and holidays) and by spatial concentration. The tourism industry is concentrated specifically in the coastal areas, individual town, major cities and islands (Eurostat, 2009). Both seasonality and spatial concentration represent an issue as in summer season the water is scarce and also the hotspots for tourism such as coastal areas and islands tend to be water sensitive. For example, the Mediterranean in Europe is a very popular tourist destination but have very limited water resources for the local residents.

Tourism is putting additional pressure on the destination and country to enlarge water transporting systems (transfer the water from the interior of the country) and wastewater treating systems, also it is increasing the demand for water from renewable and unconventional sources such as desalination, re-use of purified water (Eurostat, 2009). Planning for sustainable water management of the hospitality industry is linked to Sustainability development goal number 6.4 which is aiming to

increase water-use efficiency across all sector, address water scarcity and ensure sustainable water withdrawals by 2030 (International Tourism Partnership, 2018).

On the other hand, tourism is in many countries significant source of income which allows the country to invest in the improvement of the water supply system from the local population and into sanitation. Furthermore, tourism contribution to water resource preservation can happen on two accounts: sustainably governing the development of tourism in water sensitive destinations including, for example, coastal areas or lakes and then water management of the tourism facilities through water saving activities and operations (UNWTO, 2013).

Water scarcity is threatening the destination´s attractiveness, especially at water-based destinations. That includes destination which is based on well-being and health tourism (spas, hot water springs), bathing in the seas and fresh water and water sports – diving, kitesurfing, surfing, canoeing, sailing, et cetera (Eurostat, 2009). Water plays a crucial role in most of the hotel´s operations, either if it is in the back of the house or in guest and meeting rooms. Also, water scarcity influences shareholder and monetary value which was proven by research by some organizations, namely by WWF, the International Finance Corporation, Ecolab Water Risk Monetizer (International Tourism Partnership, 2018).

Water consumption of tourism can vary incredibly among different destinations. According to a document from Eurostat from 2009, the water consumption associated to overnight hotel stays was 4.5 % in Malta and Cyprus, comparing to countries with little tourism with for example 0.5 % in Israel or 0.1 % in Syria (Eurostat, 2009). The water consumption of hotels can also vary a lot depending on if it has gardens which need to be irrigated (can add extra 20-25 % of water consumption), golf course or a swimming pool. According to EarthCheck´s research having a swimming pool can increase the water use up to 30 % per guest-night, depending on a number of pools (International Tourism Partnership, 2018). The hotel can use from 150 l to 880 l per guest-night (for luxury tourist in Majorca). Hotels are paying for the water two times, firstly by purchasing fresh water, secondly by disposing of its wastewater. Water makes for 10 % of the utility bill in many hotels (UNWTO, 2013). In general, water consumption of tourism industry is expected to grow

immensely with an increase in the tourist traffic and diversification of tourism activities (golf course, swimming pools) (Eurostat, 2009).

There is not enough statistical data on water consumption of the tourism industry, however, some statistics say that the difference among water use of tourists and local residents can be significant. Water consumption of European tourist is 300 l per day, which is double in comparison to a European citizen who consumes on average 150 l per day (Styles, Schönberger and Galvez Martos, 2013). In Indonesia tourists use five times more water than locals, in China it is seven times more and in Sri Lanka, it is 8.3 times more according to International Tourism Partnership (2018). This difference is given because of luxurious features of the tourism accommodation such as daily room cleaning and laundry, more water spent during showering and bathing, maintenance of swimming pools and irrigation of gardens (Styles, Schönberger and Galvez Martos, 2013).

The hospitality industry has according to the document published by a European Commission ability to decrease their water consumption by 50 %, and that by an inexpensive installation of efficient water fittings which have a relatively high frequency of replacement (Styles, Schönberger and Galvez Martos, 2013). According to the document from UNWTO (2013) water consumption can be additionally cut by up to 23 % through investments in water efficiency in the tourism sector.

3.3 WATER MANAGEMENT AND THE HOSPITALITY INDUSTRY

This chapter deals with the best practises of water management which the hospitality industry implements in order to mitigate its water use. This can be done throughout the adaption of a series of measures and processes. First of all, it will deal with hotels´ processes linked to direct water use which refers to the direct water consumption of the facilities. Water management which concerns direct water use includes several processes which can help the hotel to use less water. Among these are planning of water management, monitoring water use, use of alternative water resources, improving of the operations´ water efficiency, staff training and guest engagement. Secondly, this chapter will include literature review on the indirect water use of the hospitality industry, this is linked to the water used by the hotels´ suppliers.

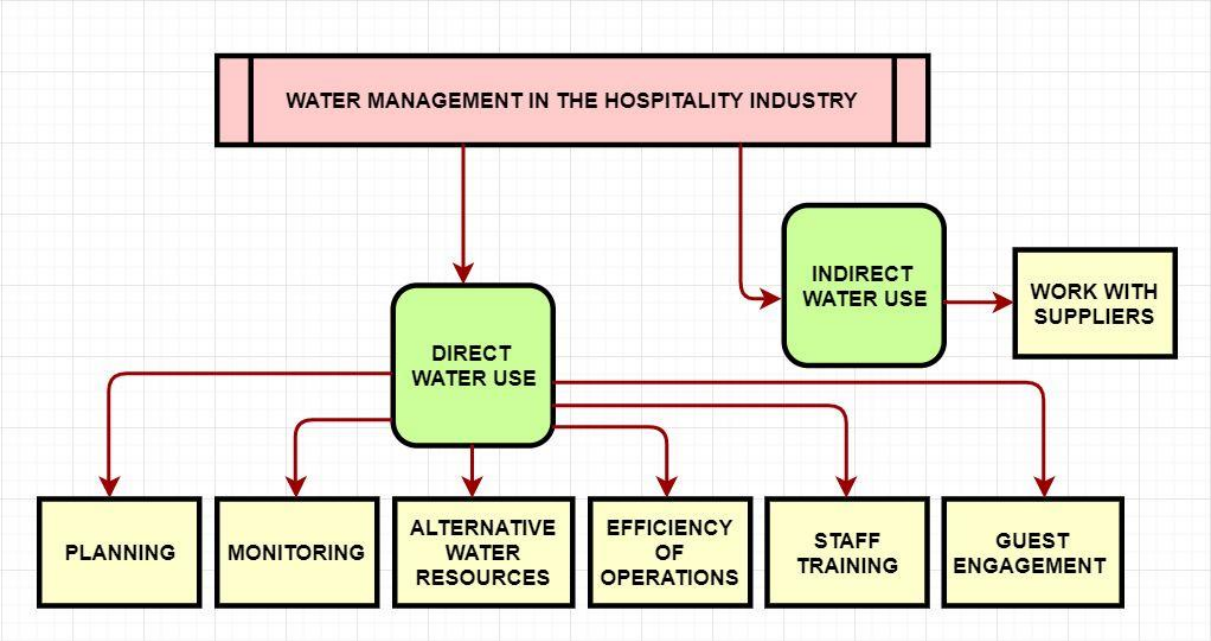

Figure 1: Water management practises in the hospitality industry divided according to techniques focused on operations which use water directly on the hotel´s property and water which is used by its suppliers.

3.3.1 DIRECT WATER USE

This section is dedicated to processes which are recognized as the best sustainable practice influencing direct water use of the accommodation facilities. Direct water use is water which is used by on the property of the facility, not by their supplier (Hadjikakou, Chenoweth and Miller, 2013).

3.3.1.1 PLANNING WATER MANAGEMENT

Planning of water management in the hospitality industry in the ideal case takes into account both global and local perspective. According to International Tourism Partnership´s paper on water management (2018) the water risk assessment and company´s long term strategy should look at the global impact, but then locally tailored property-level stewardship plan is important to prioritize actions for the specific organization. The action plan covers strategy across all operations with a focus on high-risk areas and provides reactions to immediate stresses and disasters such as drought or flood. For such events, a hotel´s strategy can be in managing fresh water supply in using alternative sources or increasing capacity for water storage (storage tanks, stormwater retention ponds). Its

content can be also based on improving efficiency and/or for example engaging with internal stakeholder. A hotel should be also able to play a role in supporting the local community when the crisis strikes (International Tourism Partnership, 2018).

Planning of the water management helps the hotels to identify areas for potential improvement in their water management practices and to discover hands-on solutions, strategies and plans for action (EarthCheck, 2015). The planning process may include the establishment of the water target the hotel wants to achieve, moreover White Paper on Tourism and Water from EarthCheck (2014) recommends providing each of the hotel´s departments with a water audit checklist and information sheet helping to train staff. The water management plan for hotels can furthermore include identification of water efficiencies by recognizing leaks in infrastructure and water-intensive processes; ensure wastewater treatment using it for irrigation or returning it to a greywater recycling plant. Rainwater and greywater recycling entail significant cost savings, moderate cost and quick payback period. Another action hotel can take to ensure their long term sustainability is looking into the possibility to use alternative sources of water (International Tourism Partnership, 2018). Another important part of an action plan is staff training and guest engagement.

3.3.1.2 MONITORING WATER USE

An important part of water management in the hospitality industry is monitoring if its water use. The hospitality industry has in some areas direct control over the water use. Measuring water used at the hotel properties is a first step to take to set goals for a water management plan. Recent data shows that water usage per occupied room can vary from 250 liters to more than 5,000 liters (International Tourism Partnership, 2018).

For one hotel can comply with appropriate water performance indicators and monitor its performance, compare it with benchmarks. These indicators and benchmarks set by forerunners in water management practice are giving the industry a simple tool on how to evaluate own performance. Technical, social or management implication can be for simplification structured upon common features such as technical feasibility to describe under what condition the water saving technique can be implemented and economic viable, which is information concerning investment and costs (Styles, Schönberger and Galvez Martos, 2013). Reference values or benchmarking is

important for the facilities to compare their consumption with similar undertakings, to keep track of their performance, to prioritize their actions and implement appropriate strategies (Eurostat, 2009).

For instance, the EU Ecolabel and Nordic Swan ecolabels include several voluntary or mandatory criteria on water management for tourism accommodations such as a collection of rainwater and recycled water for non-drinking and non-sanitary purposes. Moreover, they set a limit for the average water flow of the taps and showerheads, excluding kitchen and bath taps to 9 liters/minute. Criteria for toilets are that at least 95 % shall consume six liters per full flush or less, and urinals shall be fitted with either automatic or manual flushing to avoid continual flushing (Styles, Schönberger and Galvez Martos, 2013).

We can argue that without monitoring the facilities would not be to for one recognize leaks in the infrastructure which are leading to immense wasting of water and for a second to recognize hot spots of its water use. This could be done by measuring water use per different zones and sectors. Also, without continuous measuring, the facility cannot compare its data on water use with previous months and years to see if it is improving or compare its performance to the best practices. Continuity is therefore also a very important aspect of water use monitoring.

3.3.1.3 ALTERNATIVE WATER RESOURCES

There are different resources for water that hotels can utilised, amongst them is underground water, surface water, and unconventional water. Among unconventional or alternative resources, we count use of saltwater and recycling of wastewater and rainwater. To use alternative water resources, allow the facility to be less dependent on potable water supplied to them. Recycled waste and rainwater can be used for irrigation of the garden or for flushing toilets. Saltwater is used for desalination which is however very energy intensive and then for saltwater cooling systems which save both water and energy (International Tourism Partnership, 2018).

These resources are important for the future, securing its own supply means that the hotel is placing importance on future thinking and can be in business for another 20 years. The demand for unconventional resources doubled in the second half of the 20th century (Eurostat, 2009). Implementation of alternative water resource technologies requires costs for design and installation

and regular maintenance (EarthCheck, 2014). However, the use of the alternative water resources can for facilities entail several long-term benefits: a resilience to extreme weather events and to water scarcity, reduction of costs and improvement of economic performance.

3.3.1.4 EFFICIENCY OF OPERATIONS

This chapter is concerned with the efficiency of operations in the hotel´s interior and exterior, this covers all processes in the different sectors of the facility where water is used. The water consumption is particularly significant in some specific areas. The water hotspots are guest bathrooms, swimming pools, kitchens and laundry facilities (Styles, Schönberger and Galvez Martos, 2013).

One of the great improvements hotels can do to mitigate its water footprint is system maintenance. That includes optimization of system design, regular maintenance of water fittings and leaks and monitoring of water use; another area is an installation of water efficient fittings in guest areas on toilets, urinals, baths and showers and installations of different pressure regulators, low-flow faucets, thermostatic controls, and sensors or timers (Styles, Schönberger and Galvez Martos, 2013). Furthermore, the water use of cooling towers need to be considered and the possibility of the use of salt water to run them.

More than 30 % reduction in water usage can be achieved by the installation of aerators, double flush tanks and usage reduction devises on sinks and showers (UNWTO, 2015). We can argue that this is significantly important technique because according to data from EartchCheck (2014) 50 % of hotels´ water use is associated with guest rooms, therefore toilets and showers. In kitchens, it is possible to install low-flow high-pressure spray valves for prewashing or procurement of efficient dishwashers. Without affecting the comfort of the guests 40 % of the usage can be reduced by lessening of the pressure needed for showering and taps (UNWTO, 2015).

Another water saving techniques concerning operations are efficient housekeeping. That covers green procurement of room textiles and consumables, but also reuse schemes of the textiles and staff training in efficient cleaning techniques and measuring of water consumption and inspections of leaks. The room cleaning can use between 12-47 l of water per guest-night (Styles, Schönberger and

Galvez Martos, 2013). According to EarthCheck (2014) to ensure water saving during cleaning it is important to develop the action plan through cooperation of management and cleaning staff which will imrpove the likelihood of the water saving practises to be enhanced.

Another technique is the optimization of small-scale and large-scale laundry processes which entails modifications to reuse rinse water and programming to minimize water, chemical and energy consumption. Next one is to optimized pool management and spa area operations with appropriate sizing, optimization of backwater operations or use of pool covers (Styles, Schönberger and Galvez Martos, 2013). In the gardens, the hotels can save water by the plantation of indigenous species which consume less water than the alien vegetation and the installation of an efficient irrigation system and use of greywater for irrigation. EarthCheck (2014) argues that it is important to reduce watering during the heat of the day when is the highest evaporation.

3.3.1.5 STAFF TRAINING

Staff training and education is a very important part of the hotel´s action plan. The staff training includes, for instance, preventing pollution, water saving practices or monitoring activities. Moreover, according to the document from EarthCheck´s document on Water Management for Hotels (2015), it is important that staff in all departments is trained. For example, in the kitchen staff should be trained to no defrost and not to prepare food under running water, or for instance in the exterior to sweep outside areas instead of washing them down. Furthermore, EarthCheck (2014) argues that educating staff on initiatives about water-saving behaviour is essential to ensure successful guest education outcomes. Therefore, we can argue that this technique of water management has several benefits: from saving water during cleaning or cooking, then also the education of the staff, which can implement their new knowledge also at the households and lastly the staff has a big impact on guest engagement and education.

3.3.1.6 GUEST ENGAGEMENT

Guest awareness can be achieved among others by towel re-use schemes or communication strategies. Guests can be powerful allies, to get them on board can for instance help to discover leakages but also support their understanding and satisfaction with services. According to the International Tourism Partnership (2018) is important to communicate to guests the importance of

water resources in order to ensure that they use water wisely. Some of the behavioural changes the hotel can achieve among guests are that they use a shower instead of a bath, do not leave the tap running when brushing their teeth, that they half-fill the sink where appropriate and ask less frequently to have their towels and linens changed (International Tourism Partnership, 2018).

3.3.2 INDIRECT WATER USE

Water stewardship in tourism is linked to observing water footprint of different tourist activities and these include beside direct and also indirect water use. Indirect water use is caused by external suppliers, such as the production and delivery of products and services from suppliers.

3.3.2.1 WORK WITH SUPPLIERS

Tourism organizations can influence the indirect impact by selecting services, material, equipment associated with suppliers with better environmentally friendly performance. The tourism organization which wants to imply the best environment practices should measure all stages of its supply chain (Styles, Schönberger and Galvez Martos, 2013).

Work with the suppliers includes identification on where the water used by their hotel is coming from, to see what water catchment is used and how water-rich is the area they are taking water from, what infrastructure exists to treat the wastewater and access to the freshwater (International Tourism Partnership, 2018). The hospitality industry can influence its indirect water impact in another several areas. One of them is electricity supply as some of the electricity productions are water demanding, the tourism industry would reduce this indirect water footprint by the generation of renewable electricity onsite. Another possibility for indirect water footprint mitigation is with the laundry services, concretely purchasing of efficient washer-extractors and eco-labelled outsourced laundry services; another area where the tourism industry can choose responsibly the supplier is to purchase eco-labelled textiles (Styles, Schönberger and Galvez Martos, 2013).

Then also can mitigate indirect water footprint by reducing high impact products on the menu and by purchasing local and seasonal food. According to International Tourism Partnership (2018) research on water use of different forms of travel, accommodation and tourism activities, food consumption is the activity with most intensive water footprint. Specifically, meat and milk are water intensive

products. Support for the demand for eco products triggers other environmental benefits. Among these is the avoidance of impact associated with consumption of the substituted product, commercialization of environmentally superior production processes, and reduced consumption owing to higher expenditure on eco products (Styles, Schönberger and Galvez Martos, 2013).

According to Styles, Schönberger and Galvez Martos (2013) particular assessment of the organization´s supply choice can be measured upon the percentage of environmentally friendly products which either certified by relevant environmental standards, comply with a specific level of environmental performance or originates from suppliers who are improving their environmental performance. The tourism organizations also can use specific questionnaire and benchmark criteria to assess the environmental performance of its suppliers.

On the other hand, the portfolio of suppliers to choose from can be limited, in that case, the tourism organization can establish standards and programmes for suppliers to improve their sustainability performance. Also, by employing local suppliers can imply more challenges for the organization such as the need to contract a large number of local suppliers. Bigger tourism organizations have bigger leverage over the suppliers than SMEs. During the procurement of the suppliers, the organization´s decision is naturally influenced also by the costs. In some instances, procurement of eco-labelled products can imply higher cost, on the other hand locally sourced products can be cheaper. Furthermore, the organization is taking into account the marketing benefits choice of suppliers will bring (Styles, Schönberger and Galvez Martos, 2013).

3.4 LIMITS AND BARRIERS OF ADAPTATION RESPONSES ON CLIMATE CHANGE

This last section of the literature review will firstly focus on the concept of adaptation and risks which leads to decision-making on climate change. Next, the chapter includes a review on limits and barriers to climate change adaptation. It considers the difference between limits and barriers and deals with the different types of limits and barriers.

3.4.1 ADAPTATION, RISKS AND DECISION-MAKING ON CLIMATE CHANGE

First, it is necessary to define adaptation to be able to investigate limits and barriers which can constrain the decision-making process within the adaptation process. That is because risk-decision-

making and adaptation limits are two linked spheres of research. Some, however, argue that too much focus on adaptation limits themselves can hinder actors from taking adaptation responses. On the other hand, in many cases, synergic actions which address both adaptation needs and development barriers or limits can be employed simultaneously (Leal Filho and Nalau, 2018).

Adaptation has risen sharply as a topic of a scientific inquiry, policy, and planning, in the media and in the public awareness in the first decade of the 21st century (Moser and Ekstrom, 2010). It is a process aiming to minimise potential losses and damages through the employment of interventions and the response mechanism of adjustment to the new conditions created by change and variability in the climate system (Leal Filho and Nalau, 2018). In general, the adaptation focuses on sectors and activities which are sensitive to the climate impacts and by a strategical approach implements from short-term to long-term actions to mitigate the impacts´ effects. The success of adaptation lies in the adoption of sustainable processes and fair principles rather than in any tangible outcomes (Barnett et al., 2015). The process of adaptation goes hand in hand with mitigation (prevention of occurrence of climate change) which is needed, to, minimise pressure on adaptation (Leal Filho and Nalau, 2018).

Adaptation is a process reacting to certain risk situation. To describe a risk situation is a rather complex issue because it depends on how the risk is framed, then that influences what people perceive is possible to do about it and what kind of management interventions to employ (Leal Filho and Nalau, 2018). The reaction to risk can be also limited by different values and interests of stakeholders involved in the decision making. To summarise, the risk is a situation which adversely affects what people value (Dow, 2013) and evaluation of it can vary greatly among different actors. Regarding, governance of risks they are divided into three categories. Firstly, acceptable risks are deemed so low that to reduce them is not seen as necessary; secondly tolerable risks are linked to activities which are worth pursuing but to achieve them it is necessary to reduce risks to some extent; and lastly intolerable risks are those ones which exceed norms or values despite adaptive action (Dow, 2013). Furthermore, there need to be noted that adaptation options are often employed in consideration to other nonclimatic windows of opportunities (such as infrastructure replacement, land-use plan updates), furthermore, some adaptation responses can turn out to be maladaptive later (Moser and Ekstrom, 2010).

The adaptation decision-making is said to be constructed from several components. Firstly, it includes actors (e.g. individuals, social groups, government agencies, businesses, NGOs), secondly the context in which they function and thirdly objectives upon which they act (system of concern such as health, safety, security, or a livelihood) (Dow, Berkhout and Preston, 2013). With these components we moreover can work during analysis: to see how each of these components can contribute to the limit or barrier. Decision-making goes through different phases: common ones are understanding to the problem, planning adaptation actions and managing implementation (Moser and Ekstrom, 2010).

3.4.2 LIMITS AND BARRIERS

Research on limits and barriers was developed in connection to ´adaptation deficit´ during the examination of adaptation capacity of different subjects and the concepts of limits and barriers started to be widely used after their inclusion in the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (Barnett et al., 2015). Literature and contemporary research distinguish between limits and barriers (or constraints). The former presents a situation when a radical change would be required as there are no other options available whilst the latter describes a situation which can be overcome.

Moser and Ekstrom (2010) differentiate among common barriers happening in different stages of decision making, they focus concretely on barriers in the stages of understanding (detection and definition of problem, gathering and use of information), planning (development, access and selection of options) and managing (implementation of options, monitoring outcomes and evaluation of effectiveness of options). Their research identified barriers which appear repeatedly in every stage of the decision-making process. These include first of all leadership which can either help to overcome barriers but also poor leadership can create ones; secondly, resources meaning financial capacities but also information, technology, staff expertise and time (Moser and Ekstrom, 2010).

Lack of communication and information is another common barrier appearing throughout the decision-making process, followed by values and beliefs which influence people´s perception and interpretation of risks (Moser and Ekstrom, 2010). The limit is defined as ´the point at which actor´s objectives cannot be secured from intolerable risks through adaptive options´. That means that the

adaptive efforts do not provide security from risks, the current objectives cannot be achieved, and the loss of key attributes and components cannot be avoided (Leal Filho and Nalau, 2018).

Limits are often described as being of physical or ecological characteristic such as cyclone, flood. Others, on the other hand, argue that all limits are essentially socially constructed (Leal Filho and Nalau, 2018). This social context of the limits also implies that they could be overcome by societal transformations, in some instances by changes of large magnitude (Barnett et al., 2015). Moreover, the perception of what is limit can diametrically vary among different groups and individuals based on their values. Adger (2008) deals with research on how adaptation limits are constructed by society. He argues that limits have four propositions: the first one is a concern with ethics saying that limits to adaptation depend on the ultimate goals of adaptation which are themselves dependent upon different values and can only be understood in a context. The other proposition is based on knowledge premise that adaptation cannot be limited by uncertainties associated with the future of climate change. The third proposition is concerned with social and individual factors saying that these factors such as the perception of risk, age or social status limit adaptation. The last proposition is that cultural assets are unique in place and time (Adger, 2008).

The dynamic character of limits induced the scholars to distinguish between hard limits where there are no more options and adaptive practises currently available and soft limits where there are no options available but can be in the future by for instance improved adaptation knowledge, changing risk perception or technological innovations. Limits can have different shapes and sizes, being influenced by various contexts such as social, economic, cultural, historical and environmental processes and impacted by the interplay between both private and public sector and institutions. To understand limits to adaptation can be difficult given the changing nature of soft limits when these shifts can mean an increase in options and pathways to deal with the limitation (Leal Filho and Nalau, 2018).

There are different kinds of limits, according to UNEP document on climate change from 2007 (IPCC Secretariat, 2008) barriers and limits to climate change adaptation can be divided to physical and ecological, technological, financial, informational and cognitive and cultural and social. The limits are normally researched within a specific sector, ecosystem or level. Studies focused on

sociocultural limits deal with freshwater, terrestrial, urban and rural areas, human health and human security. Economic limits research frequently is pays attention to food systems, human health and rural areas (Leal Filho and Nalau, 2018). These limits are often linked to insufficient capacity of actors (political, technological, social, financial, or cultural) which prevents them from reaching their objectives, these actors then can either live with the risk escalating loss and damage or transform their behaviour to avoid the risk (Dow, Berkhout and Preston, 2013).

Limits and barriers have in common that both can be found across the temporal and spatial spectrum of adaptation practice (Leal Filho and Nalau, 2018). Although the boundary between limits and barriers is rather fluid some scholars argue that barriers are different from limits because they can be overcome with enough political will, social support, effort, change of thinking, prioritization and related shifts in resources (Moser and Ekstrom, 2010). In that case, the failure to overcome barriers causes the manifestation of limits that leads to maladaptation. Academics also argue that another distinction between limits and barriers is in the quality and durability of adaptation obstacles. In case of barriers, adaptations do not completely prevent the adaptation responses but make it harder to plan and implement adaptation actions (Leal Filho and Nalau, 2018).

Focusing once more on the social context of adaptation limits and barriers governance plays a significant role in influencing the adaptation responses – it can hinder or complicate the adoption of an adaptive option. The governance includes areas such as leadership, power, insufficient knowledge, risk awareness, capacities and resources. To analyse political barriers, it is important to get more acquainted with the social context of the situation. The components of social context are according to the literature collectively shared and strong value systems of society, such as norms, cultural practices, and religious beliefs and then secondly developmental context of the situation (Leal Filho and Nalau, 2018).

4. METHODOLOGY

This chapter is concerned with the strategy of how the research is conducted. First of all, it explains what paradigm or else set of concepts of thought patterns is employed in this research and how the research complies with the criteria for validation. Next section pays attention to research design and method, concretely this research will enhance the qualitative method. Moreover, this chapter

describes which primary and secondary data methods are employed in the research and what way are the data analysed. Lastly, the chapter includes an explanation of the limitations to the research.

4.1 PHILOSOPHY OF SCIENCE

4.1.1 INTERPRETIVIST PARADIGM

Paradigms represent basic beliefs which define the nature of the world whilst these beliefs must be just simply accepted by faith because there is nothing to prove their ultimate trustworthiness. By Thomas Kuhn definition paradigm is an explanatory matrix or philosophical way of thinking (Emig, 1982). Some argue that the most dominant research paradigms are positivist, interpretivist and critical (Kivunja, 2017). This research is based on interpretivist paradigm meaning that it is centred on an individual and it is trying to understand and interpret what the individual is thinking and what meaning he/she is making out of the context. The interpretivist paradigm considers the belief that knowledge is created by the findings.

This paradigm assumes a subjectivist epistemology, a relativist ontology, a naturalist methodology and balanced axiology (Kivunja, 2017). That means that as a researcher I am constructing knowledge socially and the result of the research is based on my own experiences and understanding. Also, I base the research on subjects which I interview and intermingle with. This interactive process is also linked to subjective epistemology. A relativist ontology assumes that the issue studied have multiple realities. During my interviews, I acknowledged that different realities were developing through my interaction with the interviewees. Also, naturalist methodology applies to this research as I gathered data interviews and acted during them as a participant observer. Balanced axiology means that the research interprets values of the researcher but is at the same time aiming to balance the findings (Kivunja, 2017).

In my opinion, the researched topic of this thesis requires that it is acknowledged the importance of human behaviour and decision-making from the actor´s own frame of reference. Also, the decision-making and adaptation responses to climate change are exponentially influenced by the context, environment, different conditions and settings. Interpretivist Paradigm validates this above-

mentioned assumption. Interpretivist Paradigm also determines the research methods used and the way the data are analysed.

4.1.2 CRITERIA FOR RESEARCH

Validation Criteria of interpretivist research are linked to trustworthiness and authenticity. There are four of them: firstly, the criterion of credibility is concerned with how the findings align with reality constructed by the researcher and participants (Kivunja, 2017). As a researcher, I was taking this criterion into account and was trying during the analysis to enhance the phenomena of interest to align as much as possible with the participants´ view. However, only the participants can legitimately judge the credibility of the interpretation and results.

Secondly, the criterion of dependability is testing the ability to observe the same outcome under similar circumstances. Also, this criterion concerns if multiple tools for data collection and analysis (triangulation) are used (Kivunja, 2017). On account of this criterion, as a researcher, I have to admit that the results could have been different if the same study was conducted for the second time because the context is constantly changing but by using of multiple tools for data collection I have tried to assure the research´s replicability.

Then the criterion of confirmability refers to the ability of the research to be confirmed by the others in the field (Kivunja, 2017). As the research is using the qualitative method the researcher employs subjective perspective on the issue. To ensure confirmability I was precise by checking the data used several times and also was including an opinion of a second person – my supervisor.

Lastly, the criterion of transferability test researcher´s effort to provide enough contextual data so the readers can relate those findings to their own contexts (Kivunja, 2017). To ensure this criterion to be valid I have tried to explain thoroughly the context in what research took place in order for the results to be transferable.

4.2 RESEARCH METHODOLOGY

The research method can be described as a strategy which leads to an assumption about the research design and data collection. For this research a qualitative method was adopted, which determines how the data are collected and analysed and how representations can be derived from the data.

4.2.1 QUALITATIVE METHOD

As interpretivist paradigm aligns to methods that will analyse qualitative data it also was chosen as a relevant methodological approach for this research. Also, social sciences belong amongst the scientific disciplines which are not so easily quantifiable when we compare it to for instance to mathematics, biology or physics which lend themselves more easily to quantification (Guba, 1994). Qualitative research seeks to discover issues about the problem given that there is very little known about the problem and its different dimensions. Qualitative research present data as descriptive narration interpreting phenomena in its natural setting. Another specific aspect of this method is that it uses inductive approach, that means that the design is evolving during the research, the hypothesis is not needed in the beginning and the outcome is changing according to researcher´s and participants values constructing multiple realities which are dependent on context. Data are analysed in relation to the particular theory and findings discussed in relation to existing knowledge.

4.2.2 RESEARCH DESIGN: CASE STUDY

Strategy Research design is a concern with the logic and flow of the systematic processes, it is describing how the study will be conducted. Case Study strategy was chosen as a way how to do this research answer question through an investigation of a series of different evidences from case settings. It is interpreting the actions of subjects as a single group, in this case as a specific sector – the hospitality industry. Ritchie and Lewis (2003) see the features of a case study as being "multiplicity of perspectives which are rooted in a specific context". The case study can be also event bounded in time and place. In this case, the time and place limitation of the study is Cape Town and event of water scarcity from 2017 up until now. Merriam (1998) describes four characteristics of a case study: particularistic, descriptive, heuristic, and inductive. Particularistic characteristics means that the research deals with one event, process or situation. Descriptive refers to the extensive number of details relating to the phenomena. This study specifically provides a variety of participants´ perspectives on the research issue and a rich set of information. These two previously

described characteristics are heuristic because they advance understanding of the issue. Inductive is concerned with the form of reasoning to emerge findings from the data.

4.3 DATA COLLECTION

4.3.1 PRIMARY DATA

Primary data is information which is gathered by a researcher from first-hand sources. For this study was gained primary data from e-mail conservations, observation, conversations, and interviews.

4.3.1.1 PARTICIPANT OBSERVATION

Participant observation enables the researcher to describe existing situations by actively looking, informal interviewing and writing detailed field notes. Moreover, it allows the researcher to learn about the activities of the people included in the study in the natural setting by observing and participating (Kawulich, 2005) I have spent six weeks in Cape Town working on the research, during my time there I have several opportunities to talk to locals about the last years drought and observe the water saving measures employed among businesses and in households. I could see many measures implemented primarily in bathrooms, but also information signs communicating water saving tips in many public places, rainwater recycling systems built in different households. Thanks to this I was more familiar with the context and circumstances of the situation around water crisis when I was undertaking the interviews with the hospitality industry and could ask more relevant questions.

4.3.1.2 SEMI-STRUCTURED INTERVIEWS

To structure the interviews, I have developed interview guide containing nine questions, whilst the premise was that I will use it as a tool to instruct the direction of the interview but also there will be space for follow up questions to get a deeper insight in the problematics. That means there were pre-planned core-questions for guidance so the same areas were covered with each interviewee but I also elaborated further on some of the topics during the interview. Each of the questions is linked to the research question and theory. Questions were formulated so they are open and leaving space for interviewees to answer in their own thoughts and original information. Also, I was aiming to put

questions in such an order which will imply a natural flow of conversation. The reality was however different in many cases depending on the situation I was in some instances asking many follow up questions and changing the order of the questions. The interviews took between 20 and 60 minutes.

4.3.1.3 SAMPLING: SCOPE AND CRITERIA

The scope of this project is the city of Cape Town and hotel industry, specifically. The aim is to analyse the tourism industry more on a local, regional scale than on an international scale when concretely Cape Town is coastal, water sensitive location. The research is focused on the hospitality industry, therefore the functioning of the specific type of accommodation. There are no distinctions between domestic tourism, inbound or outbound tourism impacts. The research is dealing only with a sector of accommodation, then that excludes other activities and services such as catering, transport, leisure activities and various type of shopping.

This research is based on purposive sampling represents which relies on the judgment of the researcher when it comes to selecting the subjects which are part of the study. In the case of purposive sampling, the sample tends to be quite small and is not representative of the population which however does not represent weakness for qualitative research. It is a sample of particular characteristics of the population that are of interest to the research.

The project includes qualitative interviews with twelve accommodation facilities. The aim was to select facilities which differ in sizes and locations, processes and functioning under different conditions to have a more representative sample. First of all, I have got inspired by a list of supporters of Responsible Tourism Cape Town marketing initiatives which assumed that these facilities are concerned with sustainability and environmentally friendly processes. Else I have used the website of the Southern Africa Tourism Services Association (SATSA) to generate a list of accommodation enterprises in the city. Lastly, I used the browser to find establishments which are in the proximity of the place of my stay to select that ones which will be easy for me to reach and also, I have searched for facilities in the different neighbourhood of the city and of different star ratings.

The aim was to interview fifteen facilities – five backpackers, five three-star hotels or guesthouses and 5 four-five star hotels to include in the research facilities which employ different operations and

deal with a different number of guests. Otherwise, I was trying to interview proportionally facilities located in different neighbourhoods of the city. In the end, I have interviewed five backpackers, one three-star hotel, one guesthouse, and 5 four-five star hotels. The reason for that was that it was easier to reach management in small establishments such as backpackers and then the high-end facilities have established specific sustainability policies and were more keen to communicate with me about them. Also, one person from management told me ´the three-star hotels don´t have so many policies, also their operations are limited so they do not think that to interview them would be beneficial for my research´ (pers. communication, 2019). After I explained that I want to include a diverse sample of accommodation facilities they agreed to be interviewed. Overall, I have contacted approximately 80 establishments from which I got 12 positive answers and made an appointment for an interview.

4.3.1.4 PARTICIPANTS

The following table gives brief information on the twelve facilities included in the research. The persons I have interviewed were either general managers, owners, maintenance and facilities managers, assistant managers, marketing and digital media managers, chief engineers or sustainability managers.

Name of the facility	Interview person/people and their position/s	Description of the facility
The Backpack Hostel	Lee Harris, manager and co-owner	It is South Africa´s oldest backpackers, established in 1990. It is part of Fair Trade and it is situated close to the city centre. It can accommodate 108 people in 11 room types.
Green Elephant Backpackers	Howard Richman, manager and owner	It is situated in the student area of suburbs called Observatory since 1994. The facilities include 3 houses with single, double and en-suite rooms, five dorms and camping grounds. It also has a swimming pool.
33 South Backpackers	Natasha Mlunjwa, manager	It is situated in Observatory and can accommodate around 35 people. It offers dorms or private room either with or without en-suite bathroom.
B.I.G. Backpackers	Milou Staub, general manager	It is located in Green Point close to tourist attractions of Table Mountain and V&A Waterfront. It has single, double, triple, dormitory and family rooms; complimentary breakfast and swimming pool.

Once in Cape Town Backpackers	Eleni Good, deputy general manager	The backpackers is located very close to the city centre. It has back self-catering kitchen and meditation garden. Breakfast is served in Yours Truly - their in-house cafe. Every room has en-suite with private bathroom (even dorms).
Oxford House	Alvin Arnardu, assistant manager	It is a guest house located in Green Point which offers Luxury Studio Apartments with kitchenettes.
Vineyard Hotel	Justin Exner, group digital manager	The hotel is located in the suburbs Newlands and has 8 acres of garden. It attracts visitors on a variety of dining options, fully equipped fitness centre, spa, and multiple meeting and event facilities.
The Westin Cape Town	Ross Baines, director of marketing; Andrew Gartshore, chief engineer	The hotel is situated close to the V&A Waterfront and located adjacent to the CTICC (Cape Town International Convention Centre). It has a spa, gym, and an outdoor pool.
Southern Sun Waterfront Cape Town	Peter Gibson, facilities manager	The hotel is located in Waterfront. It has 537 rooms, a coffee shop, beauty salon, day spa, gym, swimming pool, and a restaurant and bar.
Hotel ONOMO	Mynhardt de Jongh, general manager	The hotel is in one of Cape Town's oldest building, in the city centre. It offers 165 bedrooms, office facilities, a restaurant, a cocktail bar, an outdoor pool, a sauna, a fitness room, and laundry service.
Hotel Verde	Dawie Meiring, systems & sustainability manager	Hotel Verde Cape Town Airport offers 145 rooms, conference and events facilities, gym, restaurant and bar and a natural, green setting just 400m from Cape Town International Airport.
President Hotel	Ben Kleynhans, maintenance manager	Hotel President is located in Sea Point. It has an infinity pool, restaurant, bar and rooms with semi self-catering kitchenettes.

Table 1: Description of the participants of the research.

4.3.1.5 DATA ANALYSIS: THEMATIC THEORY

For data analysis was used a thematic theory which is widely used as a theory for qualitative method and analysis of interviews. This theory is based on coding and theming which is granting structuring of extensive qualitative data and enables smooth classification and addressing of the theoretical concepts used in the thesis (Jordan & Gibson, 2004). This process of a grouping of different themes

and patterns throughout data is helping to avoid describing in order to use more analytical angle. The researcher must be very well acquainted with the analysed data, then the thematic analysis is providing a tool for him to research these data in a comprehensive way and make judgments about coding, theming, decontextualizing, and recontextualizing the data (Stark & Trinidad, 2007).

I have structured my data analysis on this principle, however, I did not during thematic analysis focused on the counting or frequency of the words but used it for the identification of the clear and understood ideas. The qualitative interviews were recorded in order to have the possibility to analyse the data into detail. Firstly, I have transcribed some interviews or important parts of the interviews and listened to them repeatedly. Secondly, I have written down notes from each of the twelve interviews identifying important topics, then specifically adaptation responses of any nature and also limits and barriers to decision making for climate change adaptation.

In the first part of the analysis, I identified what adaptation responses were implemented by the hospitality industry. Thanks to the thematic theory I structured the data in a way recognising patterns – the adaptation responses used by all subject I have interviewed. Then I have analysed what nature of adaptation responses the industry employed. Afterwards, I have paid attention to recognition of limits and barriers to these adaptation responses. I divided them into different categories depending on their nature (financial, informational and cognitive, cultural, economic, political and ecological). I was then further analysing the barriers and limits which were mentioned by multiple interviewees, therefore, these which were a threat to several entities and potentially to the whole industry. In some cases, I also used during the analysis information on the barrier or limit even though it was mentioned only by one interviewee because I considered it to be significant. During the analysis of limits and barriers, I was also reflecting on the macroeconomic data on tourist arrivals, trends, and patterns which I have obtained - linking them to the relevant issues.

In the last section of the analysis I recognized opportunities which were based on the data from the previous sections of the analysis. I investigated the nature of adaption responses implemented, recognized those which were not implemented and considering limits and barriers I came up with a series of opportunities for the hospitality industry in Cape Town.

4.3.2 SECONDARY DATA

The secondary data collection is based on systematic literature review, in order to, obtain macroeconomic data on tourism flows, water consumption and water footprint of the tourism industry in a specific time period: 2017 – 2018. Also, part of the literature review is collection information on previous water management practices of the hospitality industry in Cape Town and the limits and barriers the industry had to face. Furthermore, the secondary data includes different visuals supporting the analysis part of the thesis and literature review.

4.3.2.1 E-MAIL CONVERSATIONS

I have contacted authorities and research institutions which focus are on the tourism industry and water consumption in order to obtain data on water use of the hospitality industry specifically and changes in tourist arrivals and trends and patterns before, during and after the crisis. I have contacted concretely Centre for African Cities and Future Water Institute at University of Cape Town, Southern African national trade association for the hospitality industry that include accommodation and catering sectors FEDHASA, marketing initiative Responsible Tourism Cape Town, Water Institute of Southern Africa (WISA), non-for-profit community initiative Water 4 Cape Town and the official tourism, trade & investment promotion agency for Cape Town and the Western Cape Wesgro.

4.4 LIMITATIONS

The limitation of the selection of the sample of interviewed hotels lies in the premise that the facilities which wanted to be included very often were including sustainability operations in their agenda as a unique selling point and wanted to disseminate their knowledge and best practices. I assume that the hotels which were struggling during the crisis or did not manage to employ successful strategies were not so keen on be included in the research.

I have received a negative answer from three hotels, in many cases, I was let to be waiting for the management to contact me, which they never did. This lack of direct contacts and connections on the hotel, backpackers and guest houses´ managers which restrained me from doing more interviews. Also, my research could have been more thorough if I have not been limited by time which I could spend in Cape Town because I was at the same time covering my expense.

Another limitation is my capacity as a researcher and interviewer. Because some parts of the interviews were very technical and concern with water engineering I could not participate in the interview backed up with sufficient knowledge. Furthermore, as a foreigner dealing with affairs of the city which is located in Africa, a continent of very different culture and state of affairs than Europe I believe that my different cultural perception influenced how I was leading the interview and the questions I asked.

There is not enough data on water consumption and the tourism statistics available to allow to research tourism as an economic phenomenon as a whole. Therefore, the research is more focused on the qualitative interviews and it does not have the ambition to present a picture of the whole industry in the city of Cape Town. But rather it is aiming to research specific trends and situations individual hotels undertook during the crisis as short or long term solutions.

5. ANALYSIS

5.1 NATURE OF ADAPTATION RESPONSES TO WATER CRISIS

This section of the analysis is looking at the adaptation responses implemented by the twelve interviewed hotels and analysing their nature. Through identification of common patterns and practices, the analysis is looking closely into responses employed to mitigate direct water use but also the indirect water use, how they outsourced food and how they worked with suppliers during the crisis. Moreover, this part of the analysis research the collective adaptation responses hospitality industry undertook.

5.1.1 PLANNING OF WATER MANAGEMENT

Each of the hotels interviewed implemented series of policies which were sometimes based on a written document, some on already existing sustainability strategies or on procedures which are already in place (Westin) but more often it was just series of unwritten considerations. The hotels, the guest house, and backpackers also considered strategies for the worst possible scenario – case when they would be completely cut off the municipal water. Considering the planning process, some of the

enterprises argued that they have implemented all possible measures: "*I think our future plan is just continuously working the way we are. Because there's only so much you can do* (Once in Cape Town Backpackers)."

Timeline of when facilities started to plan and react differed rather significantly, especially some of the big hotels started to react much sooner because they were included in more municipal meetings concerning the whole city´s water management. They have got better access to information than smaller establishments. Backpackers and the guest house started to implement actions only around October 2017 (Green Elephant Backpackers) or even at the beginning of 2018 (Once in Cape Town, Oxford House), hotels were planning water management actions since 2016 or beginning of 2017. Therefore, whilst hotels could already have prepared communication campaigns and emergency plans before the crisis hit we can argue that their ability to react and adapt was much better. For example, hotel Vineyard had prepared a communication campaign towards their guest before the city had released the Day Zero campaign, therefore, they were trying to reverse the reputational barrier the media campaign caused immediately. In comparison, small facilities had less time to plan such initiatives so we can say it hit their reputation much more as there was nothing on their website straight away after the campaign was released (33 South Backpackers).

To draft a specific document dealing with emergency and action points were not very common among facilities. But they had on mind actions they would undertake in case the restrictions get even more strict. Among these actions were, for example, pumping up tanks with bottled water (B.I.G. Backpackers), switching off showers for a particular time of the day (Once in Cape Town Backpackers) or to have a big number of water bottles in their storage (Green Elephant Backpackers, President Hotel). Some facilities are planning to develop more their alternative water source systems, such as greywater treatment plant (Southern Sun). Hotel Vineyard was actually one of the only ones who developed a plan with different scenarios recognizing critical areas, plan to look after the employees and secure the level of services. Other hotels have an underground water source which makes them protected from potentially bigger water crisis (Westin, Southern Sun).

Majority of the establishments is keeping the water saving practices in place even by now. Some to the same extent, but most of them loosen some measures a little bit. However, they even keep down

to in between 25 - 40 % of water use in comparison to the state before the water scarcity event (ONOMO Hotel, Green Elephant Backpackers, President Hotel, Verde). The facilities claimed that once you change your mindset and manage the behaviour change amongst your guests you are able to keep the water use down:

"*When the water restrictions first began Cape Town was using one point three billion litres of water a day. Through the restriction process, we are down to 550 million litres so as long as the mindset stays there we are all right* (Westin)."

Also, according to literature water saving in the tourism industry can be achieved without comprising comfort of the guests. That could be managed through the implementation of technologies but also through behavioural change of guests and staff while maintaining modern hygiene standards (sustainable water man. and purification, p. 22).

5.1.2 MONITORING OF WATER USE

Monitoring of water use was in all cases part of interviewed establishments' operations. However, they differed in how precise the monitoring was. All facilities claimed that they monitor their water use and that at least on a monthly basis with a help of the monthly bill for water they receive from the city. The following table shows more specifically if establishments measured their water use more accurately by looking at water used per specific sector of the house (e.g. kitchen, bedrooms, swimming pool, staff rooms) and if they make statistics on guest/night or room/night water use.

	Monthly water bill	**Water use per sector of the house**	**Statistics per guest-night or room-night**
B.I.G. Backpackers	Yes	No	N/A*
Backpack Hostel	Yes	No	N/A*
Green Elephant Backpackers	Yes	No	Yes
33 South Backpackers	Yes	N/A*	N/A*
Once in Cape Town	Yes	N/A*	N/A*

Backpackers			
Oxford House	Yes	No	N/A*
Westin	Yes	No	N/A*
Verde	Yes	Yes	Yes
Vineyard	Yes	Yes	N/A*
President Hotel	Yes	Yes	N/A*
ONOMO Hotel	Yes	N/A*	Yes
Southern Sun	Yes	Yes	N/A*

Table 2: Different techniques of monitoring of water use.

** In these instances, the study lacks information on if the facility does or does not monitor the water use in this form. That originates from the open for of question during the interview: ´How do you measure your water use?´*

According to data in the table, we can see that the facilities did not in many instances employed a very precise system of measuring or used statistics on guest-night or room-night water consumption. We can argue that to recognize the water use per sector and different operations in the hotel can improve facilities´ ability to recognize hotspots of water use and then employ appropriate measures to mitigate its water footprint. It is also easier to recognize leaks in case you measure water in different sectors and zones. According to the European Commission´s document on best environmental practice in the tourism appropriate environmental indicator of water consumption is per guest-night (Styles, Schönberger and Galvez Martos, 2013).

The literature on water monitoring recommends measuring water use daily, weekly, monthly or at least on a yearly basis whereas the comparison of average water use over an entire year helps to smooth out any seasonal variability (Styles, Schönberger and Galvez Martos, 2013). Furthermore, it claims that water measures per sector or zone and also benchmarking can be applied by a facility of any size depending on resources available. However, some establishments still claimed that that size is the criterium which prevents them from more accurate measuring:

"*We are much of a small business to be doing that. We're not like a big chain of hotels that needs to do like: ´We reached this point, should we move on?´ Because we're so small, we just constantly evolve* (B.I.G. Backpackers)."

Only one hotel clearly confirmed that they comply with benchmarking, which was hotel Verde with LEED Platinum Green Building Certification. Backpack Hostel then monitors water regularly for Fair Trade assessment.

5.1.3 ALTERNATIVE WATER SOURCES

This part of analysis deals with alternative water sources used by the interviewed hotels, the guest house, and backpackers. ´Alternative´ in this case, meant all water sources which do not come from the municipal water supply.

All interviewed tourism enterprises implemented some sort of system to use alternative water sources. Especially, among facilities of a smaller size such as backpackers was common to employ rainwater harvesting, to collect water from gutters and after filtration use it for flushing and irrigation. Some facilities were not satisfied very much with the functioning of the grey water systems as they work with low pressure and takes some time to fill the toilets up (33 South Backpackers). Rainwater harvesting, however, was not a preferred water saving technique among the hotels and that was caused often because the building was old and had not appropriate plumbing infrastructure to employ this system.

"*It´s something we have look out for new buildings, for old properties like this you need to re-plumb the building literally. You can recycle the rainwater completely but the cost of doing that really wouldn´t be worth it unless there is no water. But you can recycle it to the point you can happily use it for showers, washing and stuff like that, but not drinking* (Southern Sun)."

Figure 2: Tank for rainwater collection at 33 South Backpackers.

Most of the facilities employed wastewater treatment system, collecting water from showers and washing machines in tanks and after filtration using it for flushing, irrigation, washing cars or cleaning. According to EarthCheck (2014) use of greywater for irrigation is an opportunity how to reduce impact on critical groundwater supplies, particularly in water stressed areas. Very often facilities asked guests to collect water into buckets during showering, this water was again used for various processes in the hotel. This technique was used mainly in the backpackers where guests were assumed to be more understanding of such a request, less were buckets used in luxurious hotels. According to Vineyard also locals from Cape Town were more keen on the change than people from outside of the city: "*Some people didn't like the buckets, but the South Africans were fine. People from Johannesburg and other areas they didn't have this crisis but Capetonians all knew this stuff it was totally cool.*"

Once in Cape Town Backpackers, Backpack Hostel and President Hotel were the ones amongst the twelve interviewees who decided to drill a borehole. In case of Once in Cape Town Backpackers, the borehole feeds the whole building and also the café located in the same building block.

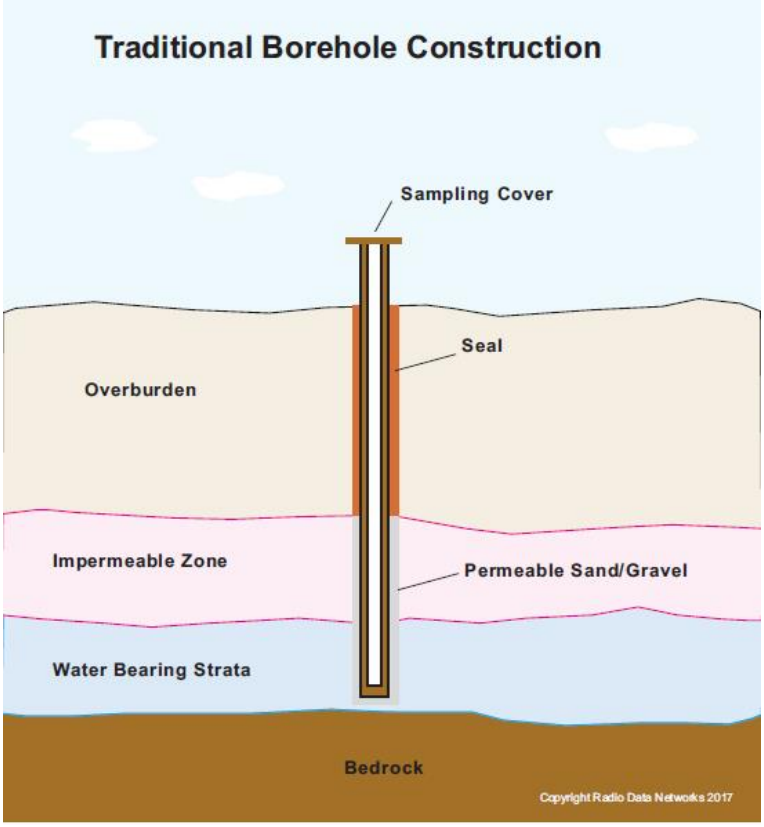

Figure 3: Traditional boreholes are sunk to extract water for drinking and irrigation. Source: Radio Data Network, 2017 (https://www.radio-data-networks.com/solutions/borehole-monitoring-and-security/)

In the following table, we can observe if the hotels, backpacker and the guest house implemented rainwater, wastewater treatment system, or if they drilled a borehole or bought extra water bottles to their storage as precautions during the crises.

	Rainwater	**Wastewater**	**Drilled a Borehole**	**Extra bottled water**
33 South Backpackers	Yes	Yes	No	Yes
B.I.G. Backpackers	Yes	Yes	No	N/A**
Green Elephant	Yes	Yes	No	Yes

Backpackers				
Once Cape Town Backpackers	Yes	Yes	Yes	N/A**
Backpack Hostel	Yes	Yes	Yes	N/A**
Oxford House	N/A**	N/A**	No	N/A**
ONOMO Hotel	Yes	No	No	Yes
President Hotel	No	Yes	Yes	Yes
Verde	N/A**	Yes	No*	N/A**
Southern Sun	No	N/A**	No*	N/A**
Westin	N/A**	No	No*	N/A**
Vineyard	Yes	Yes	No*	N/A**

Table 3: Use of alternative water resources by the facilities.

**All four of these hotels are using groundwater which is located at their properties therefore they did not need to drill a borehole specifically during the water crisis. Hotel Verde and Southern Sun were using this groundwater for reverse osmosis plant to get potable water.*

***In these instances, the study lacks information on if the establishments´ employed these alternative water resources.*

If we look at the table we can recognize certain patterns: it seemed to be easier for small establishments to implement rainwater harvesting systems. We will argue later in the second chapter of the analysis that the barrier for this was the age of the building of bigger hotels where it is more difficult to implement this system. Mostly all of the facilities employed wastewater treatment as an alternative water resource. Also, to drill a borehole was commonly implemented technique, but bigger establishments decided to recycle the groundwater through reverse osmosis plant.

To drill boreholes is a water sourcing technique which makes the facilities less dependent on the municipality water, however, it also entails a series of drawbacks. For example, not all guests like the taste of the borehole water (Once in Cape Town Backpackers), also for some it was a big issue to drill the borehole in the first place - Backpack Hostel needed to go down to circa 120 m. That means that this technique is limited only to the locations where groundwater is available and for some

facilities, this alternative water source is not an option. Furthermore, during the crisis, there was an insufficient supply of the companies drilling boreholes and it was difficult to for the facilities to get hold of them which slowed down their adaptation response.

Figure 4: Borehole cover in the garden of the Backpack Hostel which hardly disturbs the surroundings.

The facilities in many cases outsourced water from springs or from outside of the city´s area. That helped them to secure the water supply but often meant for them extra financial cost. To bring water from springs was besides being time-consuming and physically demanding also costly taking into account transport to the distribution point and employment of extra help to carry the water (33 South Backpackers). Hotels Westin and Vineyard were outsourcing water from outside of Cape Town municipality, concretely from Franschhoek and Eastern Cape same as President Hotel which outsourced water to fill the pool from outside drought-stricken areas. In comparison, Southern Sun started to use filtered salt water for its pool.

Figure 5: President Hotel had to outsourced water to fill this pool from outside drought-stricken areas.

Moreover, the facilities often purchased bottled water which they stored as an emergency supply (Green Elephant, President Hotel, ONOMO Hotel). Some also used incentives to encourage guests to buy these bottles instead of drinking tap water (ONOMO Hotel). However, the facilities should be also aware of the environmental pressures which purchasing of bottled water entails including production and disposal of plastic, energy consumption, GHG emissions, air emissions, and congestion (Styles, Schönberger and Galvez Martos, 2013).

The big project undertook hotel Westin to secure potable water, they built desalination plant working on reverse osmosis principle. It took six months to build the plant including the layout of piping, seeking permissions and dealing with different entities. It is joint investment feeding potable water into three properties: hotel Westin, Southern Sun Waterfront and Southern Sun the Cullinan. This project made the facilities much less dependent on municipality water and secured their supply for times to extreme water scarcity. However, literature stands important drawback for this technique for the hospitality industry which is the high energy intensity. The facilities need to not consider water as an individual cost, rather as a cost linked to energy (EarthCheck, 2014).


Figure 6: Desalination plant working on a principle of reverse osmosis feeding with potable water hotel Westin, Southern Sun Waterfront and Southern Sun the Cullinan.

5.1.4 EFFICIENCY OF OPERATIONS

All of the interviewed facilities employed techniques improving the efficiency of their operations these are mention in the following table. It is important to note, that some interviewees might forgot to mention some of the techniques they implemented so the following table may not give the full picture:

33 South Backpackers	Tap and showerhead fittings, sanitizers, buckets in showers
B.I.G. Backpackers	Tap and showerhead fittings, sanitizers, cover on the swimming pool
Green Elephant Backpackers	Tap (6-7 l/minute) and showerhead (8-10 l/minute) fittings, sanitizers, buckets in showers, top loader of washing machine exchanged for front loader (32 l water saved per load), use of face cloths, stopped using swimming pool, reduction of water pressure, have only indigenous plants in the garden which does not to be irrigated
Once in Cape	Tap and showerhead fittings, sanitizers, only ´small flushing´ option at the toilets,

Town BP	2-minute timer in showers
Backpack Hostel	Tap and showerhead fittings, buckets in showers, took out towels, linen changed every four days, trying to grow only indigenous plants in the garden
Oxford House	Tap and showerhead fittings, buckets in showers, two-option flushing, removed bath plugs
ONOMO Hotel	Tap and showerhead fittings, recommended 90-second showers, linens changed only every four days, reduction of water pressure
President Hotel	Tap and showerhead fittings, sanitisers, buckets in showers, recommended 90s showers, reduction of water pressure by 35 %, use of waterless chemicals for cleaning
Southern Sun	Tap (1,1 l/minute) and showerhead (6,5 l/minute) fittings, removed bath plugs, 3-day laundry cycle, put less towels in rooms, put in face cloths, removed linen from restaurant, growing only low water-using plants, excluded pasta from their menu because it is water intensive
Verde	Tap (1,5 l/minute) and showerhead (5 l/minute) fittings, re-plumbed the hotel to improve temperature recirculation of the water system
Vineyard	Tap and showerhead fittings, sanitisers, buckets in showers, removed bath plugs, covered pools, bought more water efficient machines (washing machine, coffee maker, laundromats, AC), dried up all fountains (just one left for turtles), improved the water infrastructure, took out table clothes, switched of showers in the gym, installed timers in showers, had to stop watering plants or use wastewater for irrigation (65-75 % indigenous plants)
Westin	Tap and showerhead fittings, sanitisers, removed bath plugs, reduction of water pressure, took away hot water from taps so people do not wait for it, paper towels, changing towels and sheets on request, bought more efficient dishwasher, excluded pasta from their menu

Table 4: Technologies implemented to improve efficiency of the facilities´ operations.

All of the establishments changed the tap and showerheads fittings in order to reduce the pressure and flow and therefore water use. According to EarthCheck data (2014) as much as 50 % water use is associated with guest rooms which concern specifically bathrooms. Therefore, all of the water saving measures applied such as tap and showerhead fittings, sanitizers, buckets in showers, use of face cloths, two-option flushing, timers in showers, removed bath plugs are at utmost importance to reduce the overall water use at the facilities. Most of them are based on technological improvements, others are more linked to the behavioural change such as buckets in showers for wastewater collection and removed bath plugs encouraging guests not to use the baths.

Figure 7: Use of sanitizers was widespread during the water crisis, even now they stay in the place. These ones are from hotel Vineyard and Westin.

Some of the facilities needed to close up the swimming pools during the water crisis some took just precautions and kept them running. Among the most frequently mentioned precaution was putting covers on pools to reduce the evaporation of water. According to the EarthCheck Asia-Pacific modeling data (2014) which indicates pools as the major water users, other measures can be implemented. Among these are the improvement of filtration systems, regular maintenance to avoid leaks or consideration of the backwashing schedule to be less frequent.

The establishment was also cautious about their gardens and their planting choice often included water-tolerant plants. According to literature another technique how to reduce water use in the hospitality industry is the development of a dedicated watering plan which takes into consideration reduction of watering during the heat of the day when evaporation is the highest. None of the interviewed specifically mentioned that they developed such a plan.

Figure 8: Hotel Vineyard had to during water crisis stop to irrigate the garden and dried up the fountains except one with turtles.

Some establishments implemented more water saving techniques linked to the variety of their operations such as the purchase of more water efficient machines (washing machine, coffee maker, laundromats, AC), reduction of the materials which need to be washed such as towels and linens or drying up of the fountains. Some needed to undertake actions doing changes on the hotel´s whole infrastructure, such as re-plumbing the hotel to improve temperature recirculation of the water system (Verde).

5.1.5 STAFF TRAINING

All establishments answered positively when asked if they employed any staff training educating employees on water saving techniques. We can argue that differences in the number of employees could influence how big training programme the facility undertook. For instance, smaller establishments often did not employ any regular workshops or meetings for staff: "*We are not a very team here so all knew* (B. I. G. Backpackers)." Hotels, however, seemed to place more importance to staff training. ONOMO Hotel devoted 15 minutes at each staff meeting to education on some particular matter, doing training on daily bases. Hotel Verde was running staff training programme called Avanti (=moving forward) which was also educating staff on what they can do back home to save water. Also, for Vineyard was staff education priority and was first of water management actions they focused on. They tried specifically to explain employees misconceptions presented by media, then they also created a special channel and social media platform for staff education and sent e-mails to employees regularly to update them on the water scarcity situation.

Literature is not giving any data on which type of staff training is more efficient but we can argue that the frequency, intensity, and type of training is dependent on the number of employees and the variety of operations the facility handles. However, the literature claims that staff training is significant in order to ensure water use mitigation because the room cleaning consumes 12 – 47 l/guest-night of water also depending on the water-efficiency of the water taps (Styles, Schönberger and Galvez Martos, 2013). Staff can ensure efficient room cleaning but also the role in influencing guest behaviour is important.

5.1.6 GUEST ENGAGEMENT

One of the big tasks for hotels and backpackers was to manage that guests were on board with the water saving techniques. That was crucial in order to ensure the guests´ satisfaction, therefore keep their business running but also to manage to save a significant amount of water on their property. For example, the amount saved by implementation of guest initiatives and information campaign at Verde Hotel is estimated to be 22 l per guest/night. This happened especially because a guest initiative which was run in the hotel´s restaurant:

"*We were discounting drinks based on whether or not they were using glass and ice. So when you were buying a drink in a bottle they asked you: sir would you like that in a glass and with ice or the water-wise option? It´s already in glass we will ask you to drink it out of it and because we will not need to wash the glass for you and put there ice we will give you two Rand discount.*"

The water-wise option meant that there was no washing of glass and no ice which saved 214ml per drink.

Importance of guests´ behavioural change lies not in the area of water management but it may increase guests´ motivation to behave in a more responsible manner across a range of environmental pressures. These pressures according to the European Commission´s document on Best Environmental Management in the Tourism (p. 536) include also recycling, energy reduction, waste generation, reduction in usage of their cars and selection of environmentally responsible products. Then long-term environmental benefits may have bigger impact in comparison with the direct environmental burden of tourists´ stay.

Some of the facilities decided to use campaigns which were already running by the city government and which were primarily targeted on residents. One of them is *´Every Drop Counts´* and another one is *´If it is yellow, let it mellow´* which encourages people to save water during flushing. Other hotels created their own campaigns by for example using mascots such as little yellow dug (Vineyard) or did video series informing about water saving measures implemented by the hotel (Westin). Nowadays hotels in many cases stopped with the ´water crisis´ campaign to calm the guests down and show that Cape Town is open for business (Westin), they also used the opportunity to switch from water management narrative to sustainability narrative in general with slogans such as ´help us continue our sustainability journey´(Vineyard).

Figure 9: Information campaign using yellow dug as a mascot run by hotel Vineyard to ensure guest engagement.

By a rule, interviewees from backpackers were very appreciative for their guests (Once in Cape Town Backpackers, 33 South Backpackers, Green Elephant Backpackers, Backpack Hotel). However, the facilities argued that there is still a need to educate their guest on some level because of existing differences in cultural understanding and gap in knowledge. It seemed that guests staying in backpackers were more resilient and it was easier to educate them on water saving techniques. In some instances, they even helped to collect rainwater into buckets (33 South Backpackers). Green Elephant Backpackers indicated that there was a difference in perception among South Africans and foreigners: "*Foreign guests were fine with it. For them, it was like coming to Africa a bit of an experience they quite enjoyed it. South Africans didn´t like it much. They were like we do this home why we also need to do it in a place we pay to stay at.*" Also, according to the pattern from interviews, we can say that to change the mindset of guests at hotels of more luxurious operations were more of a challenge because they were more used to comfortability.

But to avoid generalization the hoteliers by their words had to deal with all type of guests, some were more adaptive some less. They used different tactics to manage guest engagement. For instance,

Westin used an incentive giving guests points for not requesting changing linens and towels. The strategy which was commonly perceived as efficient in educating of the guests was to inform them as much as possible when they arrived by personnel at the front desk (33 South Backpackers, Once in Cape Town Backpackers), hotel Verde informed them even before – in the shuttle on away from the airport to the hotel. Furthermore, each of the facilities put some signage on which was mostly located in the bathrooms – close to taps and showers.

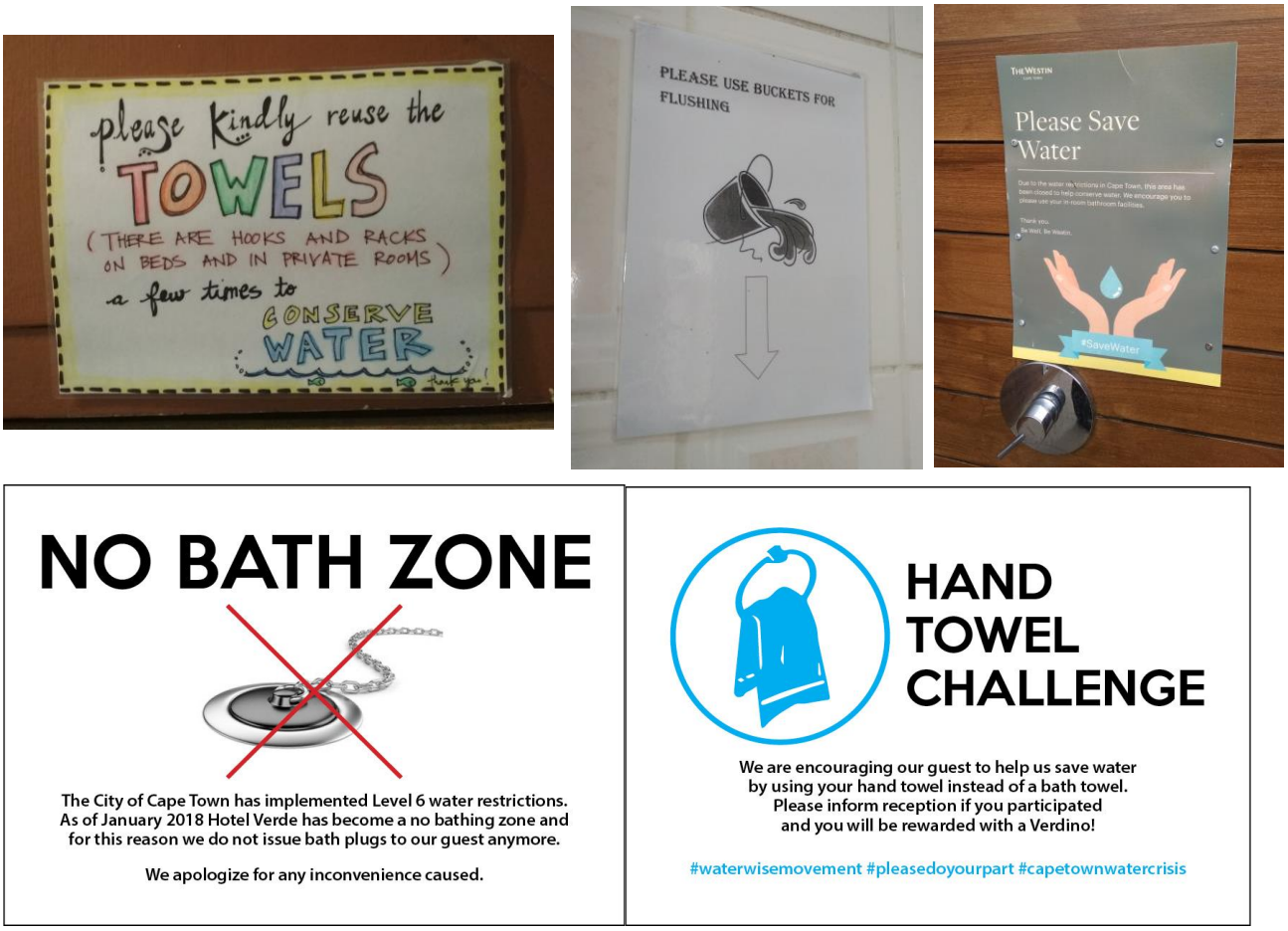

Figure 10: Signage used by 33 South Backpackers, Green Elephant Backpackers, hotel Westin and hotel Vineyard in the bathrooms in order to inform guests about water saving techniques.

Beside signage facilities were also involved in active information campaigning to their clients, for instance by sending newsletters, pre-arrival e-mail, posting on social media or using IBM platform or internet bot to answer questions on current situation and water saving precautions implemented (B.I.G. Backpackers, Green Elephant Backpackers, Oxford House, President Hotel, Vineyard,

Westin). Green Elephant Backpackers was also holding guest workshops to inform guests on the water crisis. Besides that, facilities implemented other small initiatives such as changing the password of WIFI to 87l (back in November 2017 was 87l water use restriction per person per day) or putting guest tags on towels to avoid unnecessary washing (Green Elephant Backpackers). The message was passed on the guests in the way to more information than enforce (Verde). ONOMO Hotel used more direct strategy by asking guests to sign memorandum upon arrival stating that they acknowledge water crisis conditions and will try to minimise their use of water resources.

Others used a method of visualisation to make guests aware of how much water they can use (Backpack Hostel). For instance, at Green Elephant Backpackers they removed the bottom of basins and put a bucket under the basin to collect water for guests to see how much water is flowing through when they use the taps. This backpackers also used a special tank to be used just for brushing of teeth in order to avoid people having taps on during the teeth brushing. Else, hotel Vineyard put in the interior of the hotel art installation about water and hotel Westin used visualisation to show dam levels last year comparing them to this year and Day Zero (circa 15 % of the water in dams - water level which cannot be used anymore because of sediments).

Figure 11: Green Elephant Backpackers removed the bottom of basins and put a bucket under the basin to collect water in order to visualise for guests how much water is flowing through when they use the taps.

On the other hand, guests can also be a driving force of adaptation responses of the hotel. ONOMO Hotel´s manager remembered one such a guest: "*A guest gave me such a lot of hustle one morning. She said I stayed and there is nothing in the rooms. ... I immediately designed the posts in 48 hours I printed it and put it up, sent her the pictures and she became our number one client.*" Furthermore, guests were frequently directly involved in collecting water from showers using buckets, or they were collecting just the cold water in showers before it turned to be hot (Oxford House). This water was then used for flushing or irrigation.

5.1.7 WORK WITH SUPPLIERS

Among the suppliers which were the most affected by the water scarcity, the hoteliers named laundry companies. However, the work contract with these suppliers hardly ever changed. The facilities argued that the suppliers are businesses on their own which functioning hoteliers cannot significantly influence:

"*Everyone was on board in the same situation. So, it's not like we were making our laundry alert that there was a drought and they need to do less water usage. Also, they had measures in place to keep themselves afloat during that time* (B.I.G. Backpackers)."

In one instance the hotel switched to a different company because they were implying with environmentally friendly practices (ONOMO Hotel). But overall, the interviewed did not seem to be very concerned much about where their suppliers source water or if they employ sustainable practices. We can argue that establishments underestimated their indirect water use impact when they did not investigate more into the water footprint of their suppliers. According to literature tourism organizations can influence the indirect impact by selecting suppliers with better environmentally friendly performance and by measuring all stages of their supply chain (Styles, Schönberger and Galvez Martos, 2013). Through this policy leading to the establishment of long-term viable suppliers, the facilities can also gain significant benefits such as mitigation of business risks.

5.1.8 COLLECTIVE INITIATIVES

The establishments were in many cases very open to helping each other, by sharing knowledge or by physical help – offering water from their tanks (Once in Cape Town Backpacker). In relation to this, the International Tourism Partnership´s (ITP) document on Water Stewardship For Hotel Companies (2018) is stressing out the importance of reporting and sharing information among the hospitality industry. According to ITP, this helps to benchmark and to identify collective challenges in addressing water issues in the hotel sector.

Reporting and sharing of information among the Cape Town´s hospitality sector happened during the water crises privately on an informal basis or collectively at official meetings. According to interviewees there was held one conference of the whole tourism industry organized by FEDHASA (=Federated Hospitality Association of South Africa) and Cape Town Tourism. The facilities argued that these meetings were useful because they provided the companies to share the best practice on water management and to name what water saving is achievable (Verde). Besides that, there were other meetings held for the specific sector, for example among backpackers in one of Cape Town´s suburbs - Observatory (Green Elephant Backpackers). We can argue that this cooperation among backpackers in Observatory helped concretely 33 South Backpackers to stay open during the crisis because neighbouring backpackers let their guests shower on their property when 33 South had a restricted water consumption by domestic tariffs.

An important role in sharing information had also the city government which was publishing data on the water level of the dams and on water saving techniques which are implementable in businesses. On the city government´s website were also published posters and other informative materials businesses could download and disseminate at their properties to inform their guests (Once in Cape Town Backpackers, Southern Sun, Vineyard). Therefore, the city government not only helped to spread knowledge among hoteliers but also provided them with materials which could help them to employ behavioural change among their guests.

5.2 LIMITS AND BARRIERS OF ADAPTATION RESPONSES TO WATER CRISIS

Hardly any of the issues hoteliers raised can be perceived as hard limits which are those where there are no more options for adaptive practices currently available. Much more common were soft limits where there are no options available but can be in the future and barriers which could be overcome with the support of political will, social support, or change in thinking, prioritization, and shifts in resources (Moser and Ekstrom, 2010).

5.2.1 POLITICAL BARRIERS

Commonly mentioned constraint among interviewed was the capacity of the city´s government to communicate and resolve issues which the businesses were dealing with. One concrete example is the situation in which 33 South Backpackers got themselves:

"*So, then it hit us very hard in October 2017 the unfortunate part of that was that previous owner of the backpackers ran the backpackers on domestic tariffs. But then as a business, it needs to be on commercial tariffs. So, what happened is water bill went so high and we're like, we're not understanding this, but then invest a little bit previously to that, I had actually tried to conduct the city of Cape Town to get an exemption since I was a business. ... Then the city of Cape Town limited our water to 350 liters. That's enough for four people, you know, in a normal household. And I had full backpackers.*"

Backpackers 33 South were with these 350l running a business accommodating circa 35 people for some time. They have not managed to resolve the issue with the City which was according to the backpackers very difficult to get hold of. However, one thing is the not adequate capacity of the city to communicate upon issues the other the backpackers´ responsibility to comply with the right tariffs which I can argue could have been resolved much earlier in the past.

ONOMO hotel among others also claimed that the provision of information from the city was inadequate and also that they provided posters about water saving techniques for businesses too late and in not politically neutral form before they were warned to correct them. That meant that hotels needed to either created their own materials or they did not use any and therefore their adaptation was limited. According to literature the government´s role in climate change adaptation includes besides delivering adaptive actions and mainstreaming adaptation into existing policies also building

adaptive capacity. This area covers the provision of the tools, information, and support to people who then can make timely and efficient adaptive decisions. We can argue that the Cape Town government could handle this role better.

Nearly all of the facilities felt that the rise of water in bills which was set by the City simultaneously with water restrictions was a big shock and financial constraint to their functioning. The facilities argued that the City should of consider better impact which can do both water restrictions and increase in water bills:

"*The city of Cape Town itself: everybody needs to drop down water consumption. (..) So we had about a 50 % reduction in water consumption but at one point we saw a 200 % increase in cost of water. So even though we drop off a 50 % consumption our water bill stayed the same. Once again the city of Cape Town not understanding how the source-demand calculation leads towards their policies they need to enforce during the water crisis* (Verde)."

Therefore even though the facilities needed to invest in the implementation of water-efficient operations, guest initiatives and alternative water sources they were paying the same water bill. That was a big financial shock for the industry which threatened its viability and was not compensated by any help from city´s government in a form of financial incentive or any other (33 South Backpackers, Green Elephant Backpackers, ONOMO Hotel, Verde, Westin).

According to the interviewed businesses the city could manage better the timing of the water restrictions. For one, according to the facilities the city put in place the restrictions too late in 2017, after two winters of bad rain. Some argued that if the city reacted earlier the whole water crisis situation could have been avoided in the first place:
"*In March 2017 if the council reacted a bit earlier and put in restrictions in case we had a bad winter we would be fine. Both local and national government behaved very badly. It was a crisis which was caused by the weather yes but it was also a crisis because the government failed* (Green Elephant Backpackers)."

Secondly, the establishments´ opinion was also that the city loosened the restrictions to Level 3 too soon. Other, however, opposed by pointing out how the situation is a double-edged sword: for one the city wants to save water but also to get money from water bills which are a significant financial resource for them, so they encourage the water consumption now. We can argue that this assurance of budget for the City can allow them to undertake more adaptive actions for example investment into alternative water resources to ensure better resilience of the city in case the water crisis hits again.

The city´s reaction to the water crisis was also arguably limited by internal political struggle:

"*At the same time, the city was having a fight with its own mayor. She was behind the Day Zero campaign. I supported her on that. They were having an internal political struggle and were trying to get rid of her at the same time. So, the city was a bit distracted during the water crisis* (Green Elephant Backpackers)."

Furthermore, according to establishments, it was not clear who is supposed to be handling the crisis. The cooperation between the national government and municipal government was problematic because they are run by two competitive political parties, the former by African National Congress (ANC) and the later by Democratic Alliance (DA). Also, the responsibilities on water management are conflicting, the municipal government is responsible for running the operations and water management of the area, but the national government is the owner of the water resources (ONOMO Hotel, Green Elephant Backpackers, Verde).

According to some, the city´s government should have been more active in securing alternative water resources such as desalination for the city and also managing differently allocation of resources among different sectors, such as agriculture, businesses and domestic users:

"*The farmers had used three times more than what they should have used. They could stop that long time ago. It was ridiculous the way this was handled could have been much better. Desalination. They started with the project - what was told ten years ago never happened. They started to build the place a week before the D-day and now is it in operation? No, it is not* (ONOMO Hotel)."

Moreover, the city was not able to handle leakages in their infrastructure, which according to the hotels does not give a very good example to the other city´s sectors (ONOMO Hotel, Westin). Other significant threat and constraint which originates in the city´s poor governance is the insufficient number of distribution points (only 200 of them around the city): "*Our biggest problem probably would have been not so much the water but staff. If they turned the taps off people would need to queue for 24 hours to get the water, we would end up not having any staff* (Southern Sun)."

Another constraint the facilities experienced was the limitation given by the location they reside at. Yet water was unofficially secured for the CBD (central business district) the other areas and suburbs would have been cut off the water in case of drought which gave disproportionally bigger risks to hotels and backpackers located outside of CBD (Green Elephant Backpackers, Southern Sun, Once in Cape Town Backpackers).

Hotels were furthermore constrained by regulative issues such as the need to seek permissions of too many entities in order to implement alternative water resources:

"*So for us to use the water we needed to seek permission, so once the council was involved then it wasn´t pure water it was sea water so you needed to get environmentalists, then you need to seek the permission of Department of Water and Sanitation, they wanted to be involved. We also needed to get involved the Coast and Oceans because you´re discharging the sediment into the water, you need to check what is the impact on the ocean. (..) It was a laborious process* (Westin about the installation of the desalination plant)."

As a very significant barrier establishments perceived the city´s legislation obliging them to use municipal water therefore they were not allowed to be independent on the municipality by the usage of alternative water resources and boreholes (Once in Cape Town, ONOMO Hotel, Verde):

"*Unfortunately, the legislation in Cape Town is so strict so as soon we start to produce our own water and the guests are paying us for the stay in the hotel case could be made that we are charging*

them for the water as well. There is legislation which specifically has been put into to protect the municipal sources from anybody else producing water and selling it to somebody (Verde)."

The facilities manager of Southern Sun, however, argued on this account that the city must be concerned with the groundwater depletion which could be caused by the over-usage of water from boreholes. He gave as an example situation in Namibia which experienced this scenario: "*In Namibia, they practically turned it into a desert by taking water out of the ground. There were areas which were green where the water was they took the water out of the ground and it became desert as well* (Southern Sun)." Also, the sustainability manager of hotel Verde admitted that the city must deal with immense responsibility and its role is not easy when it must secure quality water for everyone in the city.

On the account of the role of government in climate change adaptation, Stoddard (p. 52) research recognized that the government is perceived as responsible to address climate change because it is a powerful institutional actor with the law-making ability. However, the research literature (Stoddard, p. 52) on climate change policy stresses out a broader conception of environmental governance, claiming that there are more actors in policy making such as scientific experts, environmental organizations, industry lobbying groups, and others. Also, for this particular master´s thesis research, we can argue that the government´s responsibility in policy making was shared with more entities which are more ´invisible´ actors and therefore their role was not mentioned by the interviewees.

5.2.2 TECHNOLOGICAL BARRIERS

Technology is an important matter especially if we deal with adaptation responses linked to water management and alternative water resources. These kind of adaptation responses are often dependent on technology. Besides the accessibility of technologies on the local market, another barrier to adapting innovations can be their cost or cultural compatibility.

Backpackers 33 South encountered barriers specifically with installation of a greywater system. They claimed that the company dealing with the installation of the greywater tank was incompetent and that the system is not very efficient – it takes some time before it manages to pump up the toilets. Also, hotel Verde dealt during the water crisis with temporal errors of greywater plant and efficiency

of hot water circulation in the building caused by the fault of the installation company. These temporal issues may have influenced the hotel´s adaptability to the stress situation.

Another technological constraint was the process of digging of a borehole, that proved to be lengthy and difficult in some cases (Backpack Hotel, ONOMO Hotel, Once in Cape Town) which made it difficult for the facilities to react to the stressful event of water scarcity immediately. Also, there was a big pressure on companies dealing with digging boreholes, the hotel and backpackers had to wait for a long time to get the borehole dug as there was too big demand and not enough supply for this job:

"*It probably took eight months in total to get it confirmed and stuff and what should have been a two-week job took them nearly a month. (..) It was not easy, also it was not a local company. Lots of the boreholes which were put in during the last year, companies came from all around South Africa. The company we used came from the Eastern Cape* (Once in Cape Town Backpackers)."

This was however more of a constraint based on the market than the availability of technology.

Another recognized barrier was unavailability of cheap technologies and plumbing services which would allow hotels to implement wastewater treatment and rainwater harvesting systems in the infrastructure of the old buildings (ONOMO Hotel, President Hotel, Southern Sun). This constraint is also linked to the cost and therefore it is also a financial barrier. But most of all it takes us to the past showing how the unavailability of infrastructure supporting rainwater and wastewater systems during the hotels´ construction influenced the present ability of the hotels to employ these alternative water sources.

For a number of hotels, the barrier was also the need to source the technologies outside of South Africa. For example, Southern Sun is importing the technologies from Germany and the UK. Also, hotel Verde is using technology from Germany, however, the interviewed manager was positive about the state of technical expertise in South Africa:

"*The main thing is that it is just not being designed here. From the design perspective, there is definitely some shortcoming. It doesn´t mean that the technical know-how in South Africa does not exist. (..) So even though the technology might be coming from overseas at least we know that the technical expertise in South Africa is good* (Verde)."

The manager of Backpack Hostel furthermore complained about unavailability of flushing system which would be both water-efficient and aesthetic.

5.2.3 INFORMATIONAL AND COGNITIVE BARRIERS

Informational and cognitive barriers entail constraints linked to lack of knowledge or experience but also to differences in perception of risk or of vulnerability. Perception of risk can relate to differences in trust to others (IPCC Secretariat, 2008). For example, if the tourism establishments have a low trust into the local governing bodies or any other aid organisations (either if their concern is justified or not) that could cause their inability to tackle some climate changes events. Perception of vulnerability can also cause a barrier to climate change adaptation, for example, if subjects perceive themselves as ´victims of injustice´ or are appealing to guilt and fear that can restrict their willingness to react and undertake action towards climate change. Reputational issues created by media or other subjects causing, for instance, public confusion and misconceptions are also part of informational barriers (IPCC Secretariat, 2008).

The biggest barrier to adaptation responses to water crisis of the hospitality industry was just the last one mentioned informational barrier – misconceptions about water crisis causing public confusion. That was pattern recognised throughout all the interviews, every interviewed manager mentioned the media reactions on the Day Zero campaign as the biggest threat to the functioning of their business: "*We got cancellations, especially among the first-time visitors. People were nervous about what to expect. I think the media made it worse than it actually was* (President Hotel)." Day Zero campaign was run in late 2017 by the city´s government as a fear tactic to trigger behaviour change of local residents in order to raise their awareness about the water scarcity in the area, making them cautious and induce that they implement water saving precautions on their properties. Day Zero was set on 12th of April which would be the day when the water level of the major dams supplying the City

reach 13.5 % and the residents be able to get only 25l per day at official distribution points. The City however never got to that point.

This informational campaign triggered an inaccurate interpretation of the water scarcity situation by the media which resulted in panic overseas and negative sentiment at the international markets. Interviewees claimed that immediately after the campaign was published they got cancellations and experienced drops in bookings. "*The tour operators practically deleted Cape Town from the map* (ONOMO Hotel)", people were scared and were frequently calling to the hotels and backpackers to ask if there is any water in Cape Town. The facilities argued that the media coverage was based on negativity and incorrect framing:

"*The media blew it out of proportion. There was an incident at spring, but it had nothing to do with the drought specifically then media took that incident where people were fighting over filling up water and put it on all the new channels. So, people got the perception that there is no water in Cape Town* (B.I.G. Backpackers)."

We can argue that the campaign entailed a barrier to the adaptation to the water crisis in a series of influences it had: because the image of the destination was harmed that resulted in the drop in bookings and arrivals. This is also supported by the available statistics: Bookings declined since February 2018, by the end of April international bookings dropped by 11.2 % (for period January to April) (WESGRO, 2017) Total arrivals largely stagnated between January and September 2018 with only 1.2 % growth year-to-year (City of Cape Town, 2018). Therefore, facilities´ income significantly decreased and they had fewer finances to tackle the crisis and implement water saving techniques. Also, they needed to invest in the information campaign to reverse this misconception which caused additional expenses. Dealing with the sentiment at the overseas markets and positioning themselves carefully was pronounced as a priority by many establishments, especially by these ones which pay significant attention to their branding (Vineyard, Westin). The campaign has not caused panic only overseas but also among the residents:

"*People were flying drones checking. Because there was a time when they used to switch off your water and electricity between eleven and one I can't remember the times exactly, but it was before*

nine in the morning. They would post on Facebook saying that this hotel isn't doing it and it would be massive. That´s because people were personally affected by the crisis, then they went out to see who was not following the rules (Vineyards)."

There were, however, different opinions on the Day Zero campaign among the facilities. Some of the establishments argued that the campaign was a good tactic because it made local residents aware and changed their habits and behaviour. It contributed significantly to the drop of the city´s water use (Southern Sun, Vineyard). Also, some facilities started to employ water saving techniques just when the Day Zero campaign reached them, so it had great influence also on businesses besides the residents (Oxford House). The campaign caused a big pressure on facilities which may be seen also in positive connotations – they improved their communication to public and guests and employed the measures faster. However, it was a shock event of a magnitude which could of cause the bankruptcy of the businesses, especially of SMEs (small and medium-sized enterprises).

Besides the media campaign another informational barrier was experienced by some of the establishments this time in the form of knowledge deficit: "*The way we grew up we were not that much taught how to safe water* (33 South Backpackers)." Hotel Verde needed to handle change in perception of their staff about non-potable water caused by inadequate knowledge:

"*I got everyone in the meeting and said: guys I see no difference between this water and municipal water, it is still water isn´t? Then I managed to convince them. We stopped doing unnecessary irrigation, we stopped the washing of the vehicles. So, this is non-potable water, but we still look at it cautiously* (Verde)."

The knowledge deficit concerned besides the hoteliers and their staff also the guests. Guests differed in the knowledge they had on water saving techniques, some were more cautious than others. Facilities in all cases adopted different tactics on how to deal with this educational gap and cultural misunderstanding of their guests, from posters to guest workshops. However, it entailed a barrier and in order to overcome it they needed to invest the appropriate amount of time and money to tackle it (33 South Backpackers, Once in Cape Town Backpackers, ONOMO Hotel, Southern Sun, Vineyard, Westin).

5.2.4 FINANCIAL BARRIERS

Financial barriers played a crucial role for facilities during the adaptation decision-making. The budget influenced what quality of fittings for showerheads and taps they bought or if they implemented other technology such as timers in the showers. Also, it impacted if they decided to drill a borehole or implement other alternative water source options. Especially for smaller enterprises were finances a big barrier because they did not have a big budget to operate with (33 South Backpackers, B.I.G. Backpackers, Oxford House).

The facilities often claimed that they will not have the ability to return the investment they put in the new water saving measures, it was rather an investment they needed to do in order to stay in business. Others are expecting a return on investment of the precautions they implemented – concretely it is a case of hotel Westin and the installation of reverse osmosis plant.

Some establishments argued that the financial barrier should have been overcome also by support from the city by a financial incentive for the sector because the sector is important in order to secure employment in the city. Most of the facilities claimed that the immense rise in commercial tariffs of water use entailed a great financial barrier for them and that different strategy from the city to secure functioning of tourism sector would have been appropriate. Financial barriers increased even more with the drop in bookings and arrivals caused by the media campaign, it was even more significant because this occurred during the high season of tourism in Cape Town which is summer (mid-October to mid-February).

Additional financial barriers where internal shifts in some of the facilities, concretely new general manager in hotel Verde and market entry of ONOMO Hotel in South Africa which brought the cost of positioning, branding, staff training and investment in the new property.

5.2.5 ECO-PHYSICAL BARRIERS AND LIMITS

Among eco-physical barriers and limits, we count shifts in ecosystems and major physical changes. One of the concrete instances of an eco-physical barrier this water crisis brought is the environmental effects of discharging wastewater from desalination plant into the ocean. The hotels implementing this alternative water source system had to find a solution to this barrier before they installed the

system (Westin, Southern Sun). Also, urbanisation is entailing a great barrier to the adaptation to the water crisis, because with more people and businesses residing in the city the pressure on water resources is higher. This is an ongoing process and barrier which hoteliers hardly can influence, they just need to adapt to it. Inability to predict the weather and the future rainfall is another barrier (eco-physical and technological) to the industry, it is more of a limit than barrier because it is not certain that in future will be developed a technology which can be able to predict rainfall and weather in an utmost precise matter.

5.2.6 ECONOMIC BARRIERS

There is a series of economic barriers which limited the adaptation responses of the hospitality industry in Cape Town. Among the ones mentioned by the interviewees were shifts in the market such as the growth of the sharing economy, concretely Airbnb or the immense increase in a number of new developments. Image of the destination and therefore demand for tourism is changing by a series of impacts. For one, the interviewees claimed that Cape Town is becoming a pricier destination:

"*Maybe Cape Town is too expensive, it used to be the number one destination in the world to go to, cheap, affordable. But now because South Africa and Cape Town specifically is the hospitality´s hub in Africa the conferencing is becoming expensive* (ONOMO Hotel)."

Therefore, destination´s image changed not only by the information campaign around the water crisis but also by the increase in prizes which was causing barriers for the hospitality industry´s adaptation. Another barrier linked to the market is the demand for companies drilling boreholes was much higher than supply during the time of crisis. We can argue that the waiting period for the borehole to be drilled slowed down facilities´ adaptation responses.

6. CONCLUSION

The water crisis in Cape Town got into broader awareness into international public especially after Cape Town was labeled by media as the first metropolis to run out of water. This immediate stress event of water scarcity required a series of adaptation responses from the hospitality industry in order

for them to ensure the viability of their business. These adaptation responses were however constrained with a number of barriers and limits which slow down their reaction, made it more costly on resources or made them even impossible to implement. The nature of adaptation responses and barriers and limits of decision making towards the climate change adaptation to water crisis were the research question and aim. The question was answered throughout the analysis chapter.

First of all, it addressed the adaptation responses implemented by the hospitality industry, secondly, it dealt with the barriers and limits to the decision-making towards adaptation to the water crisis.
Firstly, the adaptation responses included the planning of water management. During this process, the facilities undertook a series of unwritten considerations and recognised actions points, some just complied with existing strategies and measures. Not many establishments, however, created written document dealing concretely with the water crisis, proposing different scenarios and action plans.

All of the facilities were monitoring their water use. However, they differed in how precise were these measurements. According to the findings, only one-third of them (four hotels) were measuring the water use per specific zone and sector in the house which makes it easier to recognize hot spots of water use and implement appropriate actions. Also, only a few had mentioned that they have statistics on water use per guest-night and also that they comply with some kind of benchmarking.

Several of the interviewed facilities employed wastewater treatment systems or were collecting waste water from showers in order to use it for cleaning and irrigation. Rainwater harvesting system was not so frequently used, because the hotels were not having appropriate infrastructure to employ this system. A borehole was drilled by three from twelve of the facilities during the water crisis. To undertake this process was, however, according to the interviewed lengthy and costly. We also need to take into consideration that the city needs to protect groundwater sources in order to avoid depletion so this source of water may not be the best adaptation response in the long term. Several establishments were buying extra bottled water which was kept in their storage as an emergency supply. We can argue that that is not a very environmentally sound solution if we take into account the production and disposal of plastic but we can understand that during crisis facilities did not consider these side effects. Hotel Westin and Southern Sun built desalination plant which was through the process of reverse osmosis creating potable water from the groundwater which is located

under the hotels. This solution can ensure the security of the facilities from the water crisis, however, has several drawbacks such as being energy intensive and then the issue of discharging wastewater coming from this plant.

All of the facilities installed more efficient devices in the guestrooms, concretely low-flow fittings on taps and showerheads. That is definitely a very positive finding. Although the enterprises employed other measures such as the purchase of more efficient machines we can argue that they could have better monitoring and water saving strategies regarding swimming pools and gardens.

All of the hotels, the guest house and backpackers paid attention to staff training and guest engagement. The intensity if the education however differed among smaller and bigger facilities. The backpackers could spread information among staff more easily because they have fewer employees, also the guests are more resilient and cautious and were inclined to adopt water saving techniques. The hotels employed more extensive initiatives for both guests and employees. Overall, now it depends on it the facilities will be able to ensure continuity of the education. On this account, they argued that the mindset among local people changed (including their employees) and they were also keeping some signage on water saving in place to inform and educate guests.

Another adaptation responses were collective actions. Interviewed claimed that they met at least once as a tourism industry during a conference organised by FEDHASA. However, I have not found out or got information from the facilities if these collective actions had any concrete outcome. Also, it seemed that facilities preferred within a more specific area to deal with the crisis and share information - such example was the meeting of backpackers in Observatory.

The facilities were not according to interviewees very concerned with the water footprint of their suppliers and have not done much to check if their suppliers were complying with sustainable operations. That is definitely an area the establishments can still work on.

The second part of the analysis was addressing the research question by discussing barriers and limits to decision making on adaption to the water crisis. The research recognised that there was a series of political barriers. Among these were insufficient communication provision of information by the

City. Also, the facilities claimed that the restrictions of water use were not put in early enough and after the crisis, they were dropped too soon, moreover the timing of implementation to water restrictions and rise in water rates simultaneously caused a big financial barrier for the businesses. We can argue that the City should have taken into account the vulnerability of the industry and increase the rates accordingly. Also, the City was criticised by not looking after own infrastructure properly, wasting too much water because of leakages, moreover, it has not according to interviewees ensured sufficient water resources. These can be to some extent excused by taking into account that the city is not the only stakeholder and regulative body, we need to also acknowledge the role of lobbyists, environmental organisations, etc.

As a very dominant barrier named the facilities misconceptions and negative sentiment created by media as a reaction on Day Zero campaign run by the City to ensure the change in local residents´ behaviour towards water saving. This informational barrier triggered a drop in bookings and arrivals for the hospitality industry and damaged the destination's image. Facilities furthermore, had to deal with a barrier which entailed the educational gap and cultural misunderstanding of their staff and guests. We can argue that the facilities managed this very well when for example managed to lower their water consumption per guest-night by 22 l after running an initiative to encourage guests to more water-saving behaviour.

The industry also experienced a series of technological barriers. Among others were a need to import the technology outside of South Africa and unavailability of technology which would be water saving and aesthetic at the same time. Furthermore, the facilities were constrained by financial barriers caused especially by the rise in water rates, we can argue that this restricted their ability to employ more costly water-saving technologies. There were also eco-physical limits such unpredictability of weather because of which facilities cannot estimate the future and make more precise plans. Lastly, economic limits such the growth of sharing economy and of new developments are causing further water scarcity and also creating competition to the interviewed facilities which is resulting in other barriers restricting the facilities from more appropriate adaptation to the water crisis.

By addressing the research question this thesis presented the theoretical contribution by the provision of the analytical information on the role of specifically hospitality industry during the water crisis in

Cape Town. So far, there was not published any study on adaptation responses to this concrete water crisis in Cape Town which happened in 2017 and 2018. Therefore, we can argue that this research did fill the gap in research. It was also very particular in analysing the specific barriers and limits which constrained the industry from adaptation to water crisis. The practical contribution of the research is that it can help to share some best practices but also information on barriers and limits to be aware of. This findings and data can inform not only the hospitality industry in Cape Town but also the industries in other cities with similar conditions.

The weakness of the research is that includes interviews just with a rather small sample of participants. Also, it does not include facilities from more of Cape Town neighbourhoods which were functioning under different conditions. Moreover, the focus of the study is rather narrow in scope. Future possible research may focus for example take into account all sectors of the tourism industry. Also, another possible research lies in the area of the water footprint of the tourism industry, assessing the direct and indirect water use. We can say that there is a big potential for further research and it would be beneficial for the industry and the city government as the city is water sensitive and vulnerable to climate change.

7. REFERENCE LIST

RadioData Network (n.d.). *Borehole monitring and security*. Retrieved [2019-06-03] from: https://www.radio-data-networks.com/solutions/borehole-monitoring-and-security/

Global Water Forum (n.d.). *Tourism and Water Interrelationships and Management*. Retrieved [cit. 2019-06-03] from: http://www.globalwaterforum.org/2013/07/16/tourism-and-water-interrelationships-and-management/

De Stefano, L. (2004). *Freshwater and tourism in the Mediterranean*. Retrieved [2019-06-03] from http://assets.panda.org/downloads/medpotourismreportfinal_ofnc.pdf.

Eurostat (2009). *MEDSTAT II: 'Water and Tourism' pilot study*. Retrieved [2019-06-03] from: https://ec.europa.eu/eurostat/documents/3888793/5844489/KS-78-09-699-EN.PDF/04c900a4-6243-42e0-969f-fc04f184a8b6

World Population Review (n.d.). *Cape Town Population*. Retrieved [2019-06-03] from: http://worldpopulationreview.com/world-cities/cape-town-population/

UNWTO (2015). *Tourism in Africa: A Tool for Development* [online]. Retrieved [2019-06-03]. from: http://cf.cdn.unwto.org/sites/all/files/pdf/tourism_africa_tool_development1.compressed.pdf

UNWTO (n.d.). *Cape Town South Africa*. Retrieved [2019-06-03] from: http://cf.cdn.unwto.org/sites/all/files/docpdf/capetowncasestudy.pdf

Responsible Tourism Cape Town (2015) *Responsible Tourism in Cape Town: How-to Guide*. Retrieved [2019-06-03] from: https://responsiblecapetown.co.za/wp-content/uploads/2015/11/Responsible-Tourism-in-Cape-Town_How-to-Guide.pdf

City of Cape Town (2018). *Tourism Development Network 2019-2023*. Retrieved [2019-06-03] from: http://resource.capetown.gov.za/documentcentre/Documents/City%20strategies%2c%20plans%20and%20frameworks/Draft%20TDF%202019_2023.pdf

WESGRO (2017). *Importance of tourism in the Western Cape*. Retrieved [2019-06-03] from: http://www.wesgro.co.za/pdf_repository/Importance%20of%20tourism.pdf

WESGRO (2018). *Water Management in Cape Town*. Obtained from personal communication.

International Tourism Partnership (2018). *Water Stewardship For Hotel Companies. Retrieved* [2019-06-03] from: http://www.greenlodgingnews.com/wp-content/uploads/2018/03/ITP-Water-Stewardship-Report-2018-Final.pdf

UNEP (2010). *Africa Water Atlas*. Retrieved [2019-06-03] from: https://na.unep.net/atlas/africaWater/downloads/africa_water_atlas.pdf

Pulitzer Center (2018). *Cape Town Water Crisis: A Timeline*. Retrieved [2019-06-03] from: https://www.youtube.com/watch?v=orhC83o-S1Q

Fruschki, A. (2018). *More Than a Trickle: Investment Implications of the Cape Town Water Shortage.* Retrieved [2019-06-03] from: https://www.wealthmanagement.com/investment/more-trickle-investment-implications-cape-town-water-shortage

Styles, D., Schönberger, H. and Galvez Martos, J. (2013). *Best environmental management practice in the tourism sector*. Luxembourg: Publications Office. Retrieved [2019-06-03] from: http://publications.jrc.ec.europa.eu/repository/bitstream/JRC82602/tourismbemp.pdf

UNWTO (2013). *Tourism and Water*. Retrieved [2019-06-03] from: http://cf.cdn.unwto.org/sites/all/files/pdf/wtd_2013_high_level_think_tank_background_material.pdf

Hadjikakou, M., Chenoweth, J. and Miller, G. (2013). Estimating the direct and indirect water use of tourism in the eastern Mediterranean. *Journal of Environmental Management*, 114, pp.548-556.

EarthCheck (2015). *Water Management Tool for Hotels & Tourism Infrastructure*. Retrieved [2019-06-03] from: https://earthcheck.org/media/27403/2015-watercheck-ecolab-and-earthcheck.pdf

EarthCheck (2014). *White Paper on Tourism and Water*. Retrieved [2019-06-03] from: https://www.griffith.edu.au/__data/assets/pdf_file/0030/18894/2nd-White-Paper-27-3-14.pdf

Leal Filho, W. and Nalau, J. (2018). *Limits to Climate Change Adaptation*. Springer International Publishing.

Barnett, J., Evans, L., Gross, C., Kiem, A., Kingsford, R., Palutikof, J., Pickering, C. and Smithers, S. (2015). From barriers to limits to climate change adaptation: path dependency and the speed of change. *Ecology and Society*, 20(3).

Moser, S. and Ekstrom, J. (2010). A framework to diagnose barriers to climate change adaptation. *Proceedings of the National Academy of Sciences*, 107(51), pp.22026-22031.

Dow, K., Berkhout, F. and Preston, B. (2013). Limits to adaptation to climate change: a risk approach. *Current Opinion in Environmental Sustainability*, 5(3-4), pp.384-391.

Adger, W.N. et al. (2008). Are there social limits to adaptation to climate change? *Climate Change (2009)*, 93, pp.335-354.

IPCC Secretariat (2008). Climate change 2007: Impacts, Adaptation and Vulnerability. (2008). Geneva.

Emig, J. (1982). Inquiry Paradigms and Writing. *College Composition and Communication*, 33(1), p.64.

Kivunja, C. and Kuyini, A. (2017). Understanding and Applying Research Paradigms in Educational Contexts. *International Journal of Higher Education*, 6(5), p.26.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), Handbook of qualitative research (pp. 105-117). Thousand Oaks, CA: Sage.

Kawulich (2005). Retrieved [2019-06-03] from: http://www.qualitative-research.net/index.php/fqs/article/view/466/996

8. APPENDICES

APPENDIX 1: Semi structured Interview guide

1. Triggers for Adaptation Responses

When did you first start to react to the crisis and what were the triggers and risks which made you undertake any action?

Note: This question is linked to the research question because it is trying to find out what nature of the adaptation responses the facilities undertook and when.

2. Planning

Did you have an emergency plan (or/and used risk assessment tools) before the crisis took place? Why or why not? Do you have one now? What is included in the plan?

Note: This question deals with a concrete technique of water management of the hospitality industry. It is meant to explore if the facilities reacted with ad hoc solutions or had a plan prepared before the crisis or created one because of the crisis.

3. Source of Information

Where did you gain information on the water crisis and water management? Was the information useful?

Note: This question is related especially to informational barriers and limits. Also, it is trying to elaborate more on the adaptation capacity of the hospitality industry.

4. Nature of Adaptation Responses

Can you describe how your organisation was functioning during the water crisis? What nature were the actions you undertook during the crisis? Which concrete water saving techniques did/do you use?

Note: This question is linked to the research question by exploring more into detail the adaptation responses of the industry but also giving space for participants to talk about barriers which the responses restricted. These barriers could be of any nature: technological, financial, political, informational, cultural, eco-physical or economic.

5. Education

Have you educated your staff on water saving techniques? Have you introduced any educational initiatives for your clients to make them aware of the water crisis and try to change their water consumption habits?

Note: This question relates concretely to the water management techniques on staff training and guest engagement and barriers which could limit them.

6. Suppliers

Did you communicate with your suppliers about water use issues? Have you tried to assess your indirect water use?

Note: This question was concerned with another type of adaptation responses, this time with the facilities´ indirect water use and work with suppliers.

7. Initiatives, cooperation

Have you cooperated with any other partners in industry or governance to address the water crisis? How? Why or why not?

Note: This question was linked once again to nature of adaptation responses to observe if they were carried out individually or collectively.

8. Conditions

Do you think that your specific conditions (area/business of your size and nature) is more prone to the water crisis?

Note: This question was concerned with the barriers and limits to climate change adaptation. It was meant to find out if the specific conditions of the facility influenced somehow their adaptation responses.

9. Future

How is your business functioning after the crisis? Do you have any individual or collective strategies for the whole industry? Is water management priority for you?

Note: This question was meant to get information on if the facilities still keep the adaptation responses in place and if their character was temporal or long-termed or to find out if the conditions now changed so the facility is able to adopt more precautions.

APPENDIX 2: Template of an e-mail from Green Elephant Backpackers to guests informing them on circumstances around the water crisis.

Dear XX

We are looking forward to hosting XX University students again in May this year.

Perhaps you have heard about Cape Town's severe water shortage? Normally, our winter rainfall is enough to carry us through our warm, dry summers. Unfortunately, the past three years have yielded lower than normal winter rainfall, resulting in not enough dam water to see us through to the next rainy spell with normal usage.

The City of Cape Town has put in place water restrictions to prevent our dams running dry, and to allow the dams to fill-up enough during the coming winter months to get us through the next summer.

These restrictions allow for a maximum of 50 litres (13 gallons) of freshwater per person per day. This 50 litres is the total regardless of where a person uses water, including outside of their accommodation establishment.
It is important to note that despite the hype, Cape Town will not run out of water. At worse, should the winter rains not come early, this may be cut to 25 litres (6.5 gallons) per person per day. This is still enough for basic hygiene and comfort.

Apart from you being water-wise, the water shortage should not impact your stay. The local economy and the Green Elephant depend heavily on your visit. When you arrive, we shall show you how to "act like a local" in the showers, toilets and in the kitchen. It is important to understand how much water is used for each function:

Daily drinking water = 2 litres (0.5 gallon)
Each toilet flush = 9 litres (2.5 gallons) If it's yellow let it mellow and use grey water for flushing.
Average washing machine – 160 litres (42 gallons) We launder sheets every 7 days.
A 2 minute shower = 20 litres (5 gallons) but a bucket "army" wash = 8 litres (2 gallons)
Long hair uses a lot more water to clean, hence we would advise the students to consider short hairstyle cuts for their visit, which will make bathing in reduced water a lot more comfortable. In addition the male students may consider not shaving, as every drop counts.

All we ask is that you are aware and help us in this crisis situation – Cape Town is still one of the world's top tourist destinations – and in future, there will be case studies written about how we coped with this crisis!

We apologise in advance that our lawns, plants and swimming pools look so sad – using water for these purposes is banned. This is not the usual standard of either Cape Town or the Green Elephant, but these are extra special circumstances.

Looking forward to meeting you, and to showing you how to behave like a local in a water crisis!
Regards
Howard Richman

APPENDIX 3: E-mail to guests from hotel Westin exaplining water saving techniques implemented and ensuring them that the hotel is open for business.

Westin Cape Town – Open For Business | 02/06/2018

Dear valued Business Partners,

The Western Cape region is currently experiencing a drought and understandably this is of concern. *The Westin Cape Town,* managed by Marriott International, a hotel being part of the Hospitality Property Fund, would like to alleviate these concerns. We are pleased to announce that we are finalizing the building of a Desalination Plant at the Hotel. The Plant will convert sea water into clean and purified drinkable water which we will use to supplement water supply. We are on track to activate the Plant in March 2018, with a reduction on our reliance on the Municipal Water Supply. The outcome is geared to limit the effect that any Municipal water rationing, which may commence later this year, could have on *The Westin Cape Town* and its guests.

The Westin Cape Town, as a team, have been proudly and actively implementing innovative and sustainable solutions to reduce our water usage in the medium to long term. We can confirm that we are now saving on average 1,000,000 liters of water per month compared to same time last year and we continue to work, with all areas of our business, to challenge the water saving targets, with minimal impact to our guests' experience. The Desalination Plant is one of many medium to long-term solutions we have implemented with the primary objective of supporting our community and securing our ability to provide the best possible guest experience.

Current Water Saving Initiatives:

All water saving initiatives will remain in place and we count on your support & understanding. These include:

- Desalination Plant.
- Removal of bath plugs.
- Water-free Ecolab hand sanitizers in public restrooms.
- Reduction of water pressure in public restrooms.
- The temporary closure of the Spa Steam Room.

Additional Information:

- Our Harbour Deck outdoor pool remains open as we are using 100% non-potable water.

Be well, be Westin

APPENDIX 4: Information Sheet by hotel Verde on the water saving techniques it has implemented.

CAPE TOWN IS IN A WATER CRISIS!

Please see below water-saving initiatives Hotel Verde has implemented:

We have reinforced daily operations and existing procedures to ensure best practice and increase throughout the hotel.

General

• The hotel was built in 2013 with the following active technologies to save water: o Rain water and subsoil drainage harvesting

o Infrared sensor activated taps

o Grey water recycling system

• The grey water from showers as well as the condensate from most air-conditioners are drained to the PONTOS grey water recycling plant where is it filtered and sterilised. The water is first filtered to remove macro particles and then passed through a series of tanks that are aerated for optimal conditions for bacteria that break down organic matter in the water. Lastly, water is sterilised by passing it over ultraviolet lights.

The resulting colourless and odourless processed grey water is then reticulated throughout the hotel and used for flushing of the toilets saving up to 6000 litres of drinking water per day.

• • The rainwater from approximately one third of the roof is captured and passed through a passive, mechanically self-cleaning Wisy screen filter before being channelled to a 40,000 litre stainless steel tank in the basement of the building. The basement extends below the water table so all water that would otherwise migrate into the basement is filtered and collected in sumps before it also is pumped into the 40,000 litre tank. This is also linked to the grey water reticulation system so that rain water can also be used to flush the toilets in the future if desired or if the grey water recycling plant is required to be shut down for maintenance.

• • All fittings throughout the building are low-flow, allowing the same functionality but saving water by aerating it and reducing the flow.

• • All toilets are duel-flush, allowing users to flush using only the amount of water required.

• • Waterless urinals in the building will save close to 1 million litres of water each year.

• • The hotel washing machines re-use the final rinse water from the previous cycle for the next loads pre-rinse cycle.

- • The hotel's sustainable design and structures, such as the grey water recycling system, have ensured that guests experience has not been altered noticeably - Hotel Verde has used 65% less water than regular hotels since it opened in 2013.
- • All vegetation that has been planted is indigenous or endemic and water-wise. Vegetation was selected, where possible, to have high carbon capturing potential.

F&B

- • We use left-over molten ice from our breakfast buffet to also rinse our fruits and vegetables, to save on rinsing water. Left over ice from the bar is used to water our garden.
- • Where we were using napkins that needed to be washed daily, we are now only supplying our guests with paper serviettes

that are compostable and printed with water based ink.

- • All décor in the restaurant has been changed from live flowers to colourful dried flowers.
- • Our F&B team will soon also be implementing rewards for guests who choose to order wood fired meal items from our menu.
- • Where possible we have also removed the use of porcelain side plates and only offer this use where necessary.
- All linen table cloths and runners are removed where possible.
- • Water bottles were displayed on all our restaurant tables for dinner, this is also now only on request. Hotel Verde also had various water dispensers available at our breakfast buffet, which is now also limited and on request.
- • We reward our guests with a R2 off their beverage if they do not make use of a glass and ice. In doing so, we saved a total of 127.20 litres of water from December 2017 to end January 2018. Per month we are saving an average of 63.5 litres of water. Every drop counts.
- • We have introduced the use of paper side plates in the restaurant and with conferencing tea & coffee stations as well as encouraging guests to re-use their porcelain plates for more than once meal course. Guest are reading the notice and are wonderfully responding to the encouragement.

Public Areas

- • We have strategically placed water wise signage throughout the hotel which communicate water-saving tips; from check-in through public areas (gym, lounges, venues, restrooms and hotel rooms) reminding guests to save water in every way possible. Our Hotel Verde Slogan is DON'T KEEP CALM, GET PASSIONATE ABOUT SAVING WATER.
- • We had a water station at reception where guests were welcome to help themselves, this has been replaced with only two water bottles to ensure there is no wastage.
- • Our guests are greeted by our reception staff informing them of the drought and informing them on tips to assist us on saving water. Our water-saving tips are also shared inside the room key card holder.
- • We have strategically placed hand sanitisers and signage in bathrooms, public areas and staff areas to encourage the use of hand sanitiser instead of water.

Rooms

- • All guests are greeted with a letter from Mr. Alan Winde, Minister of Economic Opportunities to inform them about the drought and urging them to save water as if they are a local.
- • We encourage guests to reuse their towels and thereby reduce the amount of laundry needing to be washed. Guests who participates gets rewarded with a Verdino, our in-house guest reward incentive programme.
- • We also encourage guests to use their hand towels instead of their bath towels. #HandTowelChallenge Guests who participate get rewarded with a Verdino, our in-house guest incentive programme (1 Verdino has the value of R5) and can win a weekend stay at the hotel. These are small ways we create awareness to our guests to save water and the importance thereof. Guests have written notes on our reception notice board, commending Hotel Verde on this effort with remarks like: "we won't even shower" or "I did the hand towel challenge"
- • We only have 9 rooms with baths in our hotel; these were always allocated last anyway, but we have now removed the plugs from all of them as well and we are making guests aware that we are a "no bathing zone". We have placed trees in all our baths, with a message asking guests to refrain from using the bath as "water does not grow on trees".
- • We have also removed unnecessary laundry items from the rooms like gowns and a second sheet on the bed. These items will be provided upon request only.

- • Instead of all our rooms, only arrival guests receive a bottle of water in their mini bar and this is only replaced on request for long stays.
- • We provide like most hotels 4 pillows on a King size bed, but have now implemented placing 2 pillows separately on the side of the bed, with a message asking guests to refrain from using them if not needed and to place in the cupboard or desk; this assists us to save water by not having to wash all the pillows. Guests are also rewarded for this with a Verdino-our guest in-house incentive program.
- • Water-saving tips for guests are in all bathrooms.

Conferencing

- • We have implemented a water station in all boardroom venues instead of us offering a bottle of water for every 2 persons seated at the venue.
- • Water is only refilled on request and is only stationed once.

- We have removed all porcelain plates from our conferencing rooms and replaced it with compostable paper plates. Our glasses have also been replaced with compostable paper cups. This assists with not having to wash the dishes.

Reservations

- • At reservation stage, the team communicates that we are a no bathing zone due to the drought.
- • The reservation confirmations which we send to all our guests have a clear message informing them about the dire water situation and asking them to save like a local.
- • A recent article from our Tourism partners with questions and answers about “Planning to visit CPT, come and enjoy but be mindful” is also shared with our guests upon booking.
- • Our Website booking confirmations also share the water situation upon reservation to our guests.

Staff & Marketing Department

- • We have a Green Guardian team that motivates and keeps awareness alive within our staff to save water at home and at work; they have monthly initiatives.

- • Our AVANTI (Moving forward in Italian) team that is driven by our Human Resources department, have quarterly presentations with our staff, that also include sustainability awareness and participation. This is where we workshop new ways we can implement water saving at Hotel Verde and keep the awareness alive.
- • The hotel also communicates the drought on its Social Media pages to increase awareness to guests and the greater Cape Town, informing guests about the restrictions and saving of water.
- • All hotel staff have signed a pledge to contribute towards saving water at home and at work.
- • The mopping of staff areas has been limited daily and only cleaned when and where needed. Sweeping and spot cleaning is encouraged.
- • Day Zero information and water-saving tips signage is displayed in all staff areas and staff is encouraged to report water wasters.
- • We are a member of FEDHASA, WWF and the City of Cape Town and participate in any water-saving event, talk or meeting to ensure we are supporting the city in every way possible and remain informed.
- • All staff have a water-saving message on their email signatures to create further awareness.
- • We have asked our staff to not wear their blazers with their uniforms if not necessary and to re wear their uniforms where possible. Hotel Verde has done away with ties for the men, as another item that does not have to be washed or kept clean.

Future and Day Zero

Being Africa's Greenest Hotel, since inception water saving has been part of what we do, not just through our systems but also in operations. We believe that our team has assisted us so much already with new and innovative ways during the past year and recent months preparing for stricter and stricter water restrictions and to support the current conditions. It is most important to us, to continue the awareness, education and to keep up the momentum of new implementations daily, weekly and monthly-this is the new way of life.

Preparing for day zero includes additional water storage, continually ensuring we are compliant with all new water restriction level requirements, installation of even more sparing flow restrictors on our taps and showers, stocking up on items such as sanitizers, wipes, additional glass water bottles for drinking, installation of more sanitizers in each of our rooms, items in our 24 hour Verdeli that guests

can buy to assist with hygiene and a possible Reverse Osmosis plant installation. (This plant would see the hotel supply its own potable water from the stored rain and subsoil drainage water)
For our team it would be to not take natural resources for granted overall and be initiators of change and awareness, every little bit helps. “Hotel Verde Team” or “Lindy Meiring-General Manager”

APPENDIX 5: Interview with Justin Exner, Hotel Vineyard.

MS: So yeah my first question is when did you start to feel that the crisis is here and we are going to trigger us to actually push you for an action?

JE: The city started making the connection late 2017/2018, but we had started from January 2017 already. So we identified already in early 2017 already almost a year ahead before the city mandated business to be a part of it, and that was already happening because 2017 the water levels had dropped and because we had done a lot of sustainability initiatives for like recycling and reducing water consumption, reducing energy consumption, reducing carbon footprint in all 3 hotels-one of our three pillars of the business so for us to transition to when it was mandatory it was quite relatively easy because we had done quite a lot of work already. In about September 2017 that’s when the city, the municipality started putting pressure on businesses saying ‘listen you have to reduce your consumption’ and then the big thing kicked off in 2018 I think it was February.

MS: Day zero campaign?

JE: Day zero, yes and up to that point everyone was like… they weren’t really doing much and when day zero happened everything went kind of like… it really shocked the system. But for us because we had been doing quite a few initiatives already before that, it wasn’t such a big transition for us. So one of the first things we did as a hotel was we too out all the bath plugs and we had a little ???? (1:38). One of the first visible things we did was take the bath plugs put of all of our bathrooms and we had little cards and it was basically “please don’t use the bathrooms unless you have a medical or you are really old so you have to use the bath” and the reaction was really good.

Some people initially said okay we are paying a certain price how come I cannot use the bathroom? But most people understood, we had done that long before the city had told us to reduce it. We had done it for almost a year already. We were actually one of the first hotels to do it and some of the hotels copied us and we had this little rubber ducky and we kind of gave him a name and this became our vehicle for when we did comms later on so from that we transitioned into what…”every drop

counts" this is what the city was using, this is our slogan we were using and we started this before day zero stuff was announced.

MS: The guys were not surprised that there was something like that that they did not hear about?

JE: Not really a lot of domestic South Africans knew about it and we had started just by putting the bathplugs in and putting in aerated taps, so all our taps are aerated to reduce consumption and we put in more water efficient machines in the laundry, put in more water efficient machines in the kitchen and before we did all that we did a water audit to see what our water consumption was. So at one stage this hotel was using 143kl a day, so we were using a considerable amount of water like all the other properties were doing, but we managed to reduce it by 50% so we actually went from 140kl to around 50kl or the high 40s which was a huge reduction. It was purely done by first checking the systems that were inefficient, putting measures in place and also making people aware. And the way we stated that was we started first by telling our guest that were arriving, so we had our pre-arrival mail we did a lot of collateral…Instagram, Facebook and we turned it into a little character and what I did as well was on our websites-we were building new websites-we had a bot that we build and the bot was a little duck. I used the bot as well to answer a lot of the water questions. So we were like the first hotel in Africa to have a little AI Watson intelligence, IBM platform to actually answer questions. When day zero happened a lot of tour operations and overseas guess panicked and were shocked, I know some of the hotels had a lot of cancellations. So we were very lucky…tourism in general suffered a lot of the hotels were 20 to 30% down in business.

We were actually…I don't know how the other businesses did but we were less affected. We had all these communications with the tour operators and our guests before that so that when they came here there weren't expecting a few surprises. So naturally there were a few surprises, so one of the things we did was we covered the pools between 11 and 3 which is your main evaporation time so we'd have the pool cover on. Initially we had some reaction to that, people would say "hey I paid for my room how come the pool…" even though we had used ground water for the pool it was to demonstrate that we were water conscious.

MS: So you closed them up completely?

JE: Yes, we had a special cover, and what you did was as soon as the water started relaxing you took it off. Because most of the evaporation actually happens from the wind and people swimming so you kind of limit your peak time, and it was a strong visual...we had a message also to be conscious citizens so we were also mandated by the city to reduce our consumption it wasn't just a PR stunt.

MS: So when did you get the restrictions from the city?

JE: It as either end of Jan or first of February when they announced day zero, what they did is that they told businesses we had to reduce our consumption by 50% based on the previous year's total consumptions, and that's a huge thing because hotels are quite water intensive because you have your laundry, your restaurants and your guests. We actually did an audit and we saw that the majority of the water that was used wasn't by the guest. It was actually from operations, washing machines, dishwashing machines and all that. So when you fixed all those machines efficiency we had huge gains from that. The guest consumption was small it was less than 30%, something like a third it was really little.

MS: A third of all the water consumption of the hotel?

JE: I think half would be operations of the hotel and the other half would be like the gardens and the guests. The guests actually use a small percent.

MS: And then employees as well?

JE: Ya so one of the first things we started off was awareness of the employees before the guests, so through the HR department we started doing…the first thing we did was make everybody aware of everything because a lot of people-I'm just speaking in general terms-a lot of people knew about it but they didn't understand, there was a lot of misconceptions and the press had made a lot of people scare when they saw that we have to queue for water. So at first we have to explain how when you come home, you come to work this is how your water is in total.

So we put a lot of notices in all the staff bathrooms, and we have a channel, an app and a Facebook page for all the staff to put all that stuff in and then after that we started putting it in all the guess sections areas. We played a video we had an art installation as well around water, it was quite a nice time…so there was quite a lot of awareness wo when they went to a website when they arrived here they were completely aware of it. I would say in general it was actually a well-received…and we had one or two people that complained and some overseas guests that cancelled. The fact is in the media they were showing this crisis and people said 'wow how can I enjoy my holiday', the problem we had was about perception. The fact was our services were not affected because you could still shower, everything still works the restaurant the spa all of that. We took from ground water as well and we recycled a lot of water.

We did a lot of initiatives, it was quite extreme we drained all our fountains and we didn't fill them up again, we didn't water our garden we just kept the one fountain with ground water because the

tortoises that drink…so the other ones and internal ones were closed. We implemented grey water systems in two of the hotels, one in town we couldn't do because they didn't have space but this one and Stellenbosch we put grey water and we have a complete grey water system in the garage which is the guest parking and it serves a large section of the hotel and we also were able to extract ground water and filter it. The idea is that we will eventually go completely of the grid, so its till in its testing phase and once everything is approved what it means is that we can effectively operate off the grid 100%.

MS: Your own water? So you would not need to buy another drop of water?

JE: No.

MS: And you implemented this during the crisis though.

JE: We started our work before the crisis a couple of years ago really, the owners of the business are quite passionate about sustainability. So for us we always had…what we realised was an identity issue that we had to deal with because we are also known as a sustainable hotel and now all the hotels are into sustainability. So in terms of marketing it's not a strong enough message.

So I always believed that we weren't going to leverage this crisis as an opportunity that was never our intent to go and say…we could have saved backloads and saved water for gardens and people who don't stay here would come and say look we are privileged. So we had to position ourselves very carefully to make sure that's why we didn't waster our garden and did a lot of initiatives like that. So all our hotels in the city basically have done similar initiative and all of them went to press like the Westin and the big hotel groups using the word desalinations plants which was very sexy at the time. For us it's just far too expensive so what happened is we did this "choose not to use" campaign and there was the duck which then became the persona, and these are different versions. So when it first came out it was 87…it was 115 then it was 87 then it went to 50 and then back to 55. So what happened is the gold price kept moving, and every room would have one of these in the room, wed have one off the menu…in case we ran out of water we managed to get a whole lot of water from the Eastern Cape.

We had an emergency supply in all the rooms, this was in case the water switched off we have these kind of things sitting around. Everything was around the same principle we did it in all three hotels the same, we had website and there was social media. At one stage we had it when you land on our website it was water and the reason for that is that we had to try and combat the sentiments. There are 3 main challenges we had with the water, so firstly it was unprecedented-the city never had anything

like this before and because it was unprecedented we weren't able to predict the outcome, we had never done this before. Secondly we were dealing with the sentiment, especially from overseas markets that Cape Town was running out of water and that was affecting its viability as a tourism destination. We had to deal with tourism perception as a city which is something you can't really deal with as a property. So our stance was that what we can do is we have to obviously be sustainable and be mandated by the city as well as explain and educate the guests and say 'we can do everything we can and also not try and affect your stay as far as possible' because you also can't have a compromised hotel experience because at the end of the day people still pay and still want their hotel experience.

So they will still be able to turn on the tap and brush their teeth and shower etc.

MS: Of course, it's a huge challenge.

JE: So one of the first things we did was…so we always had the campaign running and when day zero was about to be announced we created like a war committee, so we got all the HODs like a strat team so we basically tackled as if we were gonna go into battle…we were like Liverpool against Barcelona the other night kind of thing so we were going to tackle it, so this became the most important thing for us as business because we had never faced anything like this and I think the fact is firstly we did it really early and secondly we were very clear about what we wanted to communicate and we had some existing initiatives already to adapt and tweak it put us in a good position. It's also about terms sustainability because we continued with this and the fact is that we never stopped, the sustainability is still there it's not on the front page when you get to the banner but it's also under our news section. It's one of the pillars of our business, as much as you have food and experience and rooms and coffee and all these things sustainability you also have to have.

So it was a lot work and it was a daily thing….but generally it was fine. What the city did was it freaked a lot of people out because it was a good PR exercise to show those images of people queuing for water. So we would get questions from guest saying "must I bring my water? I'm coming up from Durban. I'm coming up from Europe must I bring water? Do I have to queue up for water?" and so that what they were thinking but on the ground it actually made not impact on their stay. It was really challenging and I would say as I have been in the hotel business for quite a few years, it's one of the biggest challenges we have had in recent memory especially in the last 20 years I would say.

MS: So about the company did you know a bit ahead so that you can prepare your strategy? So how did you get to know that there would really be something like that?

JE: We just monitored…the city and the country have been talking about the water crisis for a while now, so we had predicted that they were going to start putting restrictions in place we did not wait until day zero got around. So when it came we just ????? matched and I think it was the first of April of the first of March I can't remember and then we had to match it because if we didn't do it then you could get attacked on Facebook and twitter and stuff and people were very adamant and rightly so. Working in a hotel group where sustainability is very important made it easier for us. I think businesses that suffered are some of the smaller guest houses and air bnb's because they maybe don't have the technical experience or maybe the money to do all these things, because you have to aerate your taps and not everyone can just got off the grid and grey water systems are quite complicated.

MS: Did you hear about anybody closing down their business?

JE: I heard about a lot of tour operators and businesses that cancelled and a lot of people that didn't want to travel to South Africa, at once stage I think the city had stats where anywhere between 20 to 30% decline in tourists to our rival hotels over that period which is significant and the worst part is it had arrived between December January and February, that's 30% of your total tourism almost for the year is in that period so it actually arrived at the worst time in the peak of summer. So the people that arrived are not gonna arrive again they said they have cancelled their booking they are not gonna come again next year so it was like a double whammy because it happened in our peak periods. So everybody had cancellations but I know some hotels where literally like 30% of their business just disappeared. It affected everybody restaurants as well, but then on the other hand its quite confusing because some of the tourism numbers really didn't drop that much actually they were quite flat sometimes they were up especially from traditional markets…your European markets, your US…

JE: Yeah we had it on a daily basis where we'd get emails about reservations through our chat bot, saying can you not shower there? Can you not bath? Do you have water? So we had to deal with all of that, so it actually took a lot of education as well and we had to do a lot of research to find out all the specifics. So that's why we had to educate a lot of our staff when they had interactions with guests that they were giving the right information.

So as important as it was for us to market it we had to explain the position we had, at this hotel we have over 500 staff and it can be anything from housekeeping to people making coffee, to the gym etc.

MS: What's the occupancy? How many guests can you have here?

JE: So we are 211 rooms this hotel in the season you run up 90s+ so this happened in that period in our peak period so we have … if the hotel is full you can have more than 400 guests staying over and then during the day people come over for tea, lunch etc. you could easily have a couple of hundred to a 1000 arriving so 1500 people a day is quite a lot. We have got 4 restaurants, a lot of people come out to the patio and a lot of guests aren't staying here they are just coming from the area.

MS: And you said you have 3 hotels.

JE: Yes, the one is in town, and the other on is in Stellenbosch. So this is the biggest one, the one in town is about half the size and Stellenbosch is a small one its 58 rooms.

MS: And you have implemented the same water saving techniques?

JE: Correct they all have aerated taps, they all have recycled water even things like ice blocks that were left over from the kitchen we melted down and used in the garden. So any water that we could use, we have buckets that we put in town house to collect rain water with we'd drained the fountains, we put grey water systems. That part of the city was never going to go off because that was the hub of the city, so the city said that part was never going to run out of water. In Stellenbosch we had tanks in, we had grey water systems put in, took all the bathplugs out, had aerated taps put in, had back up water everywhere. So one of the challenges was getting water because it was panic buying and if you were here about a year ago maybe this time or more, you'd go to a supermarket and you could get water and they were limited you could only buy 2/3 bottles and we needed like 100s of bottles so we had to get them from far areas like 300km away and get in shipped in with a truck and we had to have it just in case for emergency backups. There is so many… I was looking now at my cupboard, there is so many collateral I think the most important thing what I'd say is that firstly we identified it and we gave it a little character and we used it. Also the way we did it was educational and one of the things is when we went from day zero, with the 55l restriction when the restriction got relaxed we had to change the message. So from the beginning you had to talk to talk about sort of like "be careful, this is what's happening" and then we sort of like had to change the message to talk about "help us continue our sustainability journey" so I had to shift the message from being okay we are in a crisis and we are critical to "thank you for your support on out sustainability journey" so we had to change the message more subtly and that's what we've kept now. The crisis is over in terms of day zero but we have to still keep people conscious. So it's those little slight change and a lot of stuff was very in your face but now we are saying "thank you for helping us". Some of them still have… if you

stay with us before you arrive you get an email and one of the first points you have there is “thank you for helping us be more sustainable” I can’t remember the exact wording so I’ve changed it from being how it was originally. So it’s something we are not going to switch it off in the foreseeable future, and it’s not just water-its water, electricity all these resources we are so dependent on. We can run all our hotels on generators but also its perception and it’s a big challenge in this business. The city did a great job getting people to stop using water but what they also did is they almost scared off a lot of tourists because people said they can’t come to the city, they can’t come to Cape Town or experience camps bay because there is no water.

MS: Did you connect with the other hotels? Did you guys have some kind of conference etc.?

JE: Not with the hotels themselves but with a body, an economic body with the Cape Town tourism and the west coast called westbro.

MS: Ya I was contacting them as well for some data and they didn’t have anything.

JE: So westbro they represent the body and the tourism industry and the corporate industry, so we worked with them and they used to give us a lot of information. We also did things ourselves and a lot of hotels were watching us and copying us which is kind of cool. At the end of the day we all had to kind of go through the process together.

MS: So did you show your strategy, information etc.?

JE: Well all that information is public you can see it on our website is public and people saw it. I know that the ducks for the bathplugs…we took the bath plug and put a rubber duck in or card saying “chose not to use at the back” and it told you why the bathplug was out. You can still see a few on the bathrooms, so I’ve taken some off because they were everywhere but you can still see some. We have had some hotels copy that. We weren’t the first people in the world to do that, we were on the radio and we were interviewed by the mayor. I’m trying to remember now, and it was quite cool because it was something we did and other hotels did it but we made the first move.

I some we still have the plugs out of the bath, so if the guests now…if they have to have it…sure.

MS: So did you get the information yourself or did you get inspired by some document from municipality, from responsible tourism Cape Town or any of these people?

JE: Yeah we are a part of FOT???? The future of tourism, we have a sustainability department and a sustainability manager which is great because that was his passion and he worked on this every day. We also had worked with consultants and stuff, when we implemented the systems we have

consultant do it…to check our water levels and stuff and do tests on our water to see how much pressure we had ????

MS: Did you measure your water to see how much water like the number for guests….

JE: Yes daily, yes. Every single day and all the hotels had daily consumption numbers and we still have it and its full on-it broke the hotel down into pieces and it had the total water. We did that and that's how we realised we managed to save the water down to 50%.

MS: How much time did you actually have to drop it by 50%?

JE: So we had already started to put some of the measures in place before it was mandated, I think the mandate came in on the 1 April.

MS: But if you wouldn't then on the 1 April you would get like a month to…

JE: Yeah I think so and then you git a fine. It took quite a few months and we are still busy with the water stuff. It took a good 6 months to a year to put all of this in place. All our hotels are quite old, it was built in '79 this part, and all the plumbing is really old and the way its structures id very old so back in those days efficiency didn't exist. So we had to do a lot of work on that, but also very simple things like we got rid of table cloths in all our restaurants as an example so that we didn't have to watch the linen again. The bedding we only changed on request, the guests were fine with it. Getting read of plastic straws so that you can reuse straws and reusing all the waste water to clean all your common areas. So we can use ice that's defrosted from the machine, so you just clean it through a filter and you can do your floors and stuff with that also we have taken hose pipes away and planted plants that are water wise.

The family bought this hotel in 1980 and back then this garden wasn't like that and over the years they've developed it, it's now sitting at 65 to 75% is now indigenous but all the plants we introduced are indigenous, they are from the area and are better water wise. It's quite self-sufficient and we only have a team of 8 or 11 guys that look after it, so what happened with the water is that we use borehole water or ???? (27:23) to water the garden anyway but you can imagine a lot of people's gardens are completely dead, you couldn't water the garden or wash your car so we had to reduce the water to a point where we didn't water at all and the garden looked really bad and it was quite really tough because one of our biggest USP is our garden and this space, this sis our most unique selling point and our poor garden struggled. Whatever recycled water we could get we would use on it…

MS: Ya because if it died you would have to start from the beginning…

JE: Yeah and the water was so brown it was terrible, I mean these fountains were empty and we had signs and poor tortoises had only one place to drink. In the courtyard all those fountains were empty and the garden looked really bad, it was quite tough but at the end of the day it's more important that we had to maintain the business and we had other things to worry about other than the garden. It would have done us far more damage that if we would have just ignored it and we couldn't do that…people were flying drones checking.

JE: Flying drones?!

JE: Ya I'm sure there were, someone they would post on Facebook if they were watering their plants…because there was a time when they used to switch off your water and electricity between 11 and 1 I can't remember the times but it was before 9 in the morning. They would have full posts on Facebook saying that this hotel isn't doing it and it was massive. What happened is that because it was touching people's personal lives, this is why it was such a big thing for the business –people were personally affected and they also went out and said "okay if I am affected" then ????? [28:54] is not following the rules. And that's the big difference with what happened here, for us as a business the first time this affected everybody, so it affected you at you home and at your work.

MS: So there wasn't any minor crisis like this for water before?

JE: No. Never. So the year before 2017, at the end of 2016 to 2017. We were conscious about our water consumption but not to this extent, say zero was…people knew about it, the dam levels were dropping and they said okay we only have 20 days of water then there was…when day zero happened it was overnight and everyone was like whoa! It's happening. But luckily we had done a lot of work before hand, and it's also a lot of work to educate people who work at the hotel. Like they understood we can only use 50L, and I had this idea to demonstrate 50L and we didn't do that because other hotels had done it. So to actually show how small it is, so your average bath is 119L – 120L , and to flush a toilet its between 15L and 18L. So to take a bath that's 120L and you've only got 50L it's really little, so meter x meter x meter cubed that's thousand litres. So to take half of that to show how little 50L for everything it's something like this… and because what would happen is people would come and shower here, we had to switch certain showers off like at our gym, we also switched one of our taps off and just use the hand cleaners that was a little bit of a challenge because some guests did not like the hand cleaners as they are a quite strong, they can be quite harsh on your skin, but if you go to some of the airports now they are still there. Some other unique ideas we tried, some products

that use less water, even in our office the coffee machine and stuff and other things that use less water.

MS: You switched off the showers at the gym so people were showering back in the room?

JE: Ya back in the room and…remember all the taps were aerated and wed have half flush mechanisms in the toilets, and low pressure shower heads and aerated the taps. And also what happens is that wed decrease the pressure, so you'd shower but it was less than half the amount of water, so reduced pressure plus aerated taps plus those eco shower heads. So the water used was very little. If you go to the bathrooms it was like air and a little bit of water.

MS: Not everyone used buckets in the shower?

JE: No, no what we did is we did have buckets that we put in the shower and that was just to collect it, so if the guests we'd have a little stick on it a spear ??? I would recommend that you go and talk with spear that have done a lot of great work they are out in Stellenbosch, they are really good. So we'd have a bucket in the room and what we'd do is once the buckets were full the housekeeping would take it away and wed use that water for cleaning for whatever instead of having to use taps. Anyway some people didn't like the buckets, but the South Africans they were fine and people from Johannesburg and other areas they didn't have it. Capetonians all knew this stuff it was totally cool, you know Capetonians all having a dirty car, couldn't wash your car and stuff. But people from Johannesburg coming on holiday…

MS: But they have a crisis as well….

JE: They did, but not to the extent we had. I think this is the most extreme we have ever had, and you know it's funny because at the one stage we looked at it and said 'wow how is the business going to operate', if you are hotel business for example how can you run a business if you have to queue for water it's not possible. Unless you are completely off the grid you can't run a business like that, and it's a priority shift you know if there's now water its critical like you electricity and food and security for example. People might not go on holiday or don't have a business trip they might have a meeting on skype or zoom instead of going into a meeting so there is a trickle effect and I think the trickle effect that's why it affected tourism in total in Cape Town, because people travelled less for meetings maybe went to a restaurant…they didn't travel down to Cape Town. A lot of people went Durban and went to other areas, so a lot of people benefited, but the irony was that only the city. If you went to Stellenbosch, they didn't have the same restrictions as the city. Stellenbosch is only 45 minutes away

but they have a different water source, so Cape Town was the worst. If you went to other areas it wasn't so bad.

MS: Do you know exactly where you water was coming from? Did you ???? [33:48]

JE: Our water is obviously from the municipal grid, but we've always had boreholes for many years under the property, only thing we did is that we just tested we did have a geo hydrologist test all the water all the iron zinc and all the levels. Also because if you have more people drawing on this ground water you could also have the water not be good for the plants etc. and you have got to treat it first you can't just throw raw water. Also you have to be…you can't just use ground water for drinking…so drinking water always stays the municipal water but we use everything off the grid as far as possible. I just know now they are doing some maintenance at the moment, I don't think we are running at the moment. The grey water system is working but I think the extraction system is, I don't know. It's something to do with having to retest stuff, but its okay at the moment. We still have our water we still are restricted just recently a few weeks ago…maybe two months ago we started watering the garden a little bit. We still have water restrictions in place.

MS: It's still level 5.

JE: Ya and what it did over time was that it changed people's behaviour and once they arrived and understood about it and the South Africans understood about it they also changed their behaviour "don't run your tap and brush your teeth at the same time". So we had a couple of notes everywhere talking about how much water you use if you flush, shave how much water you use etc. and we had timers between our showers. We had this long before the water crisis we measured how much water ran per minute and we worked out a timer and we worked out you should shower for 2 to 3 minutes and we had timers place in all the showers and the times were done before the ducts and then later on day zero happened. Chris who looks after our sustainability team they were really good and spotted it before hand and they said look we have to be…we just had to reduce our water.

MS: Did you have one document? One coherent plan or something like that?

JE: Yes, exactly we had that and we had different scenarios so if for example what would happen if day zero happened and what we would do as a business. Are there critical areas that you would have to shut off, how you would look after employees, how you are going to still maintain service levels how you are going to get deliveries and those kind of things, PR and all that jazz so we worked it all out.

MS: You never used it?

JE: We didn't have to use it because we never went to day zero, and that's the best thing about planning, you can have all those things and never use it, which is the best plan. You might think it's a waste because we use a lot of resources, a lot of money and a lot of our time-it took up so much of our time-but at that time it was out most critical thing. So it also forced us to look at sustainability and totality cause the conception, some people's conception or perception should I say or expectations about sustainability is about going eco. They think it's about recycling but it's much more than that, it's recycling, its water, its sustainable in terms of your corporate citizenship and how you look after your staff, it's very broad. It was a good exercise in the sense that it's made us kind of focus on what it means to be sustainable, because sometimes when you think you are good and hanging on you can always do more. South Africans generally…another thing personally and I always speak water… is that when the power goes off I don't worry because the power will always come back on and until it affects you then its ya…

MS: Ya I mean that would be everywhere.

JE: We have got a lot of experience in it now.

MS: Ya I think you can set an example for other destinations….

JE: Cape Town got an award I think, we managed to address our water consumption far better than Brisbane did, it's the number one city in the world of our size that has been able to reduce that. That was done by shock tactics by the city, and rightfully so they had to scare people and secondly by education. When you look at a city like Sao Paolo a couple of years ago, I was there a few months ago. They ran out of water for two days and Sao Paolo has had a huge amount of rainfall, but they managed to run out of water. A city of like 22 million, and so yes the city has done….and if you drive everywhere and if you land in airports, I don't know if you remember when you land in airports you probably would have seen "every drop counts" and I must say the one cool thing is that I was great to have support even from our supplies and other business because everyone was in the same mess.

We did chat with other business and they would ask us what are you doing, and we'd get some other ideas but we still had a business to run so westbro was one of the things that Cape Town tourism tried.

MS: Are there actually some data on the water consumption of tourists as a sector?

JE: Yes westbro actual has…I've read the stuff. There was a lot of press release beforehand because one of the things was the tourists use so much water. The tourists only represent like 1% of the water consumption which is really minimal, which is tiny marginal.

APPENDIX 6: Interview with Ross Baines and Andrew Gartshore from hotel Westin

00:00:03

Michaela: When did you start to feel that there is a crisis? What was the timeline for you?

00:00:09

Ross: I think in the beginning at the beginning of 2016 we started to notice what the government did as they started to basically put in restrictions on the water.

00:00:33

Andrew: The tea you are having now is all made with our water. You can see the City Council is giving me water I can see I can go online and tell you how much it costed. As of now how much it cost us to make the water how much water we used how much and a particular point it gives me the graph and I can see well listen that this particular pipe we shot up to this because that's when there was a lot of water just on both plants were able to produce. That's quite an integral part of the system where we can do real time real time readings.

00:01:34

Ross: So she was asking about when we knew when we when we knew we had need to do a desalination plant. Saying. Basically in the beginning of 2016 the government started to implement stage crisis staging of water so what they were doing is they were increasing the price of water and at the same time reducing the amounts of water that a household could use whether it's business or individual residential homes. So we knew then there was a problem and then we went through I think it was that winter we went through and it was almost no rain and then you could see with the dam levels starting to decrease and then exponentially the combination of not understanding the full cost of where we're going to be you know the weather's completely unpredictable especially into the future. So we didn't know what kind of decision we needed to make but we had to make a decision because if it continued down the line it was going we would have had no water. We needed to make sure from not just a competitive advantage point of view but from a guest satisfaction ensuring that guests still come into Cape Town that use our facilities would still have water. We wanted to take ownership of that responsibility and basically created the desalination. I think we used to call it the desalination plant.

00:02:53

Andrew: It's a reverse osmosis. It is still the basic principle we taking seawater where we're not taking brackish water brackish water just be reverse osmosis as it is desalination because you're using reverse osmosis plant to give you that.

00:03:11

Michaela: So you were getting the restrictions in 2016 already?

00:03:14

Andrew: I started to really because we actually got more water now at a present stage you must understand. The Western Cape is viewed as a province. Cape Town is reviewed in its entirety. If you take the Western Cape you got provinces where you stay. If you view that water you want your water is a lot less okay. However review those dam that supply Cape Town only in its own they are higher. So we are sitting in about 48 to 49 per cent water supply in Cape Town. However for the whole province it's only sitting in his 30s 20s. So we actually have this present moment to have more water than what we had in 2016. But everybody 2016 only woke up to the fact and what are we going to do with our limited resource. So there was a total change of mindset, firstly to tell you as a household: we are going to put the price of water up hoping that in itself would not be too restrictive. However one must remember that not everybody gave out his wealth. It is rather hard on the poor side. So those who couldn't afford it they themselves implemented their own restrictions to keep their costs in the line because what the city did as I said the more you use the more your sliding scale will increase. So you have the wealthy saying I don't care for it. But you had those that stayed in the poorer informal settlements saying how do we do this. So eventually what they transpired is as a water got less so eventually they impacted everybody so that you instead of having a sliding scale you had a minimum quantity - should you exceed that limit there would be water limiting devices which you would have to pay for to be installed otherwise they´ll cut you off. So eventually what they did is they worked it out. To say that at the end of the day 50 litres per person was that amount based upon your occupancy of the house are allocated you four people. If you had more than four people that stayed with you you had to bring an affidavit to the police station to say: well I not only have my wife myself but I have my aunt my uncle and he wrote the I.D. so they would give you an exception. Otherwise what they would do is that they would cut you off after 300 litres per day. That included washing eating everything else. They allocate to four peoplr - husband mother father two children if you had more than one staying at your house then you have to motivate them with an affidavit.

00:06:04

Michaela: And here you got the same restriction - 50 litres?

00:06:06

Andrew: No. Now what happens here is that what happens here is how our issue came about it and gave us a flat rate. Whereas the the domestic rate was maybe ten or eleven ours was 54 Rand. And then what they did is they said well every thousand litres of water you could sue you can't drink if you're not consuming it you're either for bathing cooking or something with it. But there's no way you are drinking hundred liters. So the council is saying that: for us for every hundred litres you consume ninety five litres is going down the drain. Now we're going to charge you extra for putting it down to drain so that's how day from a commercial aspect put a restriction.

00:07:05

Michaela: What was the 54 Rand for?

00:07:11

Andrew: It was per kilo liter which is thousand liters. And we go through a month when we went from a bill of approximately 40 thousand Rand a month to a bill of a quarter of a million.

00:07:25

Ross: And then on top of that more importantly is that the sentiments in the market internationally was that Cape Town´s in this massive drought. So as soon as that happens all the the DMC is the tour operators and the guys who assist us in bringing customers over even local event planners everybody started to get the sentiment that Cape Town was not a place you know they basically started taking Cape Town off their destination options.

00:07:54

Andrew: It was an integrity thing. How could we come to Cape Town knowing that Cape Town got no water and we come to Cape Town and take their water we know it's limited. How can we do that now. And that is when the owners made the decision just saying well let us invest because if we don't allow people to come to Cape Town to keep us employed we need people to come to Cape Town so that we can put plants Cape Town was still open for business. But the news was so negative that people viewed it in that light. So they made the decision to invest in there to tell people we are open for business. We need you here. Otherwise if you don't come we can´t put that plant.

00:08:40

Michaela: So what did you do about this negative campaign?

00:08:46

Ross: We did lots lots and lots and lots. I mean really we created a video where we had all of our team we had our senior leaders in the video but the whole messaging around what Cape Town's doing and why Cape Town is open for business. So we so we are whole again things are all about the concept - Cape Town is open for business. This is sustainability we are doing. We're about to start the reverse osmosis plant. We put a whole bunch of different branding and collateral within the property and we reduced the water pressure we put sanitazors in the bathrooms.

00:09:23

Andrew: We took out way hot water was everybody went to go to the wash and basins in public toilets and wait for the hot water then I took it away. Just washing hands with cold water. We we did a water pressure reduction so we reduced the water pressure we put information.

00:09:44

Ross: Bath plugs were taken out. We did a thing with laundry changed some of them in the process incentives to allow the use of the paper towels we got to help the laundry company we rebranded our delivery them a really nice design that showcased the last year´s water level.

00:10:13

Andrew: In it showed you basically when the dam was cracked and the mud is all cracked and there was some water. What the council did is told everybody to write off our personal consumption. We would run out of water when they leave they say between the last 10 and 20 per cent in the dam. You can't use because it is sediment and it's sludge. So they said when we get to that level you as a resident will have to bring a bucket for 25 liters yourself. Now to be used to 25 litres per person doesn't matter. You will come to a gathering point can you be allocated 25 liters. So what we did is we as Ross was saying we had a bucket full of water and it was wrapped on all sides so said well this was our dam lavel last year. This is our dam level this year. This is day zero. So what was happening was last year remain constant. And the next slightly moved down but our consumption was getting closer closer and to day zero.

00:11:18

Michaela: Is it really like that that you can´t use the last 15 percent of the dam´s water?

00:11:21

Andrew: The water is full mud and the dam such as all that sediment.

00:11:26

Ross: And we got very close to 20 -24 percent.

00:11:40

Michaela: Yeah but now it's still not very good right?

00:11:44

Andrew: This time last year we had twenty four - five percent water we are now on 48 percents.

00:11:54

Ross: So it's a much better picture. And the rain starts on Monday next week. We've got mostly 30 mm coming next week. So I hope and I assume that the government has done some work in terms of improving the catchment areas around the dams etc etc. I would assume so.

00:12:14

Andrew: But what has happened not only as the water restrictions that allowed people to develop plants look for alternative water sources. But it's changed people´s mindset. And that in itself has happened because what happened we used to have a shower and we stand in a bucket. You stood in a bucket to catch your water. That water you use for your toilets. Your washing machine water you used to take out and water your garden. And the same mindset is the same now. When the water restrictions first began Cape Town was using one point three billion litres of water a day. Through the restriction process we are down to 550 million litres so it's a mindset of people that might as long as the mindset stays there we are allright.

00:13:21

Michaela: What about the mindset of the guests here. They are used to luxury I mean.

00:13:26

Andrew: They're paying for something. But if they understand I'm sure they conform. This year the Queen one of the big cruise liners came in when the cruise line came in they are on the ship and have

all the water they want. They more of a mature in age wise people. All right. So they have their baths and they love that. They do. Now we took our baths away. So what happens is whilst the guests on the ship they use all the water they have as much water as one because the ship has its own. When they came here my council water consumption shot up for the duration that they were here and on the day of departure it dropped down again. So yes it does reflect the type of guests that you do have. Yeah very much.

00:14:29

Ross: And remember the average guests especially if they know the situation can tell they can quite easily bring their own way to plug the bath right. Basically there's no way to really stop someone.

00:14:43

Andrew: We don't encourage you to have bath but should you require we have a bath plug. We´ll give you one but we don't encourage you to use it because a normal bath is anything between 100 and 200 liters of water. Now our showers were developed by Westin and they give approximately seven and a half liters a minute. All right. So you stand under the shower for five minutes and that's 55 liters. You have a bath before you even get him to the bath you put in 150 - 200 liters of water. So Starwood before we went to Marriott we had a program where they were trying to ensure the scarcity of these resources were carried over. So they developed these special showers. We got a rainhead shower that volumises water so it has bee dropped but it's soft drops there's no pressure like you're standing in rain.

00:15:51

Michaela: So what did you do more to get the guests on the board you said and put up some signs..

00:15:58

Andrew: Information in the rooms these incentives to make it what you will make a green choice. Yes. And why when they make a green choice they don't want the sheets changed or they don't want to towels change instead of happening every day they say every two or three days. If you did that you've got a reward in that reward was you've got points or you've got some renumeration to some degree that allowed that you to use it now or use it in your next stop that we could use it for next year.

00:16:29

Michaela: And then you sent some newsletters some information?

00:16:36

Ross: In 2017 also in 2018 almost I'd say 12 months straight we spent trying to figure out how do we communicate and what's happening around us. I mean how do we make sure that our guests understand that everything is going to be you know they're going to expect the great service that they want they're going to enjoy what they do it's not going to impede their state as much as I think it. It's quite a process. We had to do everything online and you know all about online distribution channels all about our emails everything you could imagine in terms of every touchpoint that a customer would engage with us. We had something around water what we made the conscious decision probably eight months ago six months ago to start to reducing that because we want the people to start actually realizing that Cape Town is in a much better situation. I wouldn't call this a water crisis anymore. I would just say that we essentially could come back.

00:17:35

Andrew: Keeping it there is an awareness room. It is the way it is you know keeping water in it. You know as well as I do you can travel on the open road. If the speed limit is the good try and keep to the speed limit you'll always be there to break the speed limit. Long as you keep notification of what the limit will be people will try on the most. To find you online. If you take that speed limit away and they don't see it and they don't understand wrong What can I do. They will assume what they can do and they will travel as fast as they perceive the limit is now because there's no understanding of what is the limit. So that's why we're on to billboards and what are electronics media that the council put out to you as an information. Yes. Buckle up please use your seatbelts please understand level three water restrictions are still in use.

00:18:46

Ross: You want to make sure we get our it's going to what. We start a lot of people to forget. If we start allowing our consumption to go beyond a certain point it drastically reduces our ability to get our return on investment. So it does benefit us if the city continues to do this. But at a certain point certain products that the subway service must have a life cycle and it will be become too expensive and then it will just be very expensive just like damage electrical generators.

00:19:36

Andrew: Generators are sitting idle in the event that there's an electrical failure. If the rose and the water becomes to such a point whereby it's cheaper to use the council water that will sit there in the audience or the delay just that the water come with the hyper job situation.

00:19:55

Ross: Did you drive the car? There are two massive generators as you come down. And I think they cost that they were nearly five million together. So that's another five million rand. That's basically that's there as a precaution. But it gives our guests the confidence and it gives us as a team the confidence that if something does happen it's not going to impact the experience that we're trying to create which is what we do what we have as for our guests and their experience and expectations.

00:20:26

Michaela: Do you recycle water as well?

00:20:33

Andrew: Now it is due to the shape of the building as well. Now we have one centralized one we have a couple of columns but we don't have a roof infrastructure. So the same system that there are about half water runs in the same system that our rainwater runs to do we don't recycle there is a common line so we can't even go to the extent where people suggested using a grey water system. Now as your bath water recycles and put it back so I could use it to separate it to flush toilets. But even me this becomes a problem because what happens is if you don't do that treatment of the water your water starts to smell it it's not because of this of water it's because of the sediment that's in the water it gets trapped in the mechanisms and it starts to have an aroma to it. So you just got to watch it treat it then and a lot of people made money from that because I used to go to the shops and everybody had no flush and this sanitizer for that and sanitizer for this. So there was a lot of products and people made a lot from the despair of what we were facing.

00:21:52

Michaela: You have AC as well right? Do you use saltwater for that?

00:21:58

Andrew: All the water that we use in a hotel before the AC before whatever it is or it's all potable water.

00:22:50

Michaela: When did you put in place the reverse osmosis?

00:22:53

Andrew: The logistics the design and was done in 2017. In actual fact we started in February 2018 it was from conception to be buit, to piping. The layout of the piping we only just got the piping across the road because you are dealing with an unknown number of entities. So what happens is the government owns all the water above or below ground in South Africa. So yes the city council is custodians but the government owns it. So for us to use that water even though we were throwing it away we had to seek permission. So when the council had to get involved then it wasn't pure water the seawater. So then you have to get the environmentalists. Then you had to get a section of the of the government Department of Water and Sanitation. They wanted to be involved. Everybody wanted to have their signature and their tick on the box and you have to get them involved coasters and oceans because now the problem came about as you were discharging your sediment or your brine into the ocean. What is the impact on the ocean. So they are they are they will that they are quite stringent in regard to how to monitor and control issues. So there was a lot of entities then. Now what just fine for the hotel. But now we how do we conncect it to other hotel or hotels. So then you have to connect to the local government to seek permission to do so. There was a laborious process.

00:24:57

Ross: No it's interesting though I think if we would´t in the water crisis the project would have taken 10 years. Yeah but that's only because we in a crisis that the guys actually did some.

00:25:13

Andrew: Because of the fact that the speed restrictions have been reduced or they can't notice that they've taken their foot off the pedal. In regards to putting pressure on to put all these water now so we weren't going to do an expenditure we got to do our own borehole or reverse osmosis system. As we have. So a lot of companies have. It was great when there's a power failure and there's a lot of load shedding. Everybody makes money on generators. Some as electricity become stable Nobody wants but they don't understand what's happened once it will happen again and with the job nobody can predict it.

00:25:53

Michaela: Do you actually have a document like emergency plan for if something similar is going to come like what's going to be the action?

00:26:23

Ross: We have a water crisis procedure. But remember in general the hotel has loads of procedures at its former times or whatever it is going to be. There's a lot of emergency stuff that's put in place. I wouldn't say the water crisis is something that we practiced per say.

00:26:39

Andrew: From the aspect of saying well listen what happens if our water supply started to dry up . This is seawater. So there's water we surrounded by water water everywhere not a drop to drink. So we will get water down there. We´ll take another more. Another great investment in all things worthwhile. If it does you will get a return on investment.

00:27:09

Ross: Do you mean if the water runs out in Cape Town in general? Then we're the only ones sitting with water. That's quite a problem.

00:27:20

Andrew: Really. You see people have jumped on the bandwagon. I don't think there will be a situation whereby that might come about because it'll always be contingencies in place.

00:27:28

Ross: We have enormous dams so they have been talking about potentially could do a pipe from Johannesburg all the way through to Cape Town.

00:27:52

Andrew: Even the local governments had their own plants. They were building a number of plants. To see the challenge comes about with if you can save something that puts whatever you're saving back into the system to be used somewhere else. So that extends a lifespan. The city council we're going to do another plant with over to produce 2 million liters of water two million litres of water a day with the people's mind set in regards to swimming extend the life span of what available resources you do have. It is massive plant. If you can consider we are only making 400 000 litres a day. How big a plant would make 2 million litres of water. See.

APPENDIX 7: Interview with Natasha Mlunjwa, 33 South Backpackers

Michaela: 00:25 When did you started to feel the crisis is coming or what was the trigger for you to start to do anything about it?

Natasha: 00:33 Well, I mean 2017 in the back of my mind, my mind, you know, when you started seeing um, danger is coming, I knew that there is not drought crisis but in I was also trying to find like plans on what I could, um, how we could conserve water. I didn't think it was going to be that hectic. People were saying, Oh man, actually que for water. And also the first instance I got, I got um, I got two big drums, which are like 125 liters. So we had one which was in the kitchen cause you said, you know what I goes in like if they're going to do like watersheding and we just always have to, I have enough water for the guest to wash dishes and all that. So it puts in that drum next to the sink on and filled with water. So yeah, if it happens then it gets to be ready. And then the other one was like in the front, we just used the generally just to, you know, when we had a bit of rain to collect the rain water. Yeah. But then I also got another big drum when, um, I was going to get it like onto the side of the gutters day to collect water. And you know what? I was doing these things like slightly unconscious of how this is going to affect me, but then I was like, wait, okay, everybody's talking about this drought and this is how it's going to affect all of us. So then it hit us very hard in October, 2017 the unfortunate part that the previous owner of the backpackers ran the backpackers and uh, you know, domestic tarrifs. But then as a business it needs to be like on, on commercial. Yeah. So what happened is water bill went so high and we're like, we're not understanding this, but then invest a little bit previously to that, I had actually tried to conduct the city of Cape Town to get an exemption. Since I was a business. I had gotten quite a number of, you

know, quotations of putting the borehole. But then it's a little bit difficult when you don't own the place, you know, then there's the lender then the issue. And then is the money. We didn't really have that much money.

Michaela: 03:08 So you don´t own it and the owner is not present here?

Natasha: 03:10 They are, but I don't own the building. Yeah, I'm renting the building out. So, um, what happened was, um, we are seeing the water flows, which are very large and you're like, no, but then it doesn't make sense. And then the bill kept on going up. Normally when we are full, then the bill will go up to like six, 7,000 rands month. You understand? There's a lot of people in the backpackers, no real one danger. 19,000 rands.

Michaela: 03:44 And you couldn't switch to the commercial tarrifs?

Natasha: 03:47 I'm going to give a blow by blow. So, and I'm thinking, Hey, what's happening? Remember the other side, I'm a um, I didn't know. I think my assumption was we'll say stupid assumption that everything is like, you know, maybe allright. But it wasn't, and then he went into, you know, 24,000. I'm thinking, Hey, this water is just rising too fast and we do not really have the money to cover this. Now I'm like, hey to the city, but then what is this? Then, um, I went in for a holiday to Mozambique when I came back at night when I came back to see, the city of Cape Town limit our water to 350 liters. That's enough for four people, you know, in a normal household. And I had a full backpackers. I mean if you divide the ammount 350 by four people in the is okay. This house needs to accommodate like four people.

Michaela: 04:55 Normally the limits were given per person?

Natasha: 04:57 So that time it was that 80 then there was 50 person per head. It was 87.5 meters per person so it was enough fo four people.

Michaela: 05:25 And you had like 30 people in backpackers?

Natasha: 05:28 Well to be honest I think we had about 35 people in the house, you know, this staff was staying upstairs. So my staff members and volunteers. Two of them. Yeah. So the water will go, our ????? (gízers) are 150 liters each. And we've got three massive ones. So all three of them don't even fit on the 350l. They just sucked the whole water out. So now we don't have water. The water just cuts. They introduced the new meters that they had, that limited you that we just cut off. I guess they were sending a lot of notices and you know never came to me with them.

Michaela: 06:22 So you use this water for toilets, no for bathrooms.

Natasha: 06:26 This is the normal water that comes in on a daily basis when somebody who's showering when you're cooking comes in from the tap. But now we're only getting 350. So, um, but then the city of Cape Town also had like this, um, site on the tourism site. They were getting all the backpackers, uh, hotels to encourage guests even stand on buckets and recycle even if you're at home. So we started doing that. I've got buckets and they used to go in and collect the water from the spring. And then I had like these big water from this spring so that people will be able to drink the water. And we had like the drinking water in the tap water. Now people are saying it's unsafe, but then to get our guests to be like, fine, we just put in that big drum that we had in the kitchen, filled it up. And then we said, okay, this is, you can cook with this water, you can wash dishes with water. Then the one that I am and went to the springs was um, was for drinking. Sometimes I had to buy water. Like, you

know, got to pick and pay and buy those five liters and those fiveliters has been ready to go to the spring. It will be, you know, the water that you collect and use it for the guests to drink. So it was a lot of work, but then also very frustrating. And also now we didn't have water, we couldn't get people to shower. We encouraged them to use the buckets like we normally do in the townships. Um, or just to bath in a ??? like you normally do, you know? Actually the African way of bathing and you get like, you know, um, Europeans to be honest, which is a you feel embarrassed with our own people because Europeans are very environmental conscious. So when we say guys, when you use water, please point on this bucket so that we'll be able to use it for flushing. And now we are encouraging people to use the bucket system for flushing. So then they will, you know, they'll fill up and then they'll pour off the water into the toilet after they are done. And we were like if it's yellow let it mellow, if it's hard flush it down.

Michaela: 08:38 Do you still go to springs to collect water?

Natasha: 08:49 No. I became pregnant in 2018 I was still collecting water from the springs during my pregnancy. And so sometimes I borrowed my brother's car cause I don't have it guy anymore. So for each, and then we'll go ahead and fill it up and fill it up with liters and liters. But it wasn't like on a daily basis, people are very also conscious. It was just for drinking so it made it easy. So it didn't like run out quickly. So sometimes if it didn't collect, yeah we'll go and buy water. Normally guest used to buy their own water, but then just to, we'll make sure that that was in and eventually we didn´t have water to have guests so I had to refund so and, and book people out in other places. Now I'm

like making a loss now. Yeah. You know, and that was a very hard time.

Michaela: 09:41 So even if they came here you refused them or you cancelled beforehand?

Natasha: 09:44 They came or um, some people we had emailed or some people walk in and we tell them we don't have water you can go to there and there and sometimes they came back. They're like, no, I want to stay here. I'm like, I don't have water. And they're like, no, but then, but then, you know, the very nice part of it is like me and Jenny, are friends. So we'll get the guest to, they'll be staying here and I said, Jenny, you need to to to help me out. Yeah. You just have to help pay the, you know, the water bill. Sorry. He had to keep count of the guests going up there to bath.

Michaela: 10:24 To her own place?

Natasha: 10:25 No, at the backpackers. Oh yeah. Cause it's just up the road. So you meet a guest like in the morning, in the morning gown, the towel, the walking up the road and you're asking yourself, why is this like this? No, going to take a shower and come back.

Michaela: 10:42 Sure. I would be cool with that. You make a game from it.

Natasha: 10:46 It was quite an experience. It was in the one funny part was like, you know when you keep on like, no, no, there's going to stay somewhere else. And then they were like, no, we want to stay here. It's fine. What do we do? You know? And then they worked with us and then. I'm trying to get the city to come and fix this because we are a business. I have written e-mails and all that. And eventually was like reaching a pat. The city of Cape Town had this WhatsApp group that it put out there for the

people when it comes to water complaints. You actually to go in with your then somebody answers you behind them. They'll be like an automated response that says, Hey, you know, problem would answering you. I think there's a lot of people were going through a real crisis in their own different way. So, but then I felt like, you know, we're not getting any responses. I got an a hold of people's numbers and emails and they were like, what did you get this? I'm like, you do not know when you're desperate, we're running a business, you know everything. Because then one time visits have awkward all like, you know, I had like two interns from Austria doing marketing and then we had guest in house, I'll give them number on WhatsApp and said guys whatsapp the city for this and this is our reference number, this is what you need to use. And then they started flooding and then the City of Cape Town ended up responding and saying, no, you guys are confusing us because everything, you know, complaint that comes in, we take it as a new whatever reference. But then I think somebody ended up noticing this is coming from one. Yeah, it references the same.

Michaela: 12:58 But you didn´t get an answer. And what kind of help do you think you would get?

Natasha: 13:12 I got the city on the phone and explained them this is ABC and D and I sent them all the business, you know, documented everything. Then they were like, um, well if we were trading for three years, because after me, it was three years, I wasn't counting the years that did not belong to me. They said, okay, fine the city's going to give you like, you know, there's going to give you an exemption for the other years when you're in you overcharged on uh, uh, on that different tariff. Yeah. So obviously the city doesn't give you money back. What it does is

obviously they just cut off your nest water bill and we would see they've never done that it is till the same. So I've gotten a complaint in the email. It's like, it's ridiculous. But anyway, it got into a point that, you know, the little showers that we are getting, this is, um, from a person who knows that yes, water is life. But then with the way we grew up, we're not that much no taught and you know how to save it. I ended up knowing that, you know, if you fill it, if you feel both these things, are you flushing down 30 liters of water? So I was so water conscious that I got so irritated when I could see that guest was just washing and then it's just going in there. So we had one south african guest who will use much more than 50 liters a day and I'm like, Hey Michelle, you know, it's much more expensive to have you as a guest. So then they'll go out for dinner and then that's really, and then the, all the guests were out, this, that's rain, whatsapp or guys, did we have buckets close you know. They run it because there's a bit of rain to make sure that they have enough, collecting water from the gutters. It was, we will feel whatever we could, they rain water actually pushed us a long way because we use that for flushing. We used that for flushing and then, um, then I was like, okay, now I just want to make the left for my guest easy. And for the staff members themselves because I think it was quite also disgusting. Every time when you know someone gets done, not always the same one. We encourage them, hey guys, you recycled water like this at the moment. Right? And then the other ones would just shower and leave all the water in the bucket. The next person who wants to shower, you know, we're like, okay, we encourage you to just pour that in there so that another person can go in and shower. So then, um, decided to quit like a gray water system. So, but then also we didn't have money. Yeah. So

then I found this other guy called Lionel who was able to do that by a certain point I think he was a little bit confused when he did his own company in doing that for that I hated like, you know, if you have to hire a plumber and they started to ask what to do instead of coming to you and say, Natasha at the moment, this is what it looks like. That's where you going. And then my assistant manager guy is an engineer from UCT and there was a big scramble with them two I needed to be telling him the engineering done it's not going to work this way. And then he was like, no, what are you going to tell me? A woman. But eventually in the end it worked. Then we managed to get that running. But then we first hit a small bucket and eventually, we started using the big, big, big one, the big tank, like 750 liters. So all the shower water will go into the tank. All the washing machine water will go into the tank and then we'll be able to flush. So then we took away the bucket now to stand in. Right? But then we kept one bucket and we still have that bike in and all the bathrooms.

New Speaker: 17:43 So you say widely a packet we societies and say to the guests guys, you know, we were still water corp and we needed to help to work with us. So one is to wait for that water to come out. Remember, you know, you open the temperaments, cold water. So I'm guessing it would just open and lit like 15 liters of water run through the drain was like 17. Then we will be able to do three things with it. Number one [inaudible] we'll be able to pin with it in the backpackers. We'll also be able to use it for flushing. We'll also be able to use it for watering the garden. Yup. Yes. And um, you get other people that do that to get other people that stand in the shower with the wartime, then it becomes 13 with the packet, but it's supposed to run the clean

water and then you put it on the side, you know, so they'd be able to resect the cleaner water properly.

Speaker 1: 18:33 But yeah, the tiny bit of what we've done with a gray water system, which is a still need to do a lot of work with it. Cause sometimes I'm, it still needs a bit of work. Uh, so what do we need to do is invest more in making it like, you know, quite efficient is in terms of that sometimes the water is not, the pressure of the water is too low. So it takes some time to fill the toilets and you know, some people are not passion, some people blood patient. But then that really did teach us a lot about Tina just leisure, literally cutting and a lot of things out to make these story quite short. But the US experience, you know, for a small business like us is, is still intense because the last month that's when we finished paying lower 48,000 runs water bill Richard Chop it little by little, but then you know is a business you still often need to run.

Speaker 1: 19:33 And um, obviously when you've got people they're going to use water and you know, pushes the bill up, feeding their effect on ongoing. I even went in and tried to go in and ask people to sponsor, give us a bit of money where they chose to or run to try and, you know, yeah. What's that bill? Cause, I mean, you know, even if you are on the commercial tariffs, the CT was charging yes. Six Times more than what normally it used to be. So when it became six times more for um, yeah, for year it's essential to get the church to get the commercial rates. Yeah. Well even the commissioner rates, you know, they went up. Yeah. You know, some people were like [inaudible] can do it [inaudible] fine, but GSM, they just upped their race, which is the never brought them down at all. But then I've, I've approached them a lot of times in none of them had, yes, he had

me and I'm like on the verge of La Cocaine, you know, if they actually go in and exempt us for the other amount of money after they recalculate each will go a long way for a small business like us.

Speaker 1: 20:41 But then they haven't in the communication with the city of kept on zero horrifying. And I, okay, so who are your contacts stick exactly there. You know, the, the worst part of it when it's done on a phone call is somebody behind it. And then I'll walk into the office. Today's this person, the next person is that person. So you get like the other guys that actually advise you properly. Then the other does. I do not know. And with the US stupid meters that they could, they were faulty.

Speaker 1: 21:14 Um, one minute, you know, cause we also watched so much with serving on a month, someone who saved about 44,000 liters of water and we're so proud of us off, you know, because that me also, you know, every day what did happen, like when they did, they went into, when they went from 350 right? Ended up giving us a per day 1,400 that was 50 liters per day per person out of 28 people because that's the maximum capacity to have this. We don't any extras of this hostile. So on one form, let's say on a day we use 400 liters, right? The Lennon roll onto the next day. But then on the first of the month, it starts from ground zero or so on the first of month. What we, we used to do because we have quite a washing machine. It was cheaper to wash in house than um, than to take it to the laundry.

Speaker 1: 22:13 You empty and then you don't understand is 1,200. We are getting that 1,200 from. Hmm. So when they did the, when they, when the APP, the amount to 28 people, um, then we're given 1,400 liters a day. So we tried to save on that one four and then at the end of the month we'll know when we say 44,

34, he just graduated with the different months and then someone will do better but also had each also was influenced by the occupancy. You know, the more people you have, sometimes you've got, the other ones were very cautious. We will like, yes, that's said 20 liters today or the other ones were just going to stand in the shower and use at least 115 details too. So [inaudible] to educate and to put some signage is the signage and also taking them, it was everywhere. And, um, we encourage consciously, always, and the fact that the greywater system was, was low so people knew when they went into the toilet that day.

Speaker 1: 23:22 Sometimes you go in and you want to go number two is still, so they will always need an extra big packet by the door. We know when people show up to put the water in the end, then people will be able to use that to, to flush so that exercise it. So it was also part of the welcoming Parkman actually. Hey guests, this is APC and d and Did you check for leaky chairs? Like change the fittings of taps and shower has to be like, um, all our fittings for the shower heads to get the, the ones that we could guess with like 60%, you know, less whatever they would like be the highest amount that we could, that will, will I try to reduce the amount of water and yeah. And then the kitchen would try to find the other filters where, you know, but then in the bathrooms we couldn't like change the whole system because the tips, I'm a different ship.

Speaker 1: 24:18 So now for us to really install the new one, it was costly. So we just hit to run on the fake that people please save water. Yeah. We have to give her like, you know, reminding them. So yeah, it's, it was um, that I wish we could actually born in like how do hotels it, but it's easy for bigger businesses. We have got money

to do the exercise that you're walking in the, they will be like no water system. The watch, I'll be like, shit to be like, um, what do you could, it's almost like a mist. Yeah. That is how you, you left the living room. They also took away the types of companies and then you use some tests instead of washing your hands. Yeah. And they invest in even use the reverse osmosis. So it's like, like I'm look, oh process. When you use the sold water with it fruit, some membrane and you're go to drinking water, it's super expensive.

Speaker 1: 25:12 So they can do this and saw a nation. And then the other one by the airport I think is, we'll tell bird. Yeah. They've got a massive system. Their, even their whole, everything is just recycled. Mm hmm. Everything is just recycled. Yeah. It's ridiculous. I mean the amount of money, but then it's really beautiful. Whatever they've done, the flowers that they have, your water, your recycling goes in there for them. They took away the tables because in, um, then they sent advise the guests of using one to one towel. Oh. Like not taking it for laundry and getting here in Utah also unit button, you know, I tell no, you're already doing and to tell her once and they may go in wash it sort of civilian and vials. Yeah. It's cut. It was quite intriguing how was very young. I was in here for that.

Speaker 1: 26:07 But I think it actually touch a lesson. You know, the one part I, I do feel as an empowerment what you admire most. And even though it was frustrating in the fact because it was empty, they faked that when we went to Mozambique. Yeah. We stayed in this one bag pickers in intention when you're just about to cross to Malawi. Yeah. Um, you know, going to backpackers, which were a little bit, I believe from all these resources that we have was eye opening, but in this one was interesting. I think maybe

it's still all fucked up system of jumping in in that city. So we get the [inaudible] nine at night and we're supposed to be in at four in the morning after this one drive from this other side of Mozambique to that. And also tied in classic. Yeah. And I still had, I was still on antibiotics because I took, taken her to the before we left the company. So, um, and then this young lady said I can quantitate three rooms back. [inaudible] they had one dorm room in two private rooms with one hive it for a couple and then the other one was a family room, which we ended up taking your family room. Cause I said to my husband, I don't think I want to sleep in a dorm room. I want to be ever too fat at night without worrying that these other people sleeping on the other side. I was so tired.

Speaker 1: 27:31 Yeah. I mean that's just me. So then we've booked in the family room, you know, it doesn't only had one baby clean bed to too. And so when she took us in this jaw string was she went in and give us a lesson of, hey guys, listen, when you're doing number one, this is where you do it on the toilet, right? If you do number two, do not put tissue in there. Put the tissue in the bean. Whoa. What? I was like, no, I don't. It makes a difference with the flushing. It totally does. Yeah, I bet I didn't shit in there. I just didn't feel comfortable because I was thinking about the housekeeper, how they feel, but then I had one. Um, but this is what you have all around Asia and this is how you do [inaudible] as well. And so Europe, it's because yeah, the infrastructure is still good and it could stock and uh, yeah, that's why she saying it just gets done and when you get stuck, everybody is messed up.

Speaker 1: 28:36 So yes, you then get the tissue, they just need to flush your own thing and then let it go. So yeah. Am I know, I think it was also

will there was water prices? No, what? It was more about the electricity to crises. Um, that was also like a preparation instead in point. But I guess the one biggest one was up and it was in 25th, 10 to 16 when we went to the wild coast and resting in while the band's backpackers. So they like building the whole backpackers. So is there, they hit to shower with just cold water or then they use this other system that's um, my husband described it as, or baby, you know what they do? It's more like a rocket system. Nah, you know, I didn't grow up in this, whatever. I'm in location, culture kid. So I don't know nothing about all these things.

Speaker 1: 29:29 How honest is your rocket lions guy? And I'm thinking I'm still a mighty myself because I was explaining to me in the morning, but then what they did, they had like this little container next to the [inaudible] Hawaii out of the shower. And then they put paraffin inside and then they'll put like in the tissue and the seed cotton wall works better because it lasts longer than you take images as you get on. So then that hits it copper wire. So when you open the shower water that runs up code [inaudible] passing through that Ford Coppola becomes woman then when [inaudible] never heard of it. Yeah. For me, I think traveling gets you to learn quite a lot. So that was quite an experience. So with the Mozambican side when we had to stay in different backpack, cause sometimes it wouldn't be water sometimes go with just this other issue.

Speaker 1: 30:18 So we've got, yeah, when I walked in here and then they did that. That was something else though. But I don't think I'm ever, people have had the seminar and says I have within the water situation because how I came to me and said, Natasha, you have been three or lunch. Right. So even if it gets with, you know,

you already managed to survive that because um, at that time for a whole month we ran the backpackers with Wharton and like be canceled or people who are still staying during the crisis to read like you needed to send to people. Oh yes, I will send the people away. But then other people wanted to just stay like that. So our neighbors, which is an NGO Malosha Malala, they used to also give us water.

Speaker 1: 31:09 Like you know, I spoke to them, they'll fill the buckets and then we'll fill the buckets and fill the buckets. And I'm my mom from the township, well we had like these other, they were like 15 liter packets and he, she, she gets them and sometimes she sells them so they're not black. My mind need water for the business and then she would get a ticket is put back the rights to saying she's old. And till today when I think about this, uh, it makes me want to applying. So then we'll actually takes your drive. I will say, I keep kidding me. Put these things on high of the whole texting to put it in there. Cause the guy with the back door in you will bring about, um, about 15 to 20 buckets full of water to the result. And then she would just sit in the car and then she was like, I can't, I can't come down. I can come out of the [inaudible] to tie and this should be just filling this buckets. [inaudible]

Speaker 1: 32:06 it is. But then, you know, that was what we went through. We had to get the water from the township cause we couldn't demand. But then the business also businesses all his assist each other to sit in point. But it was quite an interviewing. This is a bit more uh, springs with pumps around here. Now I'd like to get the water from. Is there more? [inaudible] there's nothing new. We haven't done anything because that was like, it was something that they said they were going to to do [inaudible]

but then we had the ball hole drilled up the hospital. So from the hospital side that was enough for the hospital. But then for us it was just like when you say water shedding, I don't know. Have you been to South Africa? In South Africa when these Nike no load shedding. When there's no interest until they just shut the electricity down quite a few hours.

Speaker 1: 33:02 You're all going to happen in Charlesburg few times better. Yeah. Yes. It's something that I saw the water when they say water shedding just to, to just the pressure. Then they would just shut the water for a few hours, which is in this areas they don't. Um, but then in the location we are still experiencing, you know, the watershed is, which is, it's ridiculous. It's a drink tonight. At least store. Not really engineeringly day. Okay. I wish it was during it. No, I do for good American independence and judging part is like in the morning and run five. Then the water just went dry and people need to get up and go to it. And when come in from work around six, you need to, so they just always took the water away from the time when people were needed. It's, yeah, exactly. So then this side, no, they just put in the, the rationing meters to give you, is it an amount, which is, they also did the seminar location.

Speaker 1: 33:54 So, but then those meters that have installed, we also very faulty because they still run, even if no water was coming through, even if it was just being just, even if you just connected it and putting it developed. Hmm. So then people started complaining about the, and when you told them that, no, we cannot work, what type of therapy? 4,000 liters saved in. All of a sudden it just born on ground zero. That's no way. Musket and topping. And then this morning you and 10,000 things, money on zero, this fall to them, they just took it away. Did he

come back to say, oh no, I put a jazz whatsoever. Then all of a sudden now the one, um, one of these I'm meter guys coming to investigate the case in that we did not have a meter. I'm like, we have a meter. The second meter that you guys give us is the one that was faulty was like there's no record that there was a second meeting.

Speaker 1: 34:50 I'm thinking what the hell was happening? Like yeah. It's been quite interesting. But yeah, that's how it has been. I would have to do about a garden. Um, we did use some times, you know, 750 liters of, you know, water that we are trying to recycle. Hmm. It was to, how can I say it was the, the judge a tank was too small. So then we had an overflow tip. The overflow tip, we used to push it into the garden and water the garden. So then we used to just do that for the bedroom. Also the water from that? Yes. Which will slipped. How would it is work to get it. Okay. Remember the judge a tank that we have for recycling water type of popping in that the water went in onto this and the brown liquid tank on that tank. We edited a pump. Just take a walk.

Second Part

Natasha: 00:00
But then it said long-lasting, you know, amount of money that you're saving at the end of the day. So yeah.
Míša: 00:06
Uh, I guess it's not possible to dig borehole anywhere here, right? To get to your own water source.
Natasha: 00:13
The companies that I call the orders, like quoting already almost ridiculous amounts. But then the first thing is that I think it is possible. We just need to find a spot where we can get water. If they use that spot then that's another way to go.

Míša: 00:26

Cause I was talking to Backpack and they said that they needed to dig 200 meters down, it is insane to get some water.

Natasha: 00:34

Get some water, some places. If I think, you know, I think there's a possibility that you know, probably will be able to get a borehole There are a few houses down the road, one house that does have, you know, a borehole So if we have to go the whole way, I wonder what the city will do to us. Yeah. But yeah, but then, um, during that, also the time when it was water crisis, the city was also quite after people digging boreholes cause people were all tipping it up on the underground water. When we're not having rain, that means we're going to run out to, but yeah, we would cut a huge amount of expenses with it, flushing, bathing. Yeah. And then we'd be left just with the drinking.

Míša: 01:31

Do you actually make breakfast here for guests?

Natasha: 01:34

We don´t make breakfast to sell. We just make a complimentary light breakfast, we do our own muffins. And then we put bread and then we have got tea and coffee and I'm that's complimentary.

Míša: 01:48

I was just thinking to do with the need to shut down the kitchen if there wasn't enough water.

Natasha: 02:36

Yeah. I was wiping most of the time and I had a group of, you know, guys were from Britain, England, church group. And we like hi guys. You know, cause they, nobody came in every year by they were like we are not going to come. Right. And then when they couldn't come, uh, we're like, hey you, why are afraid? And was like, there's no water in South Africa. I'm like, no brother, no we are putting measures and then they came, and we're like hey guys, don't, um, this is what you need to do. I think guys were not bathing. They were so afraid of wasting water. Why is, um, why is the shower in the morning so dry are these people even bathing the two-minute showers that we encouraged them? Most of them are bathing. We just wiping brushing teeth than was ever, you know. That's what I'm saying. Europeans are conscious.

Míša: 03:59

Two minute shower is long actually I think like in one minute you can do so much.

Natasha: 04:04

Yeah. But you know, these other backpackers introduced timers, like in a shower, we're going to open it. It says two minutes, two minutes then it cuts off. Yeah. But then now, you know, then they tell us the market for the showers were on demand and they went up. They became more expensive now for you to find them. Then people were like we can group up so that we can buy these ones.

Natasha: 04:32

But then there were one backpackers in Greenpoint that actually had them and one person told me that no, they hated showering because sometimes during the shower and boom it stopped and then in window on this call, do you have to stand in for five minutes to wait for the shower to the timer to kick in? But I was like, I don't mind if I'm going to bring it. And I had this other American volunteer Lawyer, a black American and he had this massive afro and he washed his hair every day, you're not king. You need to wash, wash, and take out the shampoo. That means you need 15 liters of water on your head. And I was not so happy with him. Every time I walked into that I was like no I am going to stand outside, I'm going to wait. And one time I told him, I'm going to sneak upstairs, while he´s sleeping and I'm going to put removal on his head. I was like don´t wash your hair every day, his afro was like this big. So when he puts shampoo you spend a lot of money or that because you put shampoo and then it's bubbling up and then know you had to wash, wash, wash. So I'm not Lawyer. I promise you I'm going to quit. And that was his name. Yes, it was his name. He is from the States and he was a convict. He learned how to code and make websites and he has no intention of going back to. It's just ridiculous. Such a nice guy, but then he can be very cunning. But yeah, he was part of the family. Yeah. I used to do my head in town once and then I used to ask them, I'm like, hi guys, how do you, you know, it was asking the saloon cause they have to work, you know how what are the measures that are you taking? I want dreadlocks, you know they do the shampoo, the wash they treated, they have to wash again and then if I have to put in like, hair dye you know, 20 minutes and then you have to wash and wash until the water becomes clean. Yeah. Otherwise, we'll just sleep on the pillow. Then it comes out on the pillow. So I really want to know all of these businesses based on water. Also, I thought people in the township were quite ignorant. And there was always this whole debate about, you know, um, when-when we are addressing tourism, that should be everybody else who was running a business in tourism. Like you know AirBnB and backpackers, hotels and then they all started pointing at the township saying, hey, the township is using a lot of water from their pipes and not monitoring. They're wasting water that side. And the one interesting answer that I liked so much was how the city responded to them and do you know, in Cape Town, there is always this

white and black thing and this was a white woman that responded that and she was like the township actually use the least of water. Those are the people that we did not worry about at a certain point because they don't have swimming pools impose to fill up, right. And then also I remember in the townships, in the shakes area, where are squatter camps, the city will put like a tap that can be used by about 60 people or more. The city was giving out at that time, 6,600 liters per household and understand per month. So they, after that is when we started calculating, you know, your bill, you're getting smaller, the amount allocated to you for free and then the other amount, you know, it gets calculated but then, uh, in the checks it was 60 households. And because you know, you don't have your tap in your house, you take a twenty-liter bucket, you're going to use it wisely because you going to be lazy to go back to the tap and get the water the right. So you're putting water into a twenty-liter bucket. I want to use it for cooking, washing your dishes and even what drinking. You are just you thinking, okay, I have to go and get more water. You use that wisely. But then they also had car washes. So those car washes for the taxis. Yeah, but then it wasn't something that was always running. Who knows? But yeah, that was that. Another thing that actually put us away, I mean I stay in the township, but I don´t stay at shack area, but we've paid for a water pill for the rest in taxes. So why we are experiencing the water shedding? We also experiencing this meters that, you know, the bill will come at 9,000 Rands from a bill that you used to be paying 400 rands. Whatever it is 9,000 so that was something that we like, kept panicking and then, but in 90% of the time we do not have water because they'll cut off the water supply. Yes, we need to get them some water. But then they also cut it off in a stupid way. They should just say, okay, if people are going to be at home from this time to this time, that's just about it, you know? So it was also an eye-opening to us who were staying in the location, but then we were not very much aware of what was happening around, we are probably going to say yes, they're wasting water. Yes. We are wasting water. They could've actually done it better, but they will actually, they also, they don't have the luxury of doing that. I mean, I stopped filling water in the tap and we are using the buckets and even till today, we take these five-liter buckets, we are recycling our bathwater. We flush with it till today. It's like it's in our blood right now. So right now, I think my son is the one who's actually saving a lot of water. One can say that because we hand wash his clothes, all the other clothes go into the, into the washing machine. But then with him, obviously we do not throw away the water. And with this wash, sometimes that water stays for three days or so because if we look quite clean, so the soapy water stays in. And then we have got the rinsing water where you've got like, you know, a fabric softener inside. And then when

we're recycling, we put it there. You flushed with it. So we still have not stopped. So I think this system really taught us a lot because even though what I was exercising here, I was also taking home.