

A SYNTHESIS OF SAFARI OPERATOR'S RESILIENCE TOWARDS CLIMATE CHANGE: A MULTIPLE CASE STUDY

A Master Thesis by:

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Submitted in partial fulfilment of the requirements for the degree
Master of Arts in International Leisure, Tourism and Events
Management

at the
NHL-Stenden University of Applied Sciences

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Submitted June 2021

Declaration

I herewith declare that

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Acknowledgements

I would first like to thank my thesis supervisor Dr Stefan Hartman of the tourism and leisure academy at NHL-Stenden University of Applied Sciences. He consistently allowed this study to be my own work and steered me in the right direction whenever he thought it was required.

I would also like to thank the research experts, Mrs. Sarah Seidel, Dr Leanne Jansen-Schreurs, Mr. Georgios Katsogridakis who have provided me with valuable insights into the research process throughout the academic year. Without their passionate input this project could not have been successfully conducted.

I would also like to acknowledge the library team of NHL-Stenden who made it possible and ensured that I would receive valuable literature via post despite the lockdown regulations. Gratitude goes additionally to all the participants of this research who perceived this experience as valuable and made a great contribution.

Finally, I must express my profound appreciation to my parents and my partner for providing me with support and continuous encouragement throughout this study and through researching and writing this thesis. This accomplishment would not have been possible without them. Thank you.

Carolin Giarra

Abstract

The phenomenon of climate change became an evident threat to the nature-based tourism sector with its various Safari Operators in Zimbabwe. Tourism enterprises, such as Safari Operators, are not able to avert this phenomenon from happening and are challenged with the complex and multidimensional nature of this global driver of change. Zimbabwe, as a country with a low-income level and lack of political stability, is expected to be more vulnerable and less resilient. Research which is centred around the resilience capacity of Safari Operators as individuals within a socio-ecological system (SES) against the effects of climate change is relevant in overcoming the common lack of understanding. This study aims to explore the capacity of resilience of Safari Operators in nature-based tourism, to adapt to the impacts of climate change in three main tourism areas in Zimbabwe: Victoria Falls National Park, Zambezi National Park and Hwange National Park. Specifically, it investigates the impacts of the phenomenon in question on Safari Operators, the requirements of a resilient system incorporated in the three cases, emphasising on the dimensions of persistence (vulnerability) and adaptability/preparedness as well as the impacts of the system specific influences on Safari Operators, focusing on economic and political factors.

To explore the research questions guiding this study, a multiple case study approach was utilized, seeking to research common parameters instead of solely comparing case results. Online semi structure interviews represent the data gathering method. By snowball sampling respondents were recruited to take part in the study and nine (9) participants divided amongst the three study areas in focus took part. Responses were analysed using primarily deductive coding, establishing strong linkages to the theoretical framework guiding the study.

The results demonstrate a specific case perspective of the problem in focus and was able to add to the existing knowledge presented in the literature review. The most prominent finding was the importance of the individual, referred to as the human dimension, within resilience towards a certain driver of change. Despite the results indicating low levels of certain requirements that build resilience, the case of Safari Operators shows a generally strong level of resilience towards the impacts of climate change. Specifically, within the requirements where the human dimension is an essential part of. Explicitly in the context of SES's, thus a synthesis of humans and nature, the human dimension is crucial when reviewing the resilience capacity towards the impacts of climate change and should be a central part of the conceptual framework.

Keywords: *social-ecological systems – impacts of climate change – capacity of resilience – nature-based tourism – Zimbabwe – safari operators*

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List of Abbreviations

CREST	Centre of Responsible Travel
EPA	United States Environmental Protection Agency
GHG	Greenhouse Gases
IPCC	Intergovernmental Panel on Climate Change
NASA	National Aeronautics and Space Administration
SES('s)	Socio-ecological System('s)
SRC	Stockholm Resilience Centre
UNDP	United Nations Development Programme
UNEP	United Nation Environment Programme
WMO	World Meteorological Organization
ZELA	Zimbabwe Environmental Law Association

Chapter 1 – Introduction

The relationship between climate change and tourism; as well as the impacts of this phenomenon on the industry has caught the interest of researchers for more than 10 years (Hall, 2008; Hall & Page, 2009; Becken, 2013; Pang, McKercher & Prideaux, 2013; Hoogendoorn & Rogerson, 2015; Hoogendoorn & Fitchett, 2016; Dube & Nhamo, 2019; Dube & Nhamo, 2020). The tourism industry can be described as a multidimensional system which is influenced by various drivers of change, in which the impacts of climate change as the driving force challenges the capacity of responsiveness of tourism enterprises continuously (Saarinen & Tervo, 2006; Becken, 2013; Hambira, Saarinen, Manwa & Atlhopheng, 2013; Tervo-Kankare, Kajan and Saarinen, 2018). Little attention has been given to this research field, specifically in southern Africa (Saarinen, Hambira, Atlhopheng & Manwa, 2012; Hoogendoorn, Grant & Fitchett, 2016; Hoogendoorn & Fitchett, 2016; Pandey, 2017; Pandey & Rogerson, 2018; Pandey & Rogerson, 2019). Therefore, it is crucial to investigate the capacity of resilience in individuals, such as Safari Operators, towards this phenomenon within specific socio-ecological systems (SES's) to establish holistic perspectives. The purpose of this first chapter is to familiarise the reader with the background of the study as well as to introduce the specifications and definitions of the problem in focus.

1.1 Research Background

No other industry is as highly dependent on climate as the travel and tourism industry (de Freitas, 2005; Becken, 2010; Scott, Hall & Gössling, 2019). History proves that changes in climate are not uncommon (Intergovernmental Panel on Climate Change [IPCC], 2007). Nevertheless, the current appearance of changing climate differs as the contribution to the changing climate is largely human induced through emissions of greenhouse gases (GHG) (Hausfather, 2017). Throughout the last decades numerous studies researching various perspectives regarding the interrelationship of climate change in tourism were developed (Hall, 2008; Hall & Page, 2009; Becken, 2013; Pang et al., 2013; Hoogendoorn & Rogerson, 2015; Hoogendoorn & Fitchett, 2016; Dube & Nhamo, 2019; Dube & Nhamo, 2020). Despite it being a key topic for scholars, a gap of research focusing on the phenomenon in developing countries can be identified (Saarinen et al., 2012; Hoogendoorn et al., 2016; Hoogendoorn & Fitchett, 2016; Pandey, 2017; Pandey & Rogerson, 2018; Pandey & Rogerson, 2019; Coldrey & Turpie, 2020).

The World Meteorological Organization (WMO) recently published the latest State of the Climate in Africa 2019 report which emphasises the annual increases in temperature, with each year showing a significant rise and being warmer compared to 2014 (WMO, 2020). The phenomenon became an evident threat to the SESs in focus; which incorporates the three main tourism areas in Zimbabwe, Victoria Falls National Park, Zambezi National Park and Hwange National Park (Kuyedzwa, 2019; Hill, 2019; Matabeleland North Correspondent, 2020). In 2019, the African continent was affected by a significant heatwave which impacted a wide range of countries in southern Africa (WMO, 2020). Temperatures were surpassing 45 degrees Celsius. Simultaneously, comparably low rainfall was detected. This was documented in the same geographical areas which were already affected by a drought in the years of 2014 to 2016 (WMO, 2020). The impacts of climate change in Zimbabwe are mainly linked to rising temperatures and fluctuations in rainfall patterns; which, therefore, influences the water supply (WMO, 2020).

Scientists see the current climate stage in Zimbabwe as critical (Brown et al., 2012; United Nations Development Programme [UNDP], 2021). The impact of climate change on nature-based tourism in Zimbabwe is alarming considering the crucial role that this form of tourism is playing in this developing country (Hambira & Saarinen, 2015; Dube & Nhamo, 2018; Matabeleland North Correspondent, 2020). Notwithstanding the fact that the tourism industry, globally, is highly vulnerable and exposed to the effects of climate change. The vulnerability of the global nature-based tourism industry towards climate change is recognised; nevertheless, the effects are continuously poorly understood by decision-makers (Scott et al., 2019).

Tourism enterprises, such as Safari Operators, are not able to avert this phenomenon from happening and are challenged with the complex and multidimensional nature of this global driver of change. Zimbabwe, as a country with a low-income level and lack of political stability, is expected to be more vulnerable and less resilient (Becken & Hay, 2007; Rogerson, 2016). Therefore, being responsive to change and implementing suitable adaptation strategies will be of importance (Shakeela & Becken, 2015). Simultaneously, it appears that tourism enterprises are confronted by the unstable political and economic environment of the country (Mhotseka, 2019). Therefore, evidence suggests that they are expected to have limited opportunities of being responsive to changes. Research focusing on the role of the individual in SES's within resilience literature is scarcely available. Facilitating research which is centred

around the resilience capacity of safari operators as individuals within a SES against the effects of climate change is relevant in overcoming the common lack of understanding. Which in turn will encourage the development of suitable adaptation strategies to facilitated sustainable tourism development which is desired by the countries nature-based tourism sector.

1.3 Problem Statement

Consequently, derived from the above stated contemporary issue displaying a gap in literature, the leading problem statement of the research is as follows:

As the impacts of climate change cannot be averted, safari operators are challenged to develop adaptation strategies while facing their own vulnerabilities and system specific influences of unstable political and economic environment.

Subsequently, the aim of the research is presented in the following:

1.4 Aim and Objectives

The aim of the study is to explore the capacity of resilience of safari operators in nature-based tourism, to adapt to the impacts of climate change in the three main tourism areas in Zimbabwe: Victoria Falls National Park, Zambezi National Park and Hwange National Park.

The following objectives have been established to support the aim of the study:

Objective 1: To explore the impact of climate change in nature-based tourism on the three main tourism areas in Zimbabwe: Victoria Falls National Park, Zambezi National Park and Hwange National Park.

Objective 2: To review the general capacity of resilience of safari operators to the impacts of climate change in nature-based tourism in the three main tourism areas in Zimbabwe: Victoria Falls National Park, Zambezi National Park and Hwange National Park.

Objective 3: To review the system specific influences of the political and economic environment hindering and/or encouraging the response mechanisms of safari operators to the impact of climate change in nature-based tourism in the three main tourism areas in Zimbabwe: Victoria Falls National Park, Zambezi National Park and Hwange National Park.

Objective 4: To identify possible adaptation strategies for the safari operators to manage the impact of climate change on nature-based tourism in the three main tourism areas of Zimbabwe: Victoria Falls National Park, Zambezi National Park and Hwange National Park.

1.5 Significance of the Study

The ongoing climate crisis is unquestionably a very important area of investigation. Despite extensive research numerous effects of this phenomenon remain uncertain. The findings of the study will contribute to the benefit of society, in considering that changing climate is an influential factor impacting multidimensional levels.

Furthermore, it will benefit the southern African region where the tourism industry, particularly the nature-based tourism sector, plays an important role in economic, social, and environmental development. The contribution of local entrepreneurs, such as Safari Operators, in the study will lead to empowerment in influencing policymaking at all levels to support the development of a sustainable and greener tourism strategy for Zimbabwe. Additionally, the sharing of results openly will lead to a learning curve across all scales - public, governmental, and societal levels.

For the researcher, the investigation will uncover critical areas in the resilience thinking process of individuals, such as safari operators in southern Africa; but also broaden the understanding of this academically researched field within the southern African context. The findings will significantly contribute to the increasing gap of research present in the southern hemisphere.

1.6 Outline of the Chapters

The thesis consists of six parts. In view of the above, the first chapter (**Chapter 1**) is the introduction chapter. It familiarised the reader with the background information of the study. The focus of the study was clearly outlined by presenting an aim and objectives as well as the statement of the problem is emphasised. Lastly, the significance of the study is presented.

The second chapter (**Chapter 2**) presents a critical review of all the available literature. The phenomenon of climate change and its impacts, as well as the vulnerability of the nature-based tourism industry is briefly outlined. Followed by the most prominent concept of the study, the concept of resilience; presenting a review of the resilience theory, the measurement of resilience capacity focusing on adaptation as well as the influence of the political and economic environment as

external factors is established. To sum up the conceptual framework illustrating the gap of research and main concepts in focus is presented.

The framework of the methodological design is presented in chapter three (**Chapter 3**). The resulting research questions are presented and establish the beginning of the secondary research process. A brief narrative of the areas of study is given, as well as the research design, data collection process and data analysis. Lastly, ethical consideration and limitations to the study are clarified.

The fourth chapter (**Chapter 4**) presents the main findings of the study. The analyses of the qualitative data obtained from the primary research and the results are displayed and structured according to the objectives and research questions of the study.

Chapter five (**Chapter 5**) comprises the discussion of the findings. Furthermore, relations to the secondary data obtained in the literature review are made.

The last part is chapter six (**Chapter 6**), which encompasses the conclusion and recommendations. An answer to the problem statement is presented. Furthermore, the researcher provides recommendations for possible adaptation strategies besides giving recommendations for future research.

1.7 Conclusion

The first chapter introduced the background of the study as well as the problem statement to familiarise the reader with the context of the research. The aim of the research was stated, and four objectives have been presented. The significance of researching the capacity of tourism resilience of individuals, such as Safari Operators, towards the impacts of climate change on nature-based tourism in the global south has been highlighted by the researcher. The second chapter will provide the reader with a critical review of the available literature of the main concepts and its independent and dependent variables.

Chapter 2 – Literature Review

It is argued that the tourism industry displays great potential for being responsive to change, showcasing resilience capacity towards future challenges such as climate change (Pandy, 2017). Nonetheless, it is crucial to recognise substantial discrepancies between challenges faced by individuals in the global north compared to the global south (Becken & Hay, 2007; Rogerson, 2016). Hence the level of responsiveness to change (capacity of resilience) can vary significantly. Therefore, an attempt to understand, maintain as well as enhance these levels within SES's is crucial.

In the following chapter a critical review of the available literature of the main concepts of the study is presented. As the main driver of change in the studied case, the phenomenon of climate change and its impacts, as well as the vulnerability of the nature-based tourism industry is outlined to ensure a thorough understanding of the research context. Following with the most prominent concept of the study, the concept of resilience. Here a review of the resilience theory, as well as the primary concept of socio-ecological resilience which most relates to the research is presented. Moving from theory to practice the requirements for resilience related to the cases studied are presented. Here the researcher adopts a positive outlook; therefore, solely studying the requirements which build resilience. Even though considering 'traps' would be favourable for the clarity of the aspects, this would result in a too extensive scope of the study. Additionally, the system specific influences of political and economic nature are briefly discussed.

2.1 Climate Change – as the driving force

Viewed as a driver of change within tourism, the phenomenon of climate change and its impacts on the tourism industry at large, has continuously risen as an interest field in research over the past decades (Hall, 2008; Hall & Page, 2009; Becken, 2013; Pang et al., 2013; Hoogendoorn & Rogerson, 2015; Hoogendoorn & Fitchett, 2016; Dube & Nhamo, 2019; Dube & Nhamo, 2020). Recently, the younger generation has influenced this discussion greatly with creating awareness within the wider population for the concept of climate change as a global threat (Ojala & Lakew, 2017; Sengupta, 2019).

Despite it being a concept, which is studied extensively, there is still a great volume of misinterpretation surrounding it (Belle & Bramwell, 2005; Bohdanowicz, 2006; Gössling & Peeters, 2007; Pröbstl et al., 2008). Repeatedly, no clear differentiation of

the concepts of 'climate change' and 'global warming' is made. The same generalisation occurs to the terms of 'weather' and 'climate' (NASA's, 2021). The distinction of 'weather' and 'climate' is significant for understanding the context of the study. Weather can be defined as locally occurring atmospheric circumstances which last for short periods; such as rain, snow, clouds, or winds (United States Environmental Protection Agency [EPA], 2020). On the other hand, climate is a regional or global average pattern of temperatures or rainfall which develops for long periods and no frequent changes are considered (EPA, 2020). Consequently, climate change can be generally described as an infrequent shift of long term regional or global average climate patterns (NASA's, 2021; EPA, 2020).

Historical events prove, that changes in climate are not uncommon (NASA's, 2021). Nevertheless, the current climate crisis differs as it has various impacts which are greatly human induced by contributing to the changing climate through emissions of GHG (NASA's, 2021; Gössling & Hall, 2006). Extensive research on the various impacts of the phenomenon of climate change globally, specifically focusing on the global north has been carried out over the past decades (Hoogendoorn & Fitchett, 2016). Despite the continuous interest in research of this phenomenon since the 60's, New et al. (2006) claimed 14 years ago, that since then there has been a continuous lack of data regarding trends and climate occurrences from developing countries in the global south (Saarinen et al., 2012; Hoogendoorn et al., 2016; Hoogendoorn & Fitchett, 2016; Pandey, 2017; Coldrey & Turpie, 2020). Even though that the claim of a lack of available and trustworthy data of developing countries in the global south slightly lost its validity presently (WMO, 2020), a lack of research showcasing a holistic view of the phenomenon in the global south is still existent.

Impacts of climate change in the African context

Through the gathering of reliable data, researchers recognised the vulnerability of the African continent towards impacts of climate change (Brown et al., 2012). The climate change report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) (2014), stated predictions of an increase in temperature in large areas of Africa, specifically southern Africa, of 2 (two) degrees Celsius, taking a medium impact scenario in account. This distressing prediction was strengthened by recordings of climate data of the past five years (2015 – 2019). Additionally, the WMO (2020) concluded in their latest report, that on average the period of 2010 till 2019 was the warmest decade which has been recorded so far.

Nevertheless, as multidimensional the concept of climate change is, as are the various impacts. Impacts can occur on various levels from a local to a global scale. Furthermore, they can be defined as interconnected and collaborative changes than simply straightforward affects (Hall & Lew 2009; Scott et al., 2012). Generally, researchers differ between direct and indirect impacts of the phenomenon (Rossello-Nadal, 2014). Commonly known and already scientifically recognised impacts of climate change are rising temperatures, rising sea levels, extreme weather events as well as food scarcity (Steyn & Spencer, 2012; WMO,2020). It is imperative that climate change impacts will have detrimental effects on the African continent, which primarily depends on agriculture and tourism as a source of livelihood (WMO, 2020; Hambira & Saarinen, 2015; Dube & Nhamo, 2018).

Detailed information of the current climate state in Zimbabwe is presented in Chapter 3, as part of the multiple case study approach. Nonetheless, it is worthwhile mentioning that the GHG contribution from Zimbabwe is minor, therefore the country is not focused on reducing the GHG emissions but rather concerned with implementing adequate response mechanisms (UNDP, 2021). As human activities contributing to the global threat are little, but the country is most affected and vulnerable to the impacts of climate change, it raises the question how these mechanisms work to ensure a favourable state of 'responsiveness to change'.

Prior to reviewing the available literature on the main theory of resilience, the concept of vulnerability specifically vulnerability of nature-based tourism towards the impacts of the main driver of change within this study will be presented.

2.2 Dependency on nature-based tourism in southern Africa

One of the main assets of the tourism industry are natural resources. Unquestionably this is also a key aspect of the tourism industry in Zimbabwe, where natural resources build the foundation for development (Saarinen et al., 2012; Dube & Nhamo, 2019). Nature-based tourism is a significant study area in tourism research (Hall & Boyd, 2005). There is a general agreement that this form of tourism occurs outside of urban areas. Nevertheless, to this day scholars were unable to agree to one common definition of nature-based tourism. Due to this, different approaches to define and explain this type of tourism are presented in the literature.

According to Laarman and Durst (1987), nature-based tourism is a form of tourism which unites education, adventure, and recreation. Valentine (1992) differentiated between three types of nature-based tourism, one type which is significant for the

context of this study is; that experiences are strongly dependent on the natural setting, such as the well-known safari experience in southern Africa.

A common mistake in the literature is the use of the term's nature-based tourism and ecotourism as synonyms. Cater, Garrod and Low (2015) most recently positioned nature-based tourism within the various forms of tourism. Based on his positioning it can be argued that nature-based tourism is a generic term which encompasses ecotourism, agricultural tourism, natural life tourism and hunting tourism. Within the context of the study the term nature-based tourism can be described as the form of tourism which is none consumptive and where one seeks and gets in contact with nature. Regardless of the divided opinions of scholars concerning a definition of nature-based tourism, the sector is continuously increasing its share amongst the additional types of tourism (Centre of Responsible Travel [CREST], 2019).

According to the UN Environment Programme (UNEP), Africa is not making use of its full potential of its nature-based tourism industry (UNEP n.d). The short article argues about the economic, social, and environmental benefits of tourism in protected areas and criticises the African leaders for not pushing towards crucial development in this area. Nevertheless, in the southern African hemisphere, Zimbabwe is part of the key nature tourism destinations which attracts two to three million visitors a year (Travel and Tour World, 2019). In August 2020, the required development of nature-based tourism has been discussed by several key stakeholders of the industry in Zimbabwe (Matabeleland North Correspondent, 2020). This development is highly dependent on key resources besides economic and human capital, weather and climate are additional key attributes.

Vulnerability of nature-based tourism towards climate change

Climate and Weather are essential assets and can hinder or encourage nature-based tourism (Dube & Nhamo, 2018). A few regions and forms of tourism are more vulnerable to a changing climate than others. Due to the high dependency of nature-based tourism on natural and climatic resources, researchers consider this form of tourism as being particularly vulnerable to this global driver of change (Dube & Nhamo 2018, 2019, 2020; Dube, Mearns, Mini & Chapungu, 2018; MacFadyen, Hui, Verburg & Van Teeffelen, 2019; Mushawemhuka, Rogerson & Saarinen 2018; Sutherland, Ndlovu & Pérez-Rodríguez 2018). The vulnerability of nature-based tourism towards climate change in Zimbabwe can be described as a 'ticking time bomb', as this form of tourism is a key player in the development of the country (Dube & Nhamo, 2018).

The relationship of nature-based tourism and climate change is complex and involves numerous uncertainties.

According to Kaspersen, Turner and Schiller (2001) the concept of vulnerability can be defined as the degree to which a system is sensitive to a driver of change, and the ability of the system to cope, recover or adapt to these changes. The available literature on the concept of vulnerability suggests a close alignment to the concept of resilience (Adger, 2006; Scheyvens & Momsen, 2008; Proag, 2014). The terms should not be treated as synonyms. However, research implies common parameters between both concepts, such as the changes experienced by the SES, responsiveness, and adaptive capacity. According to Proag (2014) it is argued, that as resilience capacity increases, the degree of vulnerability simultaneously decreases. Both concepts coexist and are constantly in a state of change, therefore they are inseparably linked to each other (Scheyvens & Momsen, 2008). The concept of vulnerability is therefore important to consider within the context of the research as it is significant for the definition of resilience as well as determining the resilience capacity of the SES in focus.

The level of vulnerability will largely depend on the capacity of entrepreneurs to adapt and respond to change. Subsequently, the tourism industries capacity to adapt to these unforeseen changes will depend upon stakeholders and managers knowledge of climate change. To further understand the relationships between the concepts leading this research, the concept of resilience within SES's is reviewed.

2.3 Resilience in Socio-ecological System's (SES's)

While exploring suitable response mechanisms, which contribute to building resilience of systems, the concept SES's has risen in usage in literature. Prior to establishing this concept as well as its usage within the present study it is of importance to establish what a system stands for. According to Crawley, Cameron and Selva (2016) a system can be defined as a composition of units, which interactions among each other are of greater importance than its unique characteristics. In general, it can be said that two is greater than one and the connections between the various components and their interactions are crucial for the system functions therefore systems are complex and multidimensional. The systems whose responsiveness to the impacts of climate change and its adaptive capacity is focused on within this present study, are the three nature-based tourism sides, perceived as interrelated SES's.

Consequently, to the previous statement SES has become a frequently used term within the field of tourism, while conducting studies focusing on the concept of resilience (Holladay, 2018; Folke et al., 2010; Prayag, 2020; Heslinga, Groote & Vanclay, 2017). Generally, SES's can be defined as a complex scheme, incorporating ecological as well as social factors which consistently interact with each other (Berkes & Folke, 1998; Stockholm Resilience Centre [SRC], n.d). The concept emphasises, that humans are a part of nature and should not be perceived as separate from nature. Within the context of the research the case is studied encompassing a SES framework, incorporating the three study areas in focus, which are interconnected and co-evolving constantly. Hence it should be viewed as such and not as single nonrelated components.

Although the concept of resilience has risen in popularity within tourism research, scholars are not able to agree to a single accepted definition (Folke et al. 2010; Hall, Prayag & Amore, 2018). The most cited definition of resilience is the one from Walker, Holling, Carpenter and Kinzig (2004), where resilience is described as “the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks” (p. 4). However, the concept of resilience already emerged in the 60's with Holling (1973) revolutionising this new field of research in 1973 (Holling, 1973). Since then, the literature comprises of multiple perspectives, whereas three of the most common ones are engineering resilience, ecological resilience as well as evolutionary resilience (socio-ecological resilience). Engineering resilience defines resilience as one balanced state of being, measuring it by analysing the resistance to a disruption and the pace of returning to this one balanced state of being (Holling, 1996; Folke, 2006). On the other hand, ecological resilience takes multiple balanced states of being into account. Here resilience is measured by analysing the capacity to withstand a disruption until adapting to a new balanced state of being (Adger et al., 2003). With this, the question rises ‘what is an ideal and desired balance state of being for a system when operating in a complex and dynamic environment such as the nature-based tourism industry?’, what might be socially desirable is undesirable ecologically for example. On the contrary, evolutionary resilience often also referred to as socio-ecological resilience differentiates itself from earlier introduced perspectives (Davoudi, 2012; Folke et al., 2010; Carpenter, Westley & Turner, 2005). Here it is assumed that a balanced state of being is simply an illusion as all components of a SES are continuously exposed to change, which necessitates constant adaptation,

transformability, and innovation within the system. Based on the previous and within the framework of the study, resilience is defined as the ability to predict and withstand disruptions (climate change), to reorganize itself with essential functions, structures, identities being retained and where room is given for innovation and transformability to reach a new perhaps greater balanced state.

From theory to practice

Moving from a theoretical understanding to establishing this concept in practice, resilience is often applied when analysing one specific issue of a system which can arise from various drivers of change. Thus, this is referred to as specified resilience (Folke et al., 2010). Within resilience thinking it is essential to be explicit about 'resilience of what' and 'resilience to what' (Sellberg, Wilkinson & Peterson, 2015; Carpenter et al., 2001). The resilience of what within this research concerns the Safari Operators. Contrary to previous studies conducted in this field, where the focus was mainly on resilience of destinations, this study emphasises the need to study the capacity of resilience on the level of individuals, such as Safari Operators within nature-based tourism in southern Africa. For Safari Operators the resilience to what involves numerous slow and fast variables (Lew, 2014). However, within the context of the study the research will focus on one main driver of change namely climate change, as introduced in section 2.1. The phenomenon of climate change is perceived as a slow variable, however the impacts of this phenomenon on a SES can be recognized as fast variables. These are changing weather conditions or natural disasters (droughts), which are often identified as direct impacts of climate change. Critiques say that this approach is too focused on specified resilience within a system, when it is impacted by various drivers of change (Folke et al., 2010). Increasing resilience to a specific component of a system to a particular driver of change may cause the system to decrease resilience towards other changes. As the impacts of climate change are largely being traced back to human activities contributing to the growth of this phenomenon (Gössling & Hall, 2006), the social (human) components within these variables should not be ignored.

A key challenge remains, how to measure but also effectively develop the capacity of resilience of individuals within the nature-based tourism industry towards the impacts of climate change (Stevenson, 2014; Orchiston, Prayag & Brown, 2016). As adaptive capacity is a key aspect in resilience thinking, there is a general emphasis in literature to explore in more detail the concept of adaptation, to measure resilience

capacity within a SES (Folke et al., 2010). Prior to briefly emphasising on the specific case influences which additionally represent a challenge for the issue in focus, suitable measurement characteristics are explored.

2.3.1 Requirements for resilience

With the increase of research focusing on the concept of resilience, a key challenge remains. The fundamental questions of, if and how resilience can be measured? What characteristics make a system truly resilient towards the impacts of climate change? And if they increase resilience, do they decrease the vulnerability of the system? As previously stated the researcher adopts a positive outlook looking at the characteristics which build resilience.

Over the past years, several researchers have attempted to establish the characteristics that create a resilient system (Biggs, Schlüter & Schoon, 2015; Djalante, Holley & Thomalla 2011; Folke, 2016; Davoudi, Brooks & Mehmood, 2013; Hartman, 2016). Research mostly focused on these characteristics from a destination or larger systems point of view. The characteristics that are argued to build or enhance resilience can also measure the capacity of a system to be resilient to a specific change. Davoudi, Brooks and Mehmood (2013), created a four-dimensional framework of the aspects that build resilience. According to the researcher's resilience is develop taking into consideration the four dimensions of persistence (being robust), preparedness (learning capacity), transformability (being innovative) and lastly adaptability (being flexible). The dimension that was additionally included was preparedness, claiming that within a multidimensional adaptive socio-ecological system, to enlarge the capacity of resilience a system is dependable on its learning capacity. The authors further acknowledged the internationality of human action & intervention within this dimension, a first beginning of recognizing traits of an individual.

Even though numerous researchers have attempted to illustrate the characteristics of resilience, showcasing a great variety of opinions one characteristic is a constant, adaptation or referred to as adaptive capacity. Hartman (2018) has accumulated key findings within the literature to introduce a set of six key conditions to operationalize this mainly theoretical concept. Here yet again a destination point of view was adopted. The four-dimensional framework of Davoudi, Brooks and Mehmood (2013), can be applied within the six key conditions Hartman (2018) describes. The approach of Hartman (2018) appears to be a more practical one and will be considered within

the instrument design. Nevertheless, the leading theoretical framework of the study will be the four-dimensional framework for resilience building (Davoudi, Brooks & Mehmood, 2013). An overview of both approaches and the connection of the theoretical concept towards the operationalized key conditions is presented in table 1. As stated previously, four dimensions were identified within the framework of Davoudi, Brooks and Mehmood (2013).

Overview of characteristics on resilience			
Davoudi, Brooks and Mehmood, 2013	4 Dimensions		
	① Transformability	② Persistence	③ Adaptability ——— ④ Preparedness
Hartman, 2018		Condition 1	Condition 2; Condition 3; Condition 6 Condition 4 Condition 5
Source: Author			

Figure 1 Overview of characteristics on resilience

Persistence

Within *persistence*, the concept of robustness (enduring change) is important whereas one can differentiate between short term robustness and long-term robustness (Davoudi, Brooks & Mehmood, 2013). Additionally, this dimension also relates / is influenced by the concept of vulnerability. Regarding the driver of change in focus, long-term robustness is more favourable as numerous impacts remain unknown. *Condition 1 – variety & redundancy*, identified by Hartman (2018), relates to the dimension of persistence, as *variety* and *redundancy* are crucial for the ability to manage changes. For instance, *variety* within the given case can be related to the general diversity of the business operations, such as range of activities offered or means of income. This can be variety which directly relates to the daily business of the safari operators but also operations which have no relation to the direct product. The ability to manage change is not presupposed but incorporates active assistance of larger networks including entrepreneurs, which showcases a strong link to the dimension of adaptability and its sub aspects of flexibility and resourcefulness (Folke et al., 2010).

Adaptability

The literature argues that adaptability is a key process which contributes to the learning capacity as well as response capacity of a SES (Davoudi, 2012; Folke et al.,

2010). Therefore, adaptability is perceived as a key component of a resilient system as well as within this research approach. Adaptability is a response process to the impacts of change (climate change within the studied case), it is not a single occurrence but a continues process which is happening within a SES. As stated in section 2.3 a SES is a complex continuously evolving system which is affected by various constant changes, these were identified previously as fast and slow variables. Even though Davoudi, Brooks and Mehmood (2013), suggested to add the fourth dimension of preparedness (learning capacity), it can be argued that this dimension is a component of the third dimension of adaptability (see table 1). Based on the reasoning that adaptability should not only be recognized as the capacity of flexibility but also as the continues learning process of a SES to a specific change. Nevertheless, the dimension of preparedness is discussed in the following section. Davoudi, Brooks and Mehmood (2013), identified two sub aspects contributing to the dimension of adaptability, namely *flexibility* and *resourcefulness*. Flexibility implies the presence of networks as routes towards resilience, relating to Condition 2 – *connectivity* (Hartman, 2018), which also emphasises the significance of entrepreneurs to create strong links within the system to strengthen the possibility of identifying stressors within the system, create trust as well as shape alliances that add value to the individual entrepreneur level but also to the system as a whole. Resourcefulness can be generally described as the ability to find adequate and resourceful solutions for changes, such as the introduction of artificial water pumps in the study areas to overcome the impacts of the drought (Valeix et al., 2010).

Being a continues contributor to research discussions within the field, as well as being one of the identified key conditions, is the level of involving stakeholders during the formulation process. This was identified as condition 3, which highlights the significance of *polycentric governance systems*, connecting multiple actors (Hartman, 2018). It is argued as counterproductive if national adaptation strategies are formulated without involving the stakeholders which are required to adopt these in practice (McDevitt, 2009), as this rather limits the approach and could result in maladaptation. Generally, the process of adaptation is a trial-error one, as an adaptive strategy does not always result in a favourable outcome. This needs to be considered and continuously reviewed. Furthermore, there is not one adaptation strategy that fits all, therefore continues research into this field should be facilitated.

In the case of developing countries, it is argued that with heightened vulnerability and low adaptive capacity towards the impacts of climate change, the adaptation needs will largely differ from the once utilized in practice in the global north (Adger et al., 2003; Buob & Stephan, 2013; Mertz et al., 2009). The research of Saarinen (2012) revealed that a significant number of businesses simply lack the adaptive capacity which is needed to overcome this main driver of change. This clearly justifies the principle of the introduced research approach in chapter one and three, to receive an insight of the concept of resilience not from a destination point of view but rather from an individual enterprise perspective. Additionally, the Zimbabwe Environmental Law Association (ZELA), highlights the need of public participation and stakeholder involvement for the development of further adaptation strategies as well as future policies (Brown et al., 2012).

Preparedness

As previously argued, the dimension of *preparedness* is closely connected to the adaptability dimension (see table 1). This dimension refers to the ability to foresee impacts as well as the capacity to identify opportunities and vulnerabilities (Davoudi, Brooks & Mehmood, 2013). Within the studied case the expert knowledge of Safari operators regarding the phenomenon of climate change will define the ability to be prepared for future changes. Additionally, to condition 2 and 3 relating to this dimension, condition 6 can as well be connected to both the adaptability and the preparedness dimension. Condition 6 simply refers to the adoption of an adaptive perspective throughout all the key conditions outlined by Hartman (2018), referring to the mindset to recognize complexity as well as change as a prospect of identifying new opportunities not as a threat to existence. Lastly, condition 4 and 5 can also be linked to the preparedness dimension as well as the adaptability dimension. Condition 4 – *environmental sensitivity* deals with the process of identifying vulnerabilities as well as monitoring/analysing the system such as the nature-based tourism sites in focus. This condition is also critical for the formulation of adaptation strategies, as with a great level of data gathered the ability to mitigate negative impacts increases (Gallopín, 2006; Hartman, 2018) Condition 5 – *learning* and *reflexivity* is closely related to the anticipation of change as well as adaptive planning capacity. It is crucial to reflect on and learn from the outcomes, established from a trail error bases to hopefully design suitable adaptation strategies to cope with drivers of change. Do Safari Operators only react on a cause-and-effect bases to the impacts of climate

change or is a certain extent of adaptive planning capacity involved which showcases a level of learning capability.

Transformability

The *transformability* dimension refers to the shift of a SES towards a new form of being (Davoudi, Brooks & Mehmood, 2013; Folke et al., 2010). This dimension can be described as a desired outcome to the adaptive processes a SES could undertake while impacted by a driver of change. Based on this the study will acknowledge the existence as well as importance of this dimension, however as the outcome of the impacts of climate change on the SES in focus cannot be foreseen a measurement of this dimension is not truly achievable. The aforementioned is not declaring an exclusion of this dimension from the research as regarding objective four of the study possible adaptation strategies could lead to a shift of the system, to a more resilient state of being.

2.3.2 System specific influences – economic and political environment
Based on the context of the study, research suggests highlighting the importance of the economic and political influences which affect the capacity of resilience of nature-based tourism operators (Doğantan & Kozak, 2019). When speaking about the economic environment one refers to various factors, such as growth rate, GDP, labour demand and supply or unemployment rates (Fletcher, 2018). Countries with a healthy economic environment encourage open situations for opportunities, restructuring and starting new businesses. The political environment describes the stability of the government, legislations such as environmental and planning as well as levels of corruption (Fletcher, 2018).

To take the political and economic environment into consideration is not a new approach in research. A framework developed by Turner et al. (2003) suggest that vulnerability, which is crucial for determining the capacity of resilience of a system, incorporates three categories of sensitivity factors, political, social, and institutional characteristics being part of it. As discussed previously in section 2.2 systems have different degrees of vulnerability, therefore also different levels of resilience, reflecting on the various levels of the economic and political environment (Dogru, Marchio, Bulut & Suess, 2019). Furthermore, it is crucial to emphasise that also systems with high levels of tourism but without a diverse economic and political resilient environment will be challenged and vulnerable towards the global trend of climate change (Dogru

et al., 2019). Hence, it is from importance to acknowledge these factors when researching the capacity of resilience of a specific system, such as the one in focus.

Despite it being crucial aspects to consider also for the developed countries in the global north, developing countries especially in the global south, based on their presumably insufficient adaptation capacity to the direct impacts of this phenomenon, are at higher risk. This is based on the strong dependency of developing countries on climate sensitive economic and ecological resources such as agriculture and tourism (Adger et al., 2003; Mertz, Halsnæs, Oleson, & Rasmussen, 2009). They are further adopting a bureaucratic, thus closed system design which emphasises uniformity and control as well as a hierarchical process and autonomous decision making. This is known as being counterproductive within systems and complexity thinking (Sturmberg, 2021). Based on this, the study will not only take the economic situation but also the on-going political instability of the country into account during the research process (Mhotseka, 2019).

The above discussed concepts and findings of the literature were developed into a conceptual framework presented in the hereafter subsection displaying the research frame.

2.4 Conceptual Framework

Subsequently the conceptual framework is presented, showcasing the interrelatedness of the concepts which are essential to the aim and problem statement of the study, presented in the above sections.

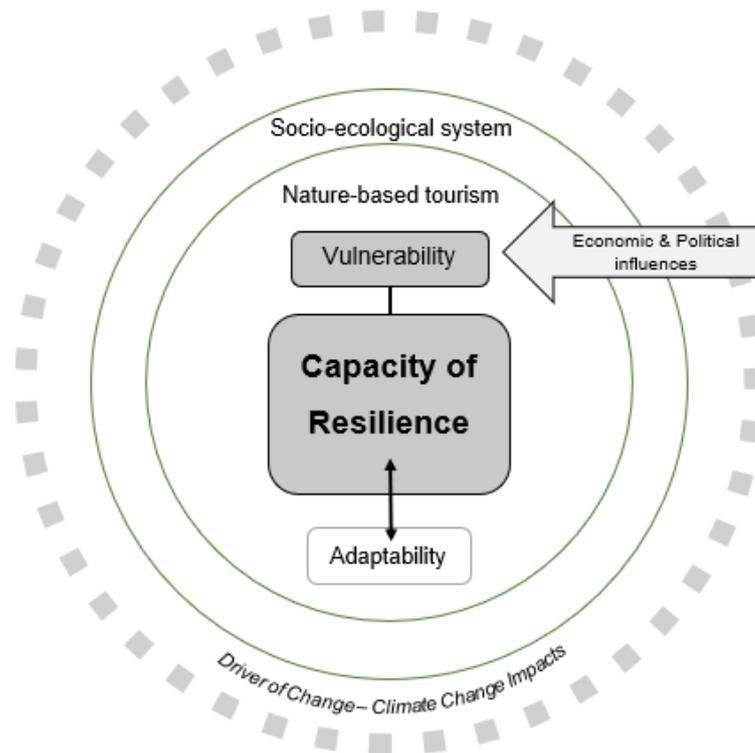


Figure 2 Conceptual Framework

The conceptual framework displayed above (Figure 1), showcases the primary focus of the multiple case study. On the outer border of the model, the main driver of change, namely climate change and its impacts are affecting the inner socio-ecological system (SES). The SES's in question are the three nature-based tourism areas introduced in the upcoming methodology (chapter 3). Within these systems the focus of the study is to explore the capacity of resilience of Safari Operators in nature-based tourism towards the impacts of climate change. Based on the previously stated academic literature, the emphasis is on the dimensions of persistence (vulnerability) and adaptability/preparedness. Furthermore, the influences of the economic and political environment are considered, based on the nature of the cases being studied within a developing country.

2.5 Conclusion

Changes in climate are not an uncommon phenomenon, nevertheless the current state of the climate differs significantly, as being greatly human induced, it established itself into a global climate crisis which is a first (NASA, 2021; Gössling & Hall, 2006). Being a global phenomenon, it caught the interest by a wide field of researchers. Nonetheless, research focusing on the global south still showcases substantial gaps within the literature.

As multidimensional the phenomenon of climate change is, as are the various impacts. Even though several impacts have been scientifically proven, future impacts and changes remain largely unknown. Research discovered the alarming vulnerability of the African continent towards the impacts of climate change (Brown et al., 2012). Zimbabwe as a developing country in the southern African hemisphere largely relies on its natural resources and the nature-based tourism industry forms the foundation for development of the country (Saarinen et al., 2012; Dube & Nhamo, 2019). Climate and weather are a key asset which accommodates nature-based tourism. Experts perceive the state of the climate in Zimbabwe as alarming.

Individuals in the nature-based tourism industry, such as Safari Operators are not able to avert this phenomenon from happening. Therefore, it is crucial to establish suitable adaptation strategies to ensure the resilience of this sector and the SES's in focus. Theories on the concept of resilience showcased a great variety of views. Several researchers have studied the question of what makes a resilient SES and have established numerous dimensions as well as key conditions ((Holladay, 2018; Folke et al., 2010; Prayag, 2020; Heslinga, Groote & Vanclay, 2017; Davoudi, Brooks & Mehmood, 2013; Hartman, 2018). As several components are mentioned within the literature which have a positive contribution to maintaining, enhancing or developing a capacity of resilience, this research will focus on the main theoretical framework of Davoudi, Brooks and Mehmood (2013) as well as six key conditions Hartman (2018) established from studying extensive literature. Despite it being factors, which mostly relate to bigger scales such as destination levels, one can still use these key findings to apply them to an individual level, such as within the case of Safari Operators in Zimbabwe. The introduced framework and key conditions have been transformed and operationalised for a multiple case application. Based on this the emphasis is on the dimensions of persistence also referred to as vulnerability within the study, adaptability/preparedness (seen as one) as well as the external influences of the

economic and political environment. The dimension of transformability is perceived as a desired outcome to the adaptive processes a SES could undertake while impacted by a driver of change and is not seen as a primary focus for the outline of the study. The external influences are considered, based on the context of the study, as research suggest developing countries with low economic stability and unstable political environment are more vulnerable to the impacts of climate change (Doğantan & Kozak, 2019).

The established key conditions of Hartman (2018) provide the bases of the measurement instrument of the research. Therefore, it is expected that key components mentioned should be discovered during the research process and provide the structure for the hereafter method. A primary emphasise is given towards the concept of adaptability (adaptability/preparedness dimension) as research suggested this to be a crucial component of resilience.

Chapter 3 – Methodology

The study explores the capacity of resilience of Safari Operators in nature-based tourism towards the impacts of climate change within three study areas. As previously stated, the emphasis is on the dimensions of persistence (vulnerability), adaptability/preparedness as well as the case specific influential factors of the economic and political situation. Despite the concept of transformability being of importance within resilience studies, based on the previously stated context the researcher does not emphasise, particularly on this dimension. This is based on the fact, that transformability is perceived as a desired outcome to the adaptive processes a SES could undertake while impacted by a driver of change. This cannot be foreseen and therefore a measurement of this dimension is not truly achievable within the established framework. Nevertheless, the concept will not be entirely excluded, should this concept appear to be of relevance during the research process, the researcher will refer to it.

Subsequently, the following chapter presents the research methods which were utilized to conduct the study. It clearly explains how the necessary data to address the research objectives as well as leading research questions was collected and analysed. In order to answer the problem statement, which is leading the study, research questions were established and are introduced in the following. Additionally, the research design incorporating an introduction of the cases in focus, data collection procedure as well as the data analysis procedure are described. Lastly, the ethical considerations and limitations of the study are acknowledged.

3.1 Research Questions (RQ)

Based on the identified issues and concepts showcased in the conceptual framework (see chapter 2), research questions were designed to ensure a thorough understanding of and a detailed response to the investigated problem statement of the study.

The research seeks to address the following questions:

RQ 1: What impacts does the phenomenon of climate change have on Safari Operators in nature-based tourism in: Victoria Falls National Park, Zambezi National Park and Hwange National Park?

RQ 2: What requirements of a resilient system are incorporated in the case of Safari Operators in nature-based tourism in: Victoria Falls National Park, Zambezi National Park and Hwange National Park?

RQ 3: How are the system specific influences in the economic and political environment affecting the response mechanisms of Safari Operators to the impacts of climate change in nature-based tourism in: Victoria Falls National Park, Zambezi National Park and Hwange National Park?

3.2 Research design

An exploratory research design, utilizing a qualitative method approach was adopted. A multiple case study approach enabled the researcher to collect in-depth information on the focused research problem within the three study areas. Additionally, this offered the researcher the ability to gather more realistic responses than a purely statistical survey (Swanborn, 2010; Sekaran and Bougie 2016).

As the main driving force, climate change is observed based on the parameters of space and time, resulting in different individual location based climatic conditions, therefore it was assumed that a case study approach is most suitable. Accordingly, the three cases in focus are located in Zimbabwe, Matabeleland North Province, which geographically ensures the observation of common present/future impacts of this phenomenon within the province as well as assured a reliable comparison between the case results. These study areas were selected based on the alarming impacts of climate change on nature-based tourism in Zimbabwe and the crucial role that tourism is playing in this developing country. (Hambira & Saarinen, 2015; Dube & Nhamo, 2018; Matabeleland North Correspondent, 2020). Tourism enterprises, such as Safari Operators are not able to avert this phenomenon from happening, specifically the country of Zimbabwe, with a low-income level (economic situation) and unstable political situation is more vulnerable and less resilient towards these unforeseen changes.

Besides the factors of geographical convenience as well as the urgency of the case, the study areas were additionally selected on bases of the visitor arrival numbers from 2019/18 (Zimbabwe Tourism Authority [ZTA], 2019). According to these numbers the three National Parks in focus are the most visited by international and domestic guests, showcasing the importance of these sites in the nature-based tourism industry of the country. The statistics of 2019/18 were selected based on the fact that they

were portraying a more trustworthy and reliable overview, as current statistics are largely influenced by the consequences of the Covid-19 pandemic and its resulting lack of specifically international visitors. The three case study areas are briefly introduced in the following section.

3.2.1 Introduction to the study cases

As stated previously, the research focuses on three study areas within the Matabeleland North Province of Zimbabwe. Zimbabwe is located in the southern region of Africa. The major nature-based tourism areas of the country are located in the Lowveld, north of the country (ZTA, 2019). Majority of tourists visit the three areas in focus (ZTA, 2019).

The first study area in focus is the **Victoria Falls National Park**. As indicated in Figure 2, the site is marked with the number one. The actual Falls received its World Heritage Site status in 1989, the Victoria Falls National Park which shapes a significant part of this natural asset was named a Ramsar site in 2013 (Ramsar, 2013). The Park encompasses an incredible range of flora and fauna. Nevertheless, in the year 2017 air pollution, drought and water abstraction were uncovered to be substantial threats to this natural asset (Dube & Nhamo, 2018).

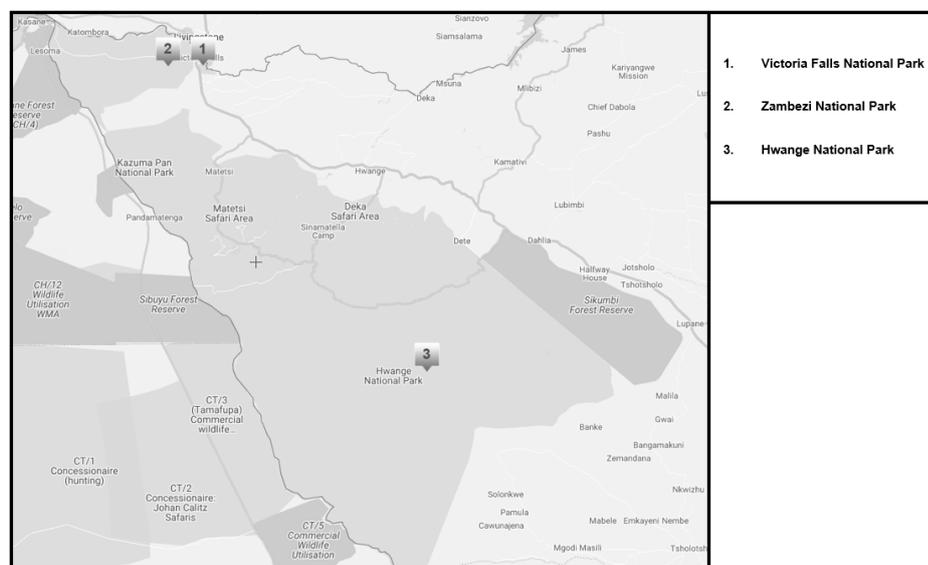


Figure 3 Map of study areas (Source: Author)

Directly connected to the first study area is the second focus of this research, the **Zambezi National Park**, which is situated upstream from the Victoria Falls National Park as indicated in Figure 2 (ZTA, 2020). The Park is on the northern side confined by the Zambezi River, it contains several animal species as well as a rich flora. As the

Victoria Falls are fed by the water of the Zambezi River, both sides are directly affected by similar impacts of climate change (Hall & Higham, 2005; Hill, 2019). Both study areas are significantly influenced by the availability of water. Due to climate change, temperatures are rising and in 2019 the Zambezi as well as the Falls suffered from the worst drought which has been recorded in centuries. The impacts have detrimental effects on the ecosystems which are of crucial importance to the nature-based tourism industry of the country.

Additionally, these impacts are observed in the third study area and the country's largest National Park, the **Hwange National Park**. This study site is situated 100 kilometre south of the Victoria Falls National Park (see Figure 2). The northern side of the park borders the Zambezi National Park. Hwange comprises a varied range of vegetation zones. Climate change specifically changes in temperature, rainfall patterns as well as winds are key concerns. Additionally, the park entails only a number of natural water sources. To mitigate these impacts, park management has implemented artificial water pumps to compensate for the decrease (Valeix et al., 2010). Even the United Nations Deputy Secretary General, Amina Mohammed, noticed the detrimental impacts of climate change on the environment of Hwange National Park during her visit (UN News, 2020).

The urgency of a comparable case selection, which provides opportunity to assess results within these areas that are increasingly impacted by this global phenomenon becomes apparent in the above. Therefore, a study focused on exploring the capacity of resilience of an individual player, such as Safari Operators in nature-based tourism, to adapt to the impacts of climate change, will provide a deeper understanding of the identified concepts in resilience literature within an operationalised setting. This possibly leads to creating networks and shared knowledge to adapt to the impacts and ultimately increase resilience. Additionally, this approach will also increase confidence in the findings on the bases of representativeness. Justification for utilizing a multiple case study approach is provided in the following subsection.

3.2.2 Justification of multiple case study approach

Various views exist within literature if single case studies or multiple case studies produce inferior data results. A key element which differs a multiple case study from a single case study approach is, that the multiple case study approach enables the researcher to study more than one case, in order to analyse and comprehend similarities as well as differences (Baxter & Jack, 2008; Yin, 2003; Stake, 1995).

Additionally, this key element has a significantly positive influence on the confidence and representativeness of the research. The analyses can be accomplished not only within the individual case situations but also across the cases, this is unlikely accomplished when a single case approach is selected (Yin, 2003). Consequently, this allows the researcher to contribute through a meaningful approach to the existing literature (Vannoni, 2014; 2015). The three cases in focus, namely the three SES's in focus, Victoria Falls Nationalpark, Zambezi National Park and Hwange National Park are studied parallel from one another.

A main critique of utilizing a multiple case approach is that it is argued that the analyses of the cases is not as thoroughly done and the time the researcher has to truly study the observations is significantly lower (Gerring, 2004). On the other hand, time constraints during the data gathering process as well as during the analyses process always exist when conducting research and a thorough planning and execution of this approach minimize these challenges (see Appendix A). This critique was acknowledged and at a later stage (section 3.4) of this methodology a comprehensive explanation of how a thorough analysis of the cases was ensured is given.

This goes without saying that the issue of generalizability is eliminated within a multiple case study approach, the contrary is the case. Following a form of replication strategy does not create generalizable results. Nevertheless, the confidence of the findings can significantly be increased as well as the accuracy, validity, solidity, and trustworthiness of the results (Miles, Huberman & Saldaña, 2013). Based on these arguments the researcher was confident that a multiple case study approach was most suitable within the context of the study.

3.3 Data collection

In the sections that follow, the recruitment process of participants as well as the population and sample scope is described in detail. Furthermore, the design of the data collection method and the data gathering process are elaborated.

3.3.1 Recruitment of participants

A thorough and appropriate recruitment process of participants was crucial to facilitate a reliable and valid case study approach. Based on the following paragraphs defined population size as well as sample and sampling method an effectively conducted research was ensured.

3.3.1.1 Population

Based on the information provided by the Zimbabwean Tourism Authority (ZTA), which granted access to the records of registered tourism facilities as of December 2020 on their website, the population of this study consisted of all operators legally registered (ZTA, 2020). The document differentiated between Hunting Operators, non-consumptive Safari Operators and Tour Operators. Based on the nature of the study and an earlier established definition of nature-based tourism excluding the presence of consumptive forms such as Hunting Operators, this category was excluded from the population total. In total the population comprised of 112 registered businesses throughout the countries tourism industry. The trustworthiness of the presented information in the document was questionable, on the bases of clustering criteria and discrepancies which were discovered by the researcher. Nevertheless, the presented information was used as a point of departure for conducting the primary research. Furthermore, as the three case study areas are under the jurisdiction of the Zimbabwe Parks and Wildlife Management Authority (ZPWMA) (Zimparks, 2020) which regulates the sites on behalf of the government and acts as an operator on their own, individuals of this department were added to the population. This increased the total to 146 individual. Based on the population size, the sample frame and sampling method was selected and is described hereafter.

3.3.1.2 Sampling

A subdivision of the population was chosen to present the sample of the study. The sample frame comprised of all Safari Operators, located or offering products within the three study areas namely Victoria Falls National Park, Zambezi National Park and Hwange National Park.

Based on the discrepancies and the questionable trustworthiness of the presented information in the registry, a comprehensive and reliable selection of research participants was not achievable. Merely 17 Safari Operators were identified as fulfilling the sample characteristics which were required for taking part in the study. To overcome this challenge the literature, suggested to utilize a non-probability snowball sampling method (Veal, 2011; Naderifar, Goli & Ghaljaie, 2017). This sampling technique did not only enable the researcher to collect primary data in a cost-effective manner, utilizing a short duration of time, but also created the valuable opportunity of identifying participants which were hidden. Flaws of this technique which were considered was the issue of possible bias, as participants were likely to

refer the researcher to people that they share a personal relationship with, such as friends, as well as the ethical issue of anonymity between participants.

As the sample was clearly characterized and encompassed experts, focused on company directors and managers as well as conservation managers and planning, monitoring and evaluation managers if available, within the study areas or operating closely in the set zones, a certain extent of networking was presupposed. This professional networking capacity therefore eliminated the issue of introducing bias into the recruitment procedures. The issue of anonymity between participants was managed and is further elaborated on in the interview process section of this chapter.

With the practice of snowball sampling, two possible subjects in each of the defined geographical areas of the population were identified. The identification of suitable starting participants was further supported by the researcher's expert knowledge of the areas and the safari operating business. The in-depth industry knowledge of the researcher presented a clear advantage within the selection process, as even though no personal contacts were utilized to decrease researcher bias, feasibility of the study was increased, as the foundation of knowledge on how to contact and address subjects was certain. Via e-mail thread two possible subjects were invited to participate in the study. This process was repeated until two subjects were interviewed. Subsequently to the interview process the subjects were asked to recruit additional participants which were willing to take part in the study and specifically fit to the characteristics established. Each subject provided multiple referrals which the researcher explored resulting in a representative data gathering process. As previously stated the samples were contacted via e-mail where an invitation (see Appendix C) to participate in the research was presented including a draft of the participation plan. Further information on this is presented in the section hereafter.

As it was not predictable when information saturation will be reached during the data gathering process, the researcher continued to sample subjects until all research variables were addressed and no new information was obtained, based on repetition of data (Sekaran and Bougie, 2016). The researcher anticipated approximately seven (7) to 12 semi-structured interviews to produce valuable outcomes for this research. The final number of participants was nine (9). Therefore, the number of participants was not predetermined, however was determined by the information gathered. Information was gathered until the data reached an acceptable saturation point and the researcher judged that the research questions could be answered adequately.

Unfortunately, a requirement of participants belonging to the governmental bodies was not achieved due to the disregard of the invitations. The impacts of this will be briefly explained in chapter five (5) of this report.

3.3.2 Interview design

As stated previously an exploratory research design, adopting a qualitative method approach was utilized to gather in-depth data of the research problem in focus. Within the literature, theoretical concepts were identified and research questions guiding the study were designed. Based on this information variables which are relevant to the research were identified, operationalising the theoretical concepts discovered. Based on this a research matrix was established to ensure a high level of validity during the design process of the measuring instrument (Appendix B).

Data was collected by means of semi-structured interviews (Bernard, 2005; Veal, 2011). Contrary to applying a structured interview method, the semi-structured method introduced a degree of flow during the interview process. Additionally, this method ensured that the participants were comfortable to share their thoughts and it created an opportunity for the participants to reflect on what was said. Additionally, the researcher was able to ask probing questions or explore new information during the collection process (Jamshed, 2014). This was ideal for collecting reliable, comparative, and in-depth data. When establishing a more flexible rapport with the participants it was crucial for the researcher to not fall short on its leading role as an interviewer. Accordingly, all interviews followed an identical interview script (see Appendix F), which was designed based on the research matrix, focusing on the concepts which are of importance within the context of the study (Bernard, 2005). This interview script was used as a checklist during the interviews and consisted of a total of 15 thoroughly designed questions, an opening as well as a closing part. The interview questions were designed according to the structure of the previously presented literature review and an hourglass approach moving from broad to specific aspects was applied. The detailed interview process is described in the following section of this chapter. As required for a semi-structured interview, the questions were of open-ended type to provide the participants with the needed freedom to elaborate and share their detailed views on the problem in focus.

Prior to the conduction of the interviews pilot studies were performed. For the pilot studies a convenience sampling technique was used to identify two participants that

were easily accessible and available. The pilot studies further contribute to the validity of the measuring instrument and reliability of research results. The findings of the pilot studies should uncover limitations as well as weaknesses within the interview script and the process (Saunders et al., 2009). Through test interviewing a non-expert within the field in focus face validity was increased, as the researcher ensured that the question design is understandable to all. This was facilitated by utilizing a participant within the researcher's private circle. This pilot test resulted in the comment of starting the interview process with the questions that focus on the economic situation of the country. The researcher decided to disregard this comment to avoid despite the importance of these factors within the cases an intense focus on this variable. Additionally, a participant with similar characteristics as the sample in focus was recruited to ensure content validity of the measuring instrument from an expert's perception. As the researcher is a member of several professional private Facebook groups, which form networks for tourism businesses in Africa, an appeal to voluntarily take part in the pilot study was voiced within these groups. Based on the appeal a suitable candidate fulfilling the characteristics of the sample in focus was identified. This recruitment resulted in feedback regarding the wording of question two (2) to adjust it from 'your people' to 'your staff'. The measuring instrument was modified based on this result of the pilot study. The detailed interview process is described hereafter.

3.3.3 Interview process

Following the subject's approval to participate in the interview process, a suitable date and time for both the researcher and participant was selected. Due to the current travel restrictions from the ongoing Covid-19 pandemic the interview process was conducted in an online environment. The online platform Microsoft Teams was selected as a suitable tool to facilitate the face-to-face (online) semi-structure interviews. With support of this tool, participants received an appointment enquiry which they were required to indicate as partaking.

Three days ahead of the interviews the participants received a reminder of the scheduled interview appointment as well as a brief outline of the themes which were addressed during the data gathering process.

On the day of the interview the participants were welcomed in the online environment. Prior to beginning the interview process each participant received a letter of information (Appendix D) and were asked to agree with the points illustrated in the

consent form (Appendix E). As obtaining a signature of the participants within an online environment was rather difficult, the consent form was translated into a short questionnaire utilizing google forms. Here the participants solely had to click the boxes and agree to the terms of the research. The researcher took over the role of the interviewer and asked the questions during the interview process. Former to asking the designed interview questions the researcher was setting the scene. This was incorporated as the data gathering process was taking place during the current Covid-19 pandemic. As the resilience capacity was researched and participants mainly show resistance to this present driver of change, the researcher shared the opinion that setting the scene of the scope of the research will minimize the introduction of unreliable data.

The estimated duration of the interviews was 45 minutes, at most, one (1) hour. However, the original duration was approximately ranging between 35 minutes and 50 minutes. All interviews were audio-recorded and occasionally video recorded as far participants agreed to this and conducted over a period of four (4) weeks.

3.4 Data analysis

As the collected data was qualitative in nature, qualitative data analysis was employed utilizing a mixed approach of primarily deductive and inductive coding (Miles, Huberman & Saldaña, 2014). The audio recordings of the interviews were transformed in transcripts (see Appendix H). To ensure transparency and positively influence the validity of the data, member checking was utilized, as each participant received their individual transcript before beginning the analyses process to give an additional agreement to the gathered data. Additionally, this process reduces the respondents and researcher bias. Subsequently, the researcher familiarized himself with the data gathered by repeatedly reading the transcripts.

Prior to beginning the analyses process a qualitative codebook using Microsoft Word was designed. Miles, Huberman and Saldaña (2014) refer to this process as a 'start list', this allowed the researcher to be organised throughout the coding process. Additionally, it provides context to outside individuals wanting to examine the coding process. The preliminary codes were based on the framework, concepts, theories and research objectives leading the studies process (see Appendix B) but were adjusted throughout the coding process, establishing the liberty of introducing new codes and findings in the analysis process. The finale codes were gathered in a codebook

presented in Appendix G. This approach was ideal, specifically for dealing with in-depth qualitative data in which the analysis was challenged by the magnitude of data collected. The usage of primarily deductive coding enabled a logic connection of the theoretical framework to the findings, this increases the trustworthiness and accuracy of the results. The threat of a tunnel vision during the coding process by using predetermined codes was acknowledged by the researcher. By continues reflection during the coding process the researcher tried to minimize this risk.

Following, the familiarization process with the transcribed interviews, the researcher applied the analyses software MAXQDA 2020 to begin the coding process. The transcripts were uploaded to the program and the previously established coding categories were assigned a colour and added to the coding scheme. The coding of the transcripts was accomplished in the order of the conducted interviews. Coding the interview transcripts was a critical part of the analysis. The researcher read through the data highlighting and labelling significant aspects utilizing the preliminary established codes. In a second coding stage the researcher coded additional findings as well as added new emerging codes to the preliminary established codebook. The specific fragments were arranged in a matrix display (Appendix I), this enabled a display of data at-a-glance to ensure reflection as well as the drawing of conclusions. This approach allows the researcher to thoroughly analyse the data gathered in-depth. As commonly encountered when conducting qualitative research, the codes represent a certain level of subjectivity to the researcher's interpretation and personal understanding, this interpretation is further discussed in chapter five and six of this report (Boeije, 2010). To reduce researcher bias a thorough audit trail was kept. Additionally, four (4) sample transcripts incorporating the established codes were sent to a second reviewer (non-expert) to proof for understandability as well as validity.

3.5 Ethical considerations

Several ethical issues were considered during the development process of the research approach. Participants were asked to give written or verbal consent to participate in the study as well as to ensure their anonymity. While sharing the purpose of the study with the participants the researcher also shared her background and some of her personal stories as a professional in the industry. This assisted to build trust and in turn encouraged the participants to share their stories. Despite the chosen sampling method anonymity between the participants was ensured by adding a clause to the consent form as well as addressing this prior to the interview process.

Furthermore, participants were asked to provide permission to record (audio/video) the interview. The names and details of the participants taking part in the research are not published or openly addressed in any given conversation. Additionally, to ensure transparency of the research results the participants were offered to receive the results prior to the handing in date of the research report. Based on the nature of the case being in a developing, economically and political unstable country an open group approach such as a focus group was considered as unethical. Participants could not be expected to speak freely and answer openly sensitive questions regarding the influential state of the political and economic environment on their business operations in front of competitors or members of their network. Therefore, single semi-structured interviews were selected to ensure a comfortable environment for the subjects as well as the researcher.

3.6 Limitations

The interviews were conducted with some constraints, of performing them online during the current Covid-19 pandemic. This tempered the research results as the sample was in a mindset of crisis management. During the data gathering process the researcher encountered the issue of loss of connection and/or loss of electricity in the participants host area. This led to the adjustment of the previously stated Interview process. Despite the preparation of utilizing several online environments, such as skype and Zoom in the case Microsoft Teams is not suitable for the participants, the researcher was unable to prepare for such an event. Therefore, the process was adjusted in utilizing WhatsApp voice note as this provided the opportunity for participants to prerecord their answers and send them when electricity returned, and the network connection was stable. Through this adaptation the researcher noticed increased enthusiasm to participate in the study. The participants were provided with the interview script via e-mail. Additionally, the researcher recorded the interview script as a voice note in which verbal consent based on the formalized consent form was requested. Nevertheless, this had an influence on the answers provided by participants as they were shorter, and the researcher was not able to ask for clarification or discuss what has been said. Due to this the transcripts were provided to the participants and the researcher incorporated continues member checking by asking for clarifications of the said. This also reduced the introduction of researcher bias and misinterpretation.

Cultural differences were also considered as potential limiting factors this could be avoided through the researchers in depth knowledge of the African culture as well as personal experiences of having lived in Africa for an extensive time. Therefore, the researcher was considered as highly intercultural sensitive.

Furthermore, as commonly experienced when conducting a case study approach a lack of generalisability for all areas of the tourism industry based on the focused scope of the research is present. Nevertheless, the goal of conducting a case study approach is never to accomplish generalizability but rather to add a case perspective to the available literature. The available time to undertake the research was an additional limitation as data collection which takes place in a limited timeframe influences the outcome of the research.

3.7 Conclusion

The above presented methodological design clearly presents the utilized approach for data collection in detail. Justifications for the selected approach was given by the researcher. A qualitative approach was utilized to research the problem of the study. The presented approach was transparent in its assumptions and by applying a semi-structured interview method, data collection ensured the gathering of relevant, trustworthy, and reliable in-depth data on the problem in focus. A similar research approach was utilized recently by Weis, Chambers and Holladay (2021) who researched socio-ecological resilience and community-based tourism in the commonwealth of Dominica.

Chapter 4 – Results and Analysis

The primary purpose of the multiple case study was to explore the capacity of resilience of Safari Operators in nature-based tourism towards the impacts of climate change within three SES's, namely Victoria Falls National Park (VFA), Zambezi National Park (ZMB) and Hwange National Park (HWG). The SES's in focus are the three nature-based tourism areas introduced in the previously presented methodology (Chapter 3). The emphasis of the study is on the dimensions of persistence (vulnerability) as well as adaptability/preparedness. Additionally, the system specific case influences, namely economic and political factors are considered. Prior to presenting the results, a short overview of the allocation of cases as well as characteristics of the sample is presented.

Table 1 Distribution and characteristics of participants

#	Study Area	Gender	Age
Interview/Participant 1	Zambezi National Park	Female	+50
Interview/Participant 2	Hwange National Park	Male	+20
Interview/Participant 3	Victoria Falls National Park	Male	+40
Interview/Participant 4	Hwange National Park	Male	+50
Interview/Participant 5	Zambezi National Park	Male	+40
Interview/Participant 6	Hwange National Park	Female	+40
Interview/Participant 7	Victoria Falls National Park	Male	+30
Interview/Participant 8	Hwange National Park	Male	+30
Interview/Participant 9	Victoria Falls National Park	Male	+40

In total nine (9) participants (P) were involved in the data gathering process, spread amongst the three case areas. As the primary aim of the study is to explore the capacity of resilience of Safari Operators, a differentiation of the study areas within the presentation of results is not made to ensure a holistic display. Nevertheless, the average distribution among the study areas was expected by the researcher and showcases in a minor state the magnitude of the study areas in focus. Striking is the allocation of gender amongst participants, as displayed in table 2, a larger number of male company directors and managers were involved than female. The average age of the participants is between 40 and 50.

The following sections present the results of the research in order of the concepts and elements guiding this study; past/present impacts of the phenomenon, dependency and vulnerability of nature-based tourism, incorporated requirements of resilience

focusing on persistence, adaptability and preparedness as well as the effects of the system specific influences namely economic and political. This structure is also represented in the literature review as well as the three (3) research questions that guide the process. As the issue in question is of a complex nature, relations between findings within the different sections can be drawn. Nevertheless, a distinction between the concepts and elements is presented.

4.1 Apparent impacts of the phenomenon

The results of the semi-structured interviews revealed that all nine (9) participants have experienced climatic or weather related impacts in the past and present, relating to the scientifically known and identified impacts of climate change. Prior to going into depth of the apparent impacts of climate change which are present at the three study areas, the misconception of the terminology used should be addressed. When participants were questioned about what impacts they observed in the past and in the present it became apparent that the general knowledge of the concept is rather weak. The researcher detected this as participants had difficulty in differentiating between the two concepts of 'global warming' and 'climate change'.

Nevertheless, participants were able to distinguish between general observations, past observations (last four [4] – 20 years) as well as present observations (last two [2] – three [3] years). Despite the impacts being coded within the three prominent groups, results showed reoccurring impacts throughout, which is justifying the absence of distinguishing between the study areas.

All participants revealed the influences of **drought** impacting the geographical areas resulting in lack of available water, dying of animals, food shortage, animals moving outwards as well as increases in human-wildlife conflict. This has been affecting the areas in the past as well as in the present. The following quotes serve as evidence of this finding:

P7, VFA: we have been through bad droughts and there have been times where we've been adversely affected purely by climate because animals have died as a result of not being able to achieve, not being able to browse on sufficient resources, grazing etc., or find enough water [...].

P5, ZMB: with more and more drought and people being pushed into more and more the human wildlife conflicts that we experience as a lot of there is a lot more reporting of human conflict.

P6, HWG: [...] certainly, in the year 2016, we had severe drought. 2020 we also had a really bad drought. And you can see that through the you know, the lack of water in the waterholes [...].

Despite the above mentioned observations of drought being an impact, participant five (5) added that drought is a common influence experienced in southern Africa and not unusual.

Findings further revealed the occurrence of **fluctuations in temperature** within the studied areas. A rather new occurrence as it was observed presently. These fluctuations were described as rising temperatures as well as a severe decrease in temperature.

P5, VFA: Last year we had a 48 degrees, which was the first that I have ever experienced here in Zimbabwe. So, there was a very very hot day. But that being said, we have also had trends of very cold days. So last year we recorded a minus 12, which is also very unusual.

Specifically, rising temperatures impact the functioning aspects of the operation such as operational machinery but an impact in the human component guests as well as staff members was discovered additionally.

Moreover, **low rainfall** was observed, affecting major parts of the operation as well as the general management of flow of wildlife within the area's leading to an increase in human-wildlife conflicts.

P6, HWG: [...] the rainfall is below average and. Yeah, you can [...] see by even the water table in the boreholes when you're pumping water from the boreholes, [...]

The most prominent findings are presented above, nevertheless it is worthwhile mentioning that four (4) of participants mentioned that they currently perceive these impacts as minor, as they are managing a bigger issue, referring to the pandemic at this stage. Two participants (2) were unable to give detailed examples as they felt it was difficult to give an answer or were insecure of their expertise to provide judgement. The following statements serve as evidence of this issue:

P6, HWG: So not being a scientist, I wouldn't know whether I could put this down to being an impact of climate change.

P3, ZMB: Currently, I don't see you know, of course, it may be difficult to make out at the moment, but I would agree that we are experiencing some climate change, really, you know, [...]

Next to considering the impacts of climate change that are observed by Safari Operators in the three study areas, determining the level of dependency on weather and climate conditions is of importance. The findings of this linkage are presented in the following section.

4.2 Vulnerability of nature-based tourism

The level of dependency of the Safari Operators to their natural surroundings such as the climate and weather conditions does demonstrate the level of vulnerability. Thus, when questioned about the importance of weather and climate conditions for their day-to-day duties within the operation, there was a general agreement that weather conditions are extremely substantial for the business. This reasoning was mostly validated by the pure nature of the enterprise and product the Safari Operators are offering. It was clearly stated by all participants, that they are not only dependent on particular weather and climate conditions for their operation but also the operation itself is designed based on these conditions.

P7, VFA: it is very important [...]

P6, HWG: our day to day activities Hwange are very weather dependent because we're outdoors all the time.

P1, ZMB: we are reliant on the attraction of the falls. So, if they were to ever dry up completely which I don't think will happen, but it would be an absolute disaster for Victoria Falls, [...]

Generally, a strong relation between the importance of weather and climate conditions and the level of **vulnerability** of Safari Operators to the impacts of climate change was identified. The participants provided various examples on the vulnerability of their operation towards the impacts of climate change and the sheer dependency (section 4.2) on stable climate conditions of the operation. The subsequent section will present the results regarding the incorporated requirements of resilience in the three studied cases.

4.3 Incorporated requirements of resilience

As there was a strong focus on the dimensions of persistence (vulnerability) as well as adaptability/preparedness the resulting section is structured based on this emphasis. Even though adaptability and preparedness are seen as one dimension, for the purpose of transparency the results are presented within individual sections.

Persistence

Within the dimension of persistence, the results were divided into two primary groups, namely robustness as well as variety and redundancy. It would be fitting to additionally include the concept of vulnerability within this dimension. Nevertheless, as a consequence of the predefined structure of the literature review these findings were previously included in section 4.2 above. This has no implications on the discussion chapter which is presented subsequently.

With regards to **robustness**, the nine (9) participants referred to the cultural aspects as well as historical aspects which influence this ability positively. With reference to the cultural aspect participants referred to the fact that they are from an African background and have lived and operated in Africa for their entire life, based on this they are expected to showcase a great level of flexibility. Participant one (1) used the common phrase of *'taking everything with a pinch of salt'*. Regarding the historical aspects the nine (9) participants based their arguments on the historical and well reported unsettling political as well as economical state of the country, as individuals and the operations have overcome various challenges in the past. In general, a specific characteristic was mentioned by eight (8) participants, to which they referred to as *'making a plan'*. Both findings showcased a level of robustness within the participants and the following statements provide an example:

P1, ZMB: I find the Zimbabweans are an amazing bunch. They obviously suffered so much hardship in their lives that absolutely nothing gets them down. So, they just bounce back and make a plan and make a plan and make another plan.

P9, VFA: I think if I think if those of us who live in Africa have can take are very flexible, we take everything with a pinch of salt. We find a solution.

Furthermore, the results also displayed clear indications of long-term robustness as seven (7) participants mentioned their extensive working experience within the field as well as within the environment they are operating in. This finding relates to the

learning & reflexivity capacity of participants which is further elaborated on in the preparedness segment of this section. The results display a clear indication of strong robustness of the participants as well as self-confidence.

P2, HWG: Absolutely, I think we have been at this long enough to see both sides of extremes and on a daily basis, we continue to experience that. And because we have been out here for so long, we are well versed in what I think the direct environmental impacts are and are well equipped to be able to brace them and to be fighting them.

Participants were questioned about the level of diversity present, with regards to **variety and redundancy**, discussing the range of activities offered, means of income or the presence of additional elements which are not necessary for the functioning of the operation. The results showed primarily a lack of variety and redundancy. More than half of the participants clearly declined and mentioned that their entire livelihood is depending on their tourism enterprise. This is also clearly indicated by the various statements present within the data, for instance:

P9, VFA: No, unfortunately not. We have no other way of making money.

P4, HWG: No, not at this stage, sadly. [...], we are very much a tourism enterprise.

Consequently, to the lack of diversity within the operations, three (3) participants acknowledged the need for this expansion as wishes for implementing a wider range of activities and ways of generating money was mentioned. Furthermore, two (2) participants mentioned aspects of related variety, by means of having several ways of marketing their business, new target markets moving from an international focus to a domestic focus as well as a variety of different activities such as canoeing, sundowner cruises and fishing for example. Lastly (2) two participants mentioned aspects regarding unrelated variety which was the expansion into media to support the business as well as the expansion into farming hemp.

Next to studying the level of persistence the study further examined the dimension of adaptability, looking at the presence of networks with its established links, obtaining resourceful solutions as well as governance style.

Adaptability

When the participants were asked about the presence of networks within their operation the findings indicated clearly that the occurrence of networks is strongly established within all three cases of the study.

P7, VFA: we do have a strong tourism industry and we do have clear lines that we can communicate to authorities and [...] trying to make things work wherever possible.

Nevertheless, one can distinguish between the level of **flexibility** of ZMB compared to HWG as the existent links of the said appeared larger in size. Additionally, the researcher was able to make a distinction between informal and formal networks. Having said that, the informal presence of networks was affected greatly by human factors, for instance the role an individual has within the system influences the amount of networks present. The formal networks mostly incorporated governmental structures such as the various authorities that have a say within the operations and industry.

Connectivity is inseparably joined with the level of flexibility as it looks beyond the presence of networks and particularly studies the established links within, based on alliances and trust. Yet again the established links are strong within the three systems. However, the system of VFA as well as ZMB can be seen as one as they incorporate common parameters and rely on identical links. Whereas the SES of HWG is disconnected as they formed an individual network called “Friends of Hwange” in which they share knowledge and information. These links can be divided in the two previously introduced groups of informal as well as formal links. In general, the participants provided a number of different examples which showcased the level of connectivity this was interesting to observe as despite the level of competitiveness within these systems, trust and alliances were firmly established. Human factors, such as the personal involvement within the networks were again discovered as influential factors. These links are mostly facilitated through the usage of meetings, committees, WhatsApp groups as well as a constant level of communication. During the analysis process the researcher discovered a certain extent of participant bias as two (2) of the participants who were active and linked to formal networks were overly enthusiastic about the established links, alliances and trust established there. Ultimately the strong presence of links is presupposed by the nature of the work that a Safari Operator offers, as the business has to constantly be connected to suppliers,

activity providers, transfer providers on the ground and air, as well as with lodges and accommodations for instance. Without this level of connectivity, the business would not operate on a sufficient level.

With reference to the quality of coping with changes, focusing on the ability to find adequate solutions, the nine (9) participants stated a number of different examples. Interesting to observe was the first statements the participants provided, as they were mostly focused on the ability to find solutions to improve guest comfort when the driver of change affects the operation. It was mentioned that in the case of rising temperatures or drought they encourage guests to stay hydrated, stay indoors as well as to not waste water on any occasion. This showcases the crucial effect that not only the guest factor but in general the human factors have on the formulated solutions of Safari Operators. The researcher had to steer the conversation in the direction of an operationalised perspective of the participants. Subsequently different findings emerged which were grouped within the concept of **resourcefulness**. In general, the quality to cope with changes of the nine (9) participants within their operation appeared to be strong, specifically in terms of creativity to find adequate solutions. This is especially striking considering the general lack of resources which has been addressed by five (5) participants. As they are operating within a developing country, resources and needed material is scarce. Therefore, they end up recycling, upcycling as well as conducting the work with their own manpower.

P1, VFA: being in Zimbabwe, any proper technical assistance is far away and takes a long time to get to you. So, you [...] end up doing a lot of your [...] own stuff with a bit of string and chewing gum.

Additionally, the seven (7) participants criticised the inability of the governmental body to find satisfactory solutions. An emerging paradox is that this has a positive effect on the individual resourcefulness of the participants as they are contrived to solve problems on their own.

A further fundamental aspect is the level of involvement of stakeholders in decision-making and strategy formulation also referred to as **governance**. In general, the involvement of the government plays a key role in strategy formulation and decision-making processes. This stakeholder can be identified as a key player. Seven (7) participants described the involvement of the government as hindrance, nevertheless two (2) also described it as slow processes but having a voice within the processes is

beneficial. Furthermore, specific tourism organisations and operators were seen as influential factors within the governance. This prove to be complex, as the most influential tourism organisation is again steered by the government and additionally acts as an operator on their one within the study areas. This is based on the fact that all participants in focus do not own the areas they operate in, but rather act as maintainers of the land. Therefore, decisions and strategies which affect the land, and its surroundings constantly have to be approved by governmental bodies. This governmental authority creates additional challenges such as corruption. Overall, five (5) participants mentioned to take part in strategy formulation and decision-making processes, however all nine (9) participants pointed out that the main power is still apportioned hierarchically and within the hands of the government.

Preparedness

As previously stated the dimension of preparedness is closely aligned with the previously introduced dimension of adaptability. Nonetheless, to ensure a thorough reporting of the findings, both dimensions are presented separately.

A fundamental requirement for the participants to show preparedness for the driving force in focus is the ***awareness*** they have regarding the phenomenon. Therefore, when participants were asked if they are aware of the global changes in climate, all participants stated that the awareness is certainly present. They further acknowledged that they do recognise changes confirming the findings presented in section 4.1.

Next to being aware of the phenomenon and its impacts participants were asked to elaborate on their perception of the said, hence their ***adaptive perspective***. Vast majority (7) of the participants perceive the phenomenon in focus as a threat and therefore are alert of being responsive to change. Moreover, the participants mentioned that despite perceiving it as a threat to the SES that they are operating in, they additionally recognize it as an opportunity for change. In general, a positive perception and attitude was recognised from the participants which is likely to be traced back to their cultural background. Nonetheless, a few contradicting statements need to be acknowledged by the researcher, as participant nine (9) appeared to have an agenda in downplaying the issue of climate change as non-threatening. It is important to acknowledge that this participant was based in VFA, which had to suffer from poor publicity with regards to the Falls being dry in the year 2019. Therefore, the

researcher suspects participant bias within the provided answers as the interviewee was agitated during the interview process when asked about particular issues.

Environmental sensitivity focuses on the process of identifying vulnerabilities, consequently the participants were asked if they frequently monitor and analyse the systems (study sites) they operate in. A few similarities were detected between the study areas, however, also study area specific characteristics were identified such as the monitoring of potential flood threats in the ZMB. In general, majority of participants (8) monitor their surroundings on a small scale. But primarily rely upon information from the outside. They do not utilize their own information gathered and only scarcely two (2) participants keep a journal of their observations. This confirms the difficulty of the researcher to receive more detailed information on the impacts of the phenomenon on the study areas. A common factor was the monitoring of the quantity of rain, as the entire sample mentioned the rain gauge as an instrument. The researcher noticed that the availability of water plays a significant role within all study areas.

P2, HWG: we are on a day-to-day basis, we have the systems in place with temperature monitoring on a daily basis, rain gauges on a daily basis, you know, we monitor regularly the yield of water that's coming from the ground, and we visually analyse the changes in our environment.

Furthermore, the official hydrological reports were mentioned as an instrument for keeping track. All nine (9) participants mentioned that they have access to this report and consider the information within their decision-making processes. Additionally, one (1) participant stated that they take a look at weather and climate conditions on their own, via the internet for instance.

Within the case of the ZMB one (1) interviewee mentioned an additional way of monitoring, the flood bulletin. Here yet again participants heavily rely on international information as this data is produced in Namibia.

On a final note, the participants showcased that monitoring on a small scale is taking place within the operations. Nonetheless, it was repeatedly mentioned by five (5) participants, that they demand more official data within Zimbabwe, to observe the changes in the environment on a larger scale but also over a longer period of time up to 15 years for instance.

With reference to the **learning and reflexivity** ability of the participants, the learning capacity from past outcomes is strongly incorporated within the flexible nature of safari operators. Eight (8) participants claimed that, as they are operating within a sensitive environment they do have to adapt and react to changes. They mostly practice in-house training in which past knowledge is put forward. In general, the capacity to reflect and learn from past outcomes is present according to the nine (9) participants. However, the ability to act and transform aspects is deficient due to the lack of resources. A common example that was presented during the interviews was the learning capacity of the participants to mitigate the effects of a heavy drought by starting to pump water at an earlier stage, this was mentioned by six (6) participants. After having experienced the outcomes, if this is not done sufficiently, the participants learned from their past encounters. The vast majority (7) stated that particular this ability to learn and reflect on past experiences has kept the operation afloat.

Despite these positive findings a few of the statements indicated a lack of the learning and reflexivity ability of participants. Participant nine (9) argued that there is no need to anticipate future changes as they do not have any influential power. It was further claiming that they have to accept what is being decided on, on international level. Another influential factor which is impacting the ability to anticipate future changes is the currently ongoing Covid-19 pandemic. All nine (9) participants simply claimed that they are currently in a stage of survival and therefore do not practice strategic foresight for instance.

In the subsequent section the findings of the system specific influences affecting the capacity of resilience of Safari Operators, focused on economic and political factors are presented.

4.4 Effects of system specific influences

The effects of two systems specific influences were researched, namely economic influences as well as political influences that impact the capacity of resilience of Safari Operators towards climate change. The findings of both factors are presented hereafter.

Economic Influences

The entire sample stated that the overall economic situation of the country is difficult and severely challenging their business operation. No differentiations between the cases were established, thus the findings are presented collectively. Specifically, the

cash situation, referring to the dual currency creates an issue for the nine (9) participants, as it affects their financial liability. It was discovered that this factor is most prominent within the statements of the participants. It was further mentioned by one (1) participant that they are additionally challenged as they operate within an industry that is harshly taxed putting them under additional pressure. Furthermore, five (5) participants acknowledged that the economic situation of the country does impact their ability to invest in innovations, particular towards a more sustainable future. Without financial resources the desire for sustainable innovation is made redundant. An aspect enhancing this particular factor is the current ongoing Covid-19 pandemic as all nine (9) participants referred to this matter and indicated the vast financial loss that they experienced the past year. Furthermore, a lack of guests was mentioned by one (1) participant, as an effect of the economic situation of the country. Due to the economic situation of the country tourists are hesitant to visit, resulting in a lack of guests for the Safari Operators. One (1) participant spoke briefly about the vast unemployment rate within the country but did not relate it to their ability of responsiveness to change. Lastly, six (6) participants explicitly stated that economic support solely enters their operation from outside of the country, referring to international shareholders which invest in their operation. Showcasing again the economic dependency of the businesses on international benefactors.

Additionally, the influences of the political situation were discussed. The findings of this dimension are presented in the subsequent section. It is crucial to convey the ethical considerations which were considered, when reviewing the economic and political influences of the country and its effects on the study group in focus. Participants were only willing to discuss these issue as long as they stay anonym. Occasionally the researcher had to reinsure the participants anonymity during this part of the interview process, to create an open and engaging environment as well as to receive trustworthy results.

Political Influences

The political situation within the country was predominantly seen as a hindrance for the operations within the study areas. Again, no distinction between the study areas can be drawn as the nine (9) participants statements were identical throughout. When questioned about the political situation the participants used strong language to describe the situation, by which the researcher observed that this topic generates

tension. The entire sample described the situation as not only influencing but severely challenging.

P6, HWG: The country's political situation, [...] Not only influences us, but it's seriously challenges us [...].

A first challenge mentioned by six (6) participants and previously mentioned in the section of governance, is the chain of commands which is difficult, complicated and hinders decision-making processes. As the Safari Operators work in SES's which are under the jurisdiction of the government, politics play an important role in daily operations. Based on this operators are required to pay conservations fees which the governmental bodies utilize for the maintenance of certain components within these systems. These generated resources such as financial are not used for maintenance work, for instance maintenance of roads and therefore influence the operations flow. This cannot be perceived as a wider political influence but is a jurisdiction issue and most like traced back to corruption within the governmental agencies. Furthermore, four (4) participants spoke about the laws and policies which are in place and should guide their operations but rather hinder and complicate them. This is due to the fact that they are constantly changing or are adjusted/formulated to rather limit than encourage any sustainable development. Nevertheless, a shift or transformation within the political influences can be detected. For the reason that three (3) participants mentioned recent interest of the government to get involved in the climate change discussion. A reduction of duty on solar products was implemented which the participants appreciated greatly as it creates opportunities for sustainable upgrades without tremendous costs involved. Participant five (5) mentioned that the policies and laws in place are sufficient and enable them to cope with issues on a grassroot level. Yet again, the researcher could identify a certain amount of participant bias, based on the involvement of this participant in relevant committees and groups.

4.5 Conclusion

As evident in the results above, despite the differences in case study areas, numerous common parameters among the three cases were identified. This is due to the population in focus as well as the operation itself. However, this should not be seen as a limitation of the multiple case study as the purpose was not necessarily to differentiate between the cases but rather to find common ground to additionally identify possible adaptation strategies as well as to create a complex and connected environment where one can learn from past experiences.

The theoretical framework guiding the gathering and analysis of the results was sufficient to gain a first inside on the issue within a particular case setting. Nevertheless, a less restrictive analysis could have been favourable to establish an extensive inside of case specific findings. The approach of deductive coding hindered this development but provided the opportunity to establish a case perspective of the framework used to study the capacity of resilience.

The results above showcase to a certain extent that components of the numerous concepts studied are more crucial in the focused case than others. These observations are further elaborated on in the following discussion chapter. Additionally, a final conclusion of the study is presented in chapter six (6) of this report.

Chapter 5 – Discussion

The aim of the multiple case study was to explore the capacity of resilience of Safari Operators in nature-based tourism towards the impacts of climate change. Three research questions guided the study, addressing the (1) impacts of the phenomenon in question on Safari Operators, (2) the requirements of a resilient system incorporated in the three cases, emphasising on the dimensions of persistence (vulnerability) and adaptability/preparedness as well as (3) the impacts of the system specific influences on Safari Operators, focusing on economic and political factors.

As previously addressed the three cases were not analysed and compared based on their differences. The aim was to explore the general capacity of resilience of Safari Operators; therefore, the researcher searched for common parameters to establish common grounds and facilitate a broader network of sharing knowledge between the individuals. Based on the findings presented in the previous chapter, this section presents a discussion of the results against the application of the literature, conceptual framework as well as concepts in chapter two (2). Furthermore, this section will provide answers to the three guiding research questions, thus is accordingly structured.

5.1 The impacts of climate change

Prior to discussing the impacts of climate change within the studied cases, thus providing an answer to the first research question, the semantics of the phenomenon in question should be shortly addressed. According to the literature, the concept of climate change is continuously dealing with misinterpretation, for instance the assimilation of the concepts of 'climate change' and 'global warming' (Belle & Bramwell, 2005; Bohdanowicz, 2006; Gössling & Peeters, 2007; Pröbstl et al., 2008; NASA's, 2021). This misconception was also observed during the data gathering process, as the participants showcased no confident knowledge about both concepts as well as misused the mentioned terminology. Possible reasons for this are a lack of knowledge about the concepts, lack of education with regards to the phenomenon or simply ignorance by the participants to differentiate between both terms. Nevertheless, as this appears to be a common issue within research that focuses on the phenomenon of climate change, the observed misconception does not have an influence on the trustworthiness of the data obtained. It rather serves as evidence for the lack of education this concept has yet to overcome.

Within research the impacts of climate change are divided between direct as well as indirect impacts (Rossello-Nadal, 2014). This differentiation was not made in open conversations such as in an interview setting. The apparent impacts within the study areas have been presented combinedly in section 4.1 of this report. Three prominent impacts of climate change have been identified and are reflected in the literature. It became prominent that **drought** affects all three study areas in question. Findings in the literature confirm this impact as all study areas have suffered from drought in the past (Dube & Nhamo, 2018; Hall & Higham, 2005; Hill, 2019; UN News, 2020).

One of the most debated and scientifically recognised impacts of climate change are rising temperatures (Steyn & Spencer, 2012; WMO,2020). Despite this being a commonly observed impact, the participants referred to this influence merely on occasion. Therefore, the researcher referred to it as **fluctuations in temperature** than simply rising temperatures, as the participants mentioned next to rising temperatures also an extreme and uncommonly decrease of temperatures. Even though, this classifies as a new finding, it is worthwhile mentioning that the decrease was only observed in one particular study area, the ZMB.

Lastly, **low rainfall** was detected as one of the prominent impacts by the participants in the three study areas. Yet again, this is confirmed by the findings in the literature (Dube & Nhamo, 2018; Hall & Higham, 2005; Hill, 2019; UN News, 2020). Both study areas the VFA and the ZMB are extremely dependent on the availability of water. It stems from the fact that both national parks are directly connected and fed by the water of the Zambezi River. Therefore, the study areas are barely separable and based on the results they can be considered as a single case. But also, the operations in the HWG are working around the availability of water.

Nonetheless, as stated previously the concept of climate change is complex and its impacts are interconnected and collaborative changes (Hall & Lew 2009; Scott et al., 2012). Such is also observed within the three cases studied as the observed impacts are not simply straightforward and the participants had difficulties in providing clear answers. That might be caused by the method and timeframe utilized to gather these findings. The researcher shares the belief, that a simple semi-structured interview over a short duration of time did influence the representativeness of the results. A study that would take place over a longer period of time, such as 10 years, utilizing a journal technique with the participants for instance could provide clearer and more detailed findings. However, based on the time constraints of this study and the fact

that this research questions purpose was to simply set the scene and provide information of the driver of change in focus from the perspective of the population, the results are sufficient.

To conclude, impacts which relate to the effects of the global phenomenon of climate change were detected in the study areas. These observations are sufficient for the context of the study but do not prove the existents nor provide a holistic understanding of the phenomenon within the study areas in focus. A long hall study predominantly focusing on climate change and its impacts is advisable to provide a truthful judgment. Additions to the existing body of literature were not established. Nevertheless, the aspects discovered are generalizable and not perceived as case specific as these were discovered within similar studies and are scientifically proven by organisations such as the WMO (WMO, 2020).

5.2 The capacity of resilience with its requirements

The concept of resilience is known as a complex one within this field of research, which expresses the difficulty when studying it (Folke et al. 2010; Hall, Prayag & Amore, 2018). The requirements which create a resilient system were previously introduced in section 2.3.2. Moreover, the requirements of resilience which are incorporated in the three cases in focus were presented in section 4.3. Prior to discussing the implications of these results on the general capacity of resilience of Safari Operators, it is crucial to determine the characteristics of the system's in focus. The researcher adopted a system perspective, referring to the study areas in focus. Within the literature the SES's were described to incorporate ecological as well as social factors, emphasising that humans are a part of nature (Berkes & Folke, 1998; Stockholm Resilience Centre [SRC], n.d). The analysis process showcased the crucial importance of the latter within the three SES's in focus, as the social factors became evidently important within the dimensions of resilience.

As previous research focused on the requirements of resilience from a destination or larger systems point of view, the presented results in the previous chapter have showcased the perspective of an individual's viewpoint, specifically from the point of the Safari Operators functioning within the SES's. Despite the claims that this approach is too focused (Folke et al., 2010), the researcher perceives the value of such a specific approach as the importance of the individual within the SES's became apparent.

Based on this the results acknowledged the complex nature of resilience, implying that it is not a question of what requirements are incorporated but rather to what extent, thus how vigorous these requirements are. All requirements in the three dimensions in focus were identified within the three cases but demonstrated various influential factors which are integrated and further elaborated on in the subsequent sections. The identification of all requirements is presupposed as the researcher utilized a deductive coding method during the analysis process, thus a degree of researcher bias should be acknowledged here. The emphasis is on the dimensions of persistence also referred to as vulnerability within the study, and adaptability/preparedness, which is seen as one.

Persistence

Within the dimension of persistence three factors were analysed namely vulnerability, robustness as well as variety and redundancy. The data suggests that the level of persistence of safari operators within the three case study areas to the changes in climate is fairly weak based on the results of the factors analysed.

According to literature the factor of *vulnerability* is most important as the level of vulnerability is closely aligned with the concept of resilience; therefore, a strong emphasis was made on this factor during the data gathering process (Adger, 2006; Scheyvens & Momsen, 2008; Proag, 2014). The findings demonstrated a severe dependency on steady climate and weather conditions. Within the literature it is not unknown that climate and weather are essential assets for nature-based tourism (Dube & Nhamo, 2018), hence the finding was not unexpected for the researcher and can be generalised to various tourism settings. It was further elaborated that based on this high dependency of nature-based tourism on natural resources, such as climate and weather, this form of tourism is particularly vulnerable to the driving force in focus (Dube & Nhamo 2018, 2019, 2020; Dube, Mearns, Mini & Chapungu, 2018; MacFadyen, Hui, Verburg & Van Teeffelen, 2019; Mushawemhuka, Rogerson & Saarinen 2018; Sutherland, Ndlovu & Pérez-Rodríguez 2018). Based on the findings this assumption is correct as the Safari Operators, thus the individuals in focus, are in a weak position with regards to their vulnerability. A direct effect increasing the level of vulnerability, is that the operation within the SES's is solely designed around stable weather and climate conditions. When unstable conditions affect the system, the entire operation is disordered. According to Dube and Nhamo (2018), the vulnerability of nature-based tourism in Zimbabwe towards the changes in climate are a 'ticking

time bomb', which can be confirmed to a certain extent by the findings of the present study. As the study was undertaken in a set timeframe the level of vulnerability is subjective to the statements of the participants. A study solely based on this multifaceted concept would be favourable within the context of the study as it can be highlighted as a crucial component of the conceptual framework guiding this research.

Furthermore, the factor of *robustness* was analysed, and the findings showcased that safari operators are in a solid position when examining this particular factor. Within the literature moderate information about this factor was found. Davoudi, Brooks & Mehmood (2013), simply referred to it as enduring change and that one can differentiate between short term and long-term robustness. Nevertheless, they further stated based on their perception it is identified as an essential part for managing climate related challenges.

Based on this the researcher concluded that the findings mainly incorporated aspects referring to long-term robustness which is favourable with regards to the driving force in focus, as future impacts are largely unknown (Davoudi, Brooks & Mehmood, 2013). This long term robustness was determined by the fact that participants spoke about their extensive knowledge and work experience within the field and the environmental systems, relating to the factor of learning and reflexivity which is elaborated in the subsequent section. The relation between both factors has not been established in the past, therefore this finding will add to the understanding of the complexity. Furthermore, the individual experiences greatly reinforce the participants confidence and learning ability, therefore individuals felt robust facing change. The human factors, knowledge and characteristics of an individual play yet again an important role and highlight new parts of information moving away from a strict and rational system approach.

In addition, a cultural and historical component was identified, which was classified as a case specific finding. The cultural component integrates the general cultural background of an individual, in the present case this would be the African background of the participants. The researcher argues that the cultural background of an individual can have an indirect effect on the resilience towards particular driving forces and should be highlighted as a new and additional influential factors. The historical component entails the historical background of a particular country for instance. Within this case this would be the historical background of the study areas in focus. The study areas are situated in Zimbabwe, a country that has suffered and continuous

to suffer of an unsettling economic and political environment. Consequently, the researcher suggests that individuals from a less developed background living in an unstable environment and facing constant changes, develop to being more persistent, than individuals from a historical consistent background for instance. The attitude and general statements of the participants confirmed these assumptions. A primary focus of individuals within resilience literature is still lacking and these findings will add new components to the theoretical framework. In Spite of these findings being case specific additional research in various settings could surface mutual conclusions.

Hartman (2018) identified the factor of *variety and redundancy*, which relates to the dimension of persistence. The results indicate that there is a serve lack of variety and redundancy present. It can be argued that this lack hinders the ability of Safari Operators to manage changes. Furthermore, the lack of variety results in the inability to keep business afloat when essential functions are not operational any longer. Despite the fact that a minor amount of related and unrelated variety was detected during the data gathering process, the nature-based tourism industry is greatly dependent on its natural surroundings, hence the SES's they operate in. Within the given case an above average amount of unrelated variety and redundancy would be favourable for the overall persistence of Safari Operators towards the impacts of climate change. Such would provide them with a level of safety as the operation will remain liable. Folke et al. (2010), argues that the ability to manage change should not be presumed as it integrates support from larger networks, showcasing a connection to the dimension of adaptability which is elaborated on in the subsequent section.

As presented in the discussion above, the level of persistence of Safari Operators to the impacts of climate change can be positioned as fairly weak. It is crucial to mention that these concluding thoughts do not presuppose a weak positioning of their general resilience but should rather be viewed as an influential aspect to drawing a final conclusion and answering the problem statement/aim guiding this research in the following chapter six (6).

Adaptability / Preparedness

In chapter two (2), the researcher argued that the dimensions of adaptability and preparedness are seen as one within this present study and a differentiation is not made. Within the literature adaptability is seen as a key process which adds to the learning capacity as well as response capacity of a SES (Davoudi, 2012; Folke et al.,

2010). Based on these assumptions the researcher decided against acknowledging the dimension of preparedness which Davoudi, Brooks and Mehmood (2013) added to their revised theoretical framework that is applied to this study. The findings of these dimensions have been previously displayed separately to ensure a trustworthy and transparent presentation of the analysis and results. Eight factors have been identified as crucial when analysing the adaptability/preparedness of Safari Operators towards the impacts of climate change.

The factor of *flexibility* proposed by Davoudi, Brooks and Mehmood (2013), as well as the category of *connectivity* suggested by Hartman (2018) are in its essence similar. However, during the data gathering process they have been treated as separate factors as flexibility was solely perceived as the presence of networks, whereas connectivity emphasised the creation of strong links, trust as well as alliances. Based on this the factor of connectivity is seen as more dominant. The results indicated a strong presence of networks, where the established networks in HWG were identified as larger in numbers than in ZMB when compared. The researcher did not perceive this as a crucial finding, as it can be explained by the sheer sizes of the study sides, HWG being the largest SES in Zimbabwe for instance. Within both factors the critical role of the individual became apparent again, especially the impact of the human factor on informal (social) network settings. There is little knowledge within the literature which discusses these factors and their effect on the responsiveness of SES's, therefore these findings will contribute more detailed information. Such links within the results become more evident when analysing the factor of connectivity, which took a more in depth look into what networks are established and how they are linked.

Not only the presence of networks is strong as previously elaborated but also the established links within these networks as well as alliances are stable. When analysing the connectivity of Safari Operators, it became obvious that due to the close proximity as well as shared resources the study side of VFA and ZMB can be seen as one. The established links and alliances in both study sides were identical, and a differentiation was impossible. In the case of the HWG the situation is reverse, as the system can be seen as solely individual. The connectivity within the SES is disconnected from others and they have formed their own individual networks such as the 'Friends of Hwange' where they share knowledge and information. The researcher does not perceive this as negative, when researching the capacity of

resilience of safari operators in the three study areas, but the differentiation can be simply explained by the geographical areas and different environmental zones the individuals operate in.

Nevertheless, the research discovered formal as well as informal (social) links. These findings add to the existing body of literature, as an exact differentiation has not been established yet. The informal (social) links have been revealed as most valuable. Despite the fact that the formal links keep constant support, the informal links appear to be crucial when facing unforeseen challenges or sudden affects. The level of connectivity within the informal (social) links heavily depends on human factors, for instance on the persona of the individual in focus. This can be very much related to the networking ability in a western context but is perceived as essential within the context of the study and developed into a crucial component within the theoretical framework. An additional striking observation was, even though the level of competitiveness between the safari operators is present, connectivity is vital for the survival of the business, specifically when facing challenges, as trust and alliances seem important in the operations, as previously stated. Hartman (2018) emphasised this significance of entrepreneurs as well to create strong links within a system, which not only adds value to the individual entrepreneur level but also to the system as a whole. The researcher shares the opinion that this is present within all three cases that have been studied and recognizes additionally the importance specifically of informal (social) factors which positively affects the capacity of resilience. The importance of these informal (social) factors can be explained by the inability of formal networks to act and support when challenges are faced. The informality of the discovered links appears to present flexibility which is required when managing stressors. The case specific characteristics discussed above represent more detailed information compared to the existing literature and add great insides into the dynamics and importance of networks in a developing setting. Even though these findings are difficult to generalise in a western context, within a wider range of southern African studies common parameters can be established. The researcher recognises a need for further research in this field.

Moreover, the factor of *resourcefulness* was studied, here the researcher faced a number of limitations. Firstly, when questioned about this factor during the data gathering process, majority of the participants spoke about the ability to find adequate solutions to enhance guest comfort, as this seems to be of importance within the daily

operations. The participants mentioned basic aspects such as reminding guests to stay hydrated or to save water. The researchers ability to steer the interview to a more operationalised thinking perspective was limited, due to the fact that some interviews were conducted via WhatsApp Voice note and a flowing rapport with the participants was not established. Therefore, the ability to ask follow-up questions was hindered. Creativity and handywork have been identified as crucial components for the level of resourcefulness of Safari Operators to find adequate solutions. Within the literature the introduction of artificial water pumps within the SES to overcome the impacts of drought for instance was mentioned (Valeix et al., 2010). Which specifically is incorporated in adaptation measures within the HWG. Nevertheless, the lack of available resources, economic and raw material does hinder innovations. The researcher shares the opinion that this lack of availability of resources has on the contrary a positive effect on the resourcefulness of the participants. Based on this lack Safari Operators are forced to seek out alternatives and utilize upcycling as well as recycling to find resourceful solutions for changes. The inability of the governmental bodies to provide adequate solutions has an additional influence on this ability but will be discussed in the subsequent section. Within the dimension of adaptability this factor is particularly important within the present case and is at the heart of this dimension.

An additional factor which is being discussed rigorously within the field, is the involvement of stakeholders during strategy formulation and decision-making processes. The government was identified as the key player within the *governance* of the three SES's in focus. Accordingly, the reaction time to change is weakened and the decision-making processes are slow and faulty. Future prospects of inclusive governance are limited as the governmental bodies own the land the Safari Operators are working on. Nevertheless, one should acknowledge that they do have a voice during the processes if that voice is considered in strategy formulation and decision-making is another question. McDevitt (2009) argues that strategy formulation without involving stakeholders which are required to adopt these practices is counterproductive and leads to maladaptation. To some extent this can be confirmed by the statements the participants provided during the data gathering process as they spoke of the back and forth between officials and their operation. Often final decisions that have been made and affect their procedures are simply presented to them, which then creates tension, and the operators have to submit objection to reverse any

damages. Such practices showcase how faulty the level of governance is, as it is mainly involving power games. It needs to be recognized, that this severely hinders the effectiveness of decision-making processes but also the general environment the operators are working in. Furthermore, it showcases the lack of trust, as by continuous lack of involvement Safari Operators stop trusting the key stakeholder within the SES's, creating a key issue when analysing the general capacity of resilience.

The expert knowledge (*awareness*) of safari operators of the phenomenon of climate change has a direct effect on the level of preparedness. The added dimension of preparedness refers to the ability to foresee impacts as well as to the capacity to identify opportunities and vulnerabilities (Davoudi, Brooks & Mehmood, 2013). Condition six (6) of Hartman (2018) refers to this ability as the *adaptive perspective*, which should be adopted throughout the processes. Therefore, the findings of the factors of awareness and adaptive perspective should not be seen as isolated. Nevertheless, achieving high on one of these factors does not presuppose a high achievement on the other, such as in the present case.

Based on the results presented in the previous chapter Safari Operators are aware of the global phenomenon of climate change and recognise changes within the SES's. It is crucial to state that this awareness is rather superficial. Even though that participants were confident responding to questions and the answers seemed to be trustworthy, the level of awareness does not portray the in-depth understanding of the phenomenon in question. The researcher argues that without that in depth level of understanding of the changes and impacts in the SES's the ability to foresee as well as identify opportunities and vulnerabilities is not incorporated. This factor exposes limiting factors which affect the general resilience.

As previously mentioned, Hartman (2018) mentions the condition of adaptive perspective which should be considered throughout all factors, referring to the mindset itself to identify complexity and change as a possibility to recognize opportunities instead of perceiving it as a threat. The findings showcased clearly that Safari Operators see the phenomenon in question as a threat to their existence. Additionally, when questioned about further clarification they acknowledged the opportunities caused by these changes. This was particularly striking to observe for the researcher during the interview process as the affiliated interview question was designed to emphasise the word threat prior to stress the word opportunity. Thus, prior to pointing out that change can also be seen as an opportunity for development.

The overall perceptions of the Safari Operators were that the phenomenon in question is a threat. According to Hartman (2018) this is not favourable when wanting to build resilience.

Remarkable was on the other hand the positive attitude of the Safari Operators in general. Such can be explained by their cultural background, as the participants often referred back to the commonly Zimbabwean phrase “*we make a plan*”. Specifically in the study side of VFA tension was detected when the topic was focused on the phenomenon of climate change. Participants seemed to follow an agenda of wanting to display the issue in question as non-existent or non-threatening. This can be attributed to the climate debate of 2019, where Victoria Falls were displayed as the prominent climate change case resulting in the news of the actual falls being dry (bad media publicity) and a decline in visitor numbers. The researcher took note of this unrest and chose to not ask follow-up questions to keep an open rapport with the participants.

Moreover, the factor of *environmental sensitivity* is critical for the formulation of adaptation strategies (Gallopín, 2006; Hartman, 2018). This factor relates to the process of identifying vulnerabilities as well as monitoring/analysing the SES's. In general, a lack of this ability was detected within all three cases. Striking are the contradictions as one would assume that based on the perception of seeing changes in climate as a threat and a high level of awareness of the phenomenon, an above average level of monitoring and data gathering was expected. As displayed in the results, this does not suggest that Safari Operators do not scan their environment, however, they utilize simple methods such as the observations of the rain gauge. Additionally, they strongly rely on international information such as hydrological reports as well as flood bulletins. A great deficit is that despite the monitoring of their environment on a basic level, they do not journal their observations. Therefore, the chances to analyse changes over a longer period of time are slender. Consequently, the ability to mitigate negative impacts decreases through a lack of data gathered (Gallopín, 2006; Hartman, 2018). Nevertheless, it is crucial to emphasise that the concept of mitigation was not focused on within this study as the emphasis was on the concept of adaptation of Safari Operators towards the impacts of climate change.

Lastly the factor of *learning and reflexivity* was considered, as it closely relates to the anticipation of change and adaptive planning capacity (Hartman, 2018). The literature states that reflection and learning ability is crucial in designing suitable adaptation

strategies in order to cope with the impacts of climate change. This can be confirmed by the findings of the present study as numerous participants mentioned the essential role that learning from past errors has on the reaction time to new impacts. Due to the fact that they are operating within a sensitive SES's, it is already implemented in the nature of Safari Operators to be flexible and find solutions to challenges that they encounter as it keeps business afloat. Furthermore, a negative association was indicated in chapter two (2) towards cause-and-effect reactions as the question was posed if Safari Operators solely react this way towards the impacts of climate change. Consequently, to the analysis of the findings this negative association towards this form of reaction has subsided with the researcher, as the importance of cause-and-effect reactions within the SES's became apparent. Nevertheless, a lack of future orientated adaptive planning capacity was detected, which is attributed to the limitation of conducting the study during a global pandemic. Changing the mindset from one present driving force, Covid-19, towards another driver of change namely climate change was extremely difficult for the participants. Safari Operators mentioned that currently they are in survival mood and trying to overcome the impacts of the pandemic, hence do not practice adaptive planning capacity with regards to the impacts of climate change. These findings highlight new information showcasing the influences different drivers of change have upon each other.

The overall level of adaptability / preparedness of Safari Operators towards the impacts of climate change can be described as fairly weak. Despite the fact that they showcase to a certain extent, their flexibility as well as adaptability, this is solely based on cause-and-effect relationships. A major discrepancy is the lack of future planning capacity to be truly prepared and adaptive to what is to come. Nevertheless, to truly understand the general capacity of resilience case specific influences, political and economic factors, need to be considered and are presented in the following.

5.3 The effects of political and economic influences

Evolved from the scope of the study, the effects of political as well as economic influences on the capacity of resilience of Safari Operators was considered. This inclusion to the studies conceptual framework originated from the literature, which suggested to highlight this significance (Doğantan & Kozak, 2019). It is worthwhile mentioning that this approach is not new, specifically when adopting a case study approach specific case related aspects should be taken into consideration (Turner et al., 2003). Furthermore, Turner et al. (2003) emphasises the importance of the

concept of vulnerability being crucial when analysing the capacity of resilience of systems. Accordingly, vulnerability contains three categories namely sensitivity factors, political as well as social and institutional characteristics. In order to receive a holistic perspective of the concepts of vulnerability all categories of Turner et al. (2003) were considered during the data gathering process and are an essential part of this study. Even though both factors are closely connected the influences discovered are discussed separately in the following sections.

Economic influences

In general, the findings indicated that the economic environment is seen as difficult and severely challenging. The literature suggests considering various factors when addressing economic factors, namely growth rate, GDP, labour demand and supply as well as unemployment rates (Fletcher, 2018). These factors were not discovered as influential within the given cases, as only one participant spoke briefly about the vast unemployment rate of the country. Four prominent factors directly or indirectly resulting from the economic influences were discovered and are added as new information to the existing body of knowledge. The cash and currency situation of the country was discovered to be most influential in affecting the Safari Operators responsiveness. The said is influencing the financial liability of the businesses which does affect the ability to invest in sustainable future prospects.

Additionally, the participants stated that high taxes are placed on their operation. Not only is this affecting their financial state but also creates difficulties for new players to enter the field. Contrasting aspects were stated in the literature, as it was indicated that a healthy economic environment encourages open situations for opportunities, restructuring and starting new businesses (Fletcher, 2018). Therefore, it can be concluded that the economic influences of the present study are not favourable to do so and are mainly hindering the sustainable development. This finding cannot be generalised to a global context. Nevertheless, the general economic state in southern Africa implies that similar observations can be made in a different case setting. Consequently, the entire economic support which the participants receive is from outside of the country. The research recognises predominant investments from outside of a system as counterproductive when aiming to be adaptive and persistence, however, additionally acknowledges the need for more detailed information.

Furthermore, a lack of visitor numbers was mentioned due to the unattractive economic state. According to the participants foreign visitors are not willing to visit the country based on the unstable economic state, thus resulting into a decrease of guests for the Safari Operators.

Political influences

According to Fletcher (2018) the political environment incorporates the general stability of the government, legislations as well as levels of corruption. Within section 5.3 a few hints towards the political influences as well economic influences were placed, showcasing indications of the general perception. Based on the findings of the study the political influences are a major hindrance for the Safari Operators response mechanisms. This was a sensitive topic during the interview process and the researcher had to ensure that ethical considerations such as anonymity are in place. An observation the researcher made is the usage of strong language when participants provided their answers.

A number of influential factors were identified during the analysis which highlight new case specific information unknown within the body of literature. For instance, the extensive chain of commands that participants have to follow which is subsequently hindering effective decision-making processes. This extensive chain of commands results from the jurisdictional boundaries that the SES's are confronted with. The ecological systems the Safari Operators are using is owned by the government, hence any decisions and changes have to go through multiple organisations and actors to be implemented. Consequently, the government has arbitrarily freedom of decisions and is able to implement new laws and policies with ease. This is counterproductive within the SES's as it hinders the Safari Operators complex thinking and adaptive perspective. Sturmberg (2021) criticised this bureaucratic, closed system design as it emphasises uniformity, control and favours a hierarchical process with autonomous decision-making. In general, the laws and policies which are in place are more restrictive than they are encouraging which additionally hampers the operations.

Furthermore, the participants indicated a level of corruption within the political environment. Let it be the miss usage of conservation fees which is not utilized for the maintenance of the ecological systems or the indiscriminate implementation of laws and policies which involves fining operators should something not be up to standard.

Nonetheless, the political state is in a stage of transformation as encouragement for sustainable innovations is presented. For instance, the duty on solar products which was made redundant and is perceived as a major encouragement to the businesses.

5.4 Conclusion

Despite the minor shifts within the system, the factors of economic and political nature have a tremendous impact on the responsiveness to change of the Safari Operators in question. Regrettably counteracting these issues are farfetched aspirations from the participants. The discussion of the findings above, showcases the added value of facilitating a case specific research within the wide field of resilience studies solely focusing on larger system approaches. These findings provide a more in-depth inside into the factors influencing, creating and developing the various requirements that build a resilient system. Further elaborations on the added value of this multiple case approach are provided in the subsequent conclusion chapter six (6). Here the researcher will present a final conclusion to the research hence answering the problem statement and aim that have guided the process.

Chapter 6 – Conclusions and Recommendations

In the previous two chapters, the findings of the empirical study as well as the discussion of the results in relevance to the available literature were presented. This chapter provides a brief overview of the study, incorporating the final conclusions drawn answering the problem statement as well as aim and objectives of the study and its resulting recommendations relating to objective four (4). Additionally, the contribution of research as well as an evaluation are presented. The chapter concludes with suggestions for further research.

The aim of the research was to explore the capacity of resilience of Safari Operators in nature-based tourism to adapt to the impacts of climate change. A multiple case study approach was utilized focused on three nature-based tourism sites in the Matabeleland North Province of Zimbabwe, namely Victoria Falls National Park, Zambezi National Park and Hwange National Park. Based on the dependency of Zimbabwe's tourism industry on nature-based tourism as well as the findings of the WMO (WMO, 2020) that suggested a critical climate state within these areas, the researcher decided to study the problem in this particular setting.

Facilitating research centred around the resilience capacity of Safari Operators as individuals within a SES against the effects of climate change provides a relevant and necessary case approach to add valuable insights to resilience literature. The four dimensional framework of Davoudi, Brooks and Mehmood (2013) was adopted as a key concept guiding this study. Additionally, the conditions of Hartman (2018) accumulated as key findings from the literature were utilized to operationalise this largely academic approach. Based on the perspectives of the previous authors the researcher formed its unique approach to research the cases in focus.

Derived from the various views, introduced in section 2.3, the emphasis was on the dimensions of persistence also referred to as vulnerability within the study, adaptability/preparedness (seen as one) as well as the external influences of the economic and political state. The concluding thoughts of the empirical results and discussion answering the problem statement, aim and objectives are presented hereafter.

6.1 Safari Operators capacity of resilience towards climate change

The results relating to objective one (1) of the empirical study showcased that all three study areas in focus are impacted by influences caused or related to climate change

such as drought, fluctuations in temperatures as well as low rainfall. Consequently, the climate state is a concern for the Safari Operators who are severely reliant on average and consistent weather and climate conditions for their operation but also the design of their product. Based on this dependency the Safari Operators in Victoria Falls National Park, Zambezi National Park and Hwange National Park are on a daily basis challenged to develop adaptation strategies to overcome these impacts.

Nevertheless, the phenomenon of climate change is solely seen as the main driver of change in the studied case. The most prominent concept of the study is the capacity of resilience, which correlates to objective two (2). The level of **persistence** can be positioned as fairly weak. Here the researcher focused on the *vulnerability, robustness* as well as *variety and redundancy* of Safari Operators towards the impacts of climate change. The weak positioning within the dimension of persistence does however not presuppose a weak position of the overall capacity of resilience. The concept of vulnerability was identified as a major influential factor within this dimension, therefore the researcher perceived it as crucial when researching the capacity of resilience. There is an essential need to consider the level of vulnerability, as the cases are set in a developing country. But it should also be seen as a crucial factor in a western context. Nevertheless, unexpected was the solid positioning of their long-term robustness within their SES's.

It is a well-known fact that the concept of **adaptability** is recognised as being an essential dimension within resilience. This became also apparent within the given case, as adaptability is at its core within the SES's. The dimension of adaptability and **preparedness** is perceived as one. The reasoning will be clarified below. In total eight (8) factors were researched within these dimensions, from which four factors were identified as prominent and most important within the given cases, namely *flexibility, connectivity, resourcefulness* as well as *learning and reflexivity*. Striking was that these factors are strongly influenced by the human factors the researcher identified. It can be concluded that this strong relation between the factors exists as the individual is able to influence these particular requirements in a positive manner. Requirements such as *governance, awareness* and *environmental sensitivity* require more input from outside of the individual's power centre. Davoudi, Brooks and Mehmood (2013) added the dimension of preparedness to the framework incorporating human actions and the ability to foresee impacts as well as vulnerabilities. After having researched and analysed the capacity of resilience within

the present case, the researcher concludes that the argument of the redundancy of this added dimension became apparent. This is due to the fact that vulnerabilities are incorporated in the dimension of persistence and the other factors are linked to the dimension of adaptability. However, the argument of incorporating human actions is perceived as valid but the researcher would suggest a different approach.

The most prominent finding influencing the overall requirements studied as well as all dimensions in focus is the **human dimension**. These distinct factors of the individual in focus such as cultural background, history as well as personality, reveal an immersive short come in resilience literature. The findings of the research clearly showcase the significance of this new dimension. Despite the fact that the added dimension of preparedness hints towards these human actions which should be considered (Davoudi, Brooks & Mehmood, 2013), the researcher shares the opinion that this factor does not justify the magnitude of influence it has on the capacity of resilience towards driving forces. It is further argued that in spite of other shortcomings within the requirements which build resilience, the human dimension can overcome these to a certain extent and serves as an essential dimension. To review the said, the researcher suggests a stronger emphasis on this dimension and indicates a revision of the conceptual framework used. The focus needs to be on the dimensions of persistence including vulnerability, adaptability as well as the human dimension particularly concentrating on cultural factors for instance. The individual should be established in the centre as they have an immense influence on resilience capacity even when adopting a bigger system approach for instance focusing on tourism destination.

Considering the context of the study and objective three (3), the researcher considered case specific influences focused on economic and political factors influencing the capacity of resilience. The results and discussion clearly revealed the severe impacts these factors have on the responsiveness of Safari Operators to the impacts of climate change. Additionally, these influences became evident within the requirements that build resilience. A separation between economic and political factors was difficult to establish for the participants. It can further be concluded that besides the challenges which are created by those two factors, Safari Operators are subsequently challenged to find individual solutions which has a positive effect on their general resilience. For instance, the level of resourcefulness is increased through the inability of the government. Specifically, the political state can be

described as being in transition. A change of perspectives and awareness was detected, nevertheless the individuals continue to be challenged by as misguided and corrupt environment in which their power status in decision-making processes is insignificant.

The objective of establishing a multiple case study was not to analyse and compare but rather to seek common parameters to establish shared grounds in facilitating broader knowledge networks between individuals. The study demonstrates a specific case perspective of the problem in focus, nevertheless the prominent finding of the importance of the individual within resilience to certain driving forces is generalisable and needs to be further studied. Despite the results indicating low levels of certain requirements which have been suggested in the literature to build resilience, the case of Safari Operators shows a generally strong level of resilience towards the impacts of climate change specifically within the requirements where the human dimension is an essential part of. Explicitly in the context of SES's, thus a synthesis of humans and nature, the human dimension is crucial when reviewing the resilience capacity towards the impacts of climate change. Therefore, the researcher would even argue that the human dimension is most important within resilience and should occupy a central part of the conceptual framework.

6.2 Recommending possible adaptation strategies

Indicated in objective four (4) of the study this section will provide recommendations of possible adaptation strategies for the nature-based tourism industry to positively influence the capacity of resilience. Based on the findings of this study as well as conclusions drawn, the following recommendations are made:

- i. Implementation of systems to recycle greywater
This will lead to an expansion in supply and decreases the need to utilize large amounts of groundwater as well as the wait on receiving water from rain.
- ii. Continued monitoring and evaluation
Journaling of the environments on a daily basis will create the urgently needed long-haul perspective of this phenomenon within the study areas.
- iii. Integration of knowledge of locals with the scientific perspectives
This step could be an evolutionary change within academia but also on side at the SES's. Both sides can benefit greatly from the knowledge gathered and a holistic synopsis can be implemented. The role of the individual will be acknowledged.

- iv. Extermination of access barriers such as infrastructure and technology
The governmental bodies which act as an operator themselves within the SES's need to implement the needed infrastructure and technology to establish research, education as well as technical support for the safari operators.
- v. Strengthening of efficient and focused collaboration and cooperation
This should be implemented among the various agencies, institutions as well as stakeholders that are involved in the SES's to overcome the issues of fragmented attempts of adaptation.

6.3 Contribution of research

This research makes a conceptual contribution as the multiple case study clearly highlighted the importance of a human dimension within resilience literature which should be continuously incorporated in conceptual frameworks when researching parts or the general capacity of resilience towards a driver of change.

Additionally, a contribution to the understanding of the perspective of an individual within resilience literature is provided. In the literature a mainly larger system perspective approach, such as focusing on tourism destinations as systems was adopted. Therefore, the study contributes to existing literature in showing a specific case perspective which can be generalised to a certain extent to a wider context.

Furthermore, it contributes to the awareness as well as perception within the African context of the driving force in focus, climate change. Here the phenomenon is largely disregarded as an imminent threat. The participants felt empowered and heard during the data gathering process which supports future policymaking processes and strategy formulation.

This awareness as well as new understanding will contribute to the industries knowledge database, particularly the nature-based tourism sector to create further holistic perspectives of the issue as well as add to the generalisability of the available concepts within this field.

6.4 Evaluation of research

The main aim of the study was to explore the capacity of resilience of safari operators towards the impacts of climate change. Although the research was thoroughly conducted, the previously stated empirical results should be considered in the light of some limitations.

First, a limitation of formulation of objective four (4) became apparent. As presented in section 6.2 it is feasible to recommend possible adaptation strategies to the industry in focus. Nevertheless, as the study showcased the dimension of adaptability and its complexity, the formulation process of adaptation strategies cannot be perceived as a one-time solution. Implying that the suggested adaptation strategies might only benefit the industry to a certain extent. Adaptation is a continues process, as the environment changes and influential factors develop, adaptive strategies develop as well. Based on this the suggestions in the said section should only be seen as a current snapshot and might not be of long-term relevance.

Secondly the current Covid-19 pandemic influenced the data gathered. Despite comprehensive preparations prior as well as after the data gathering process the researcher encountered limitations. The research had to be conducted via an online environment which was less convenient for the participants due to loss of electricity and network connection. Therefore, the process was adopted to interviews via WhatsApp voice note. This limited the ability to ask for clarifications and follow up questions resulting in superficial data. The researcher dealt with this limiting factor in a professional and thorough manner as this could not have been expected.

Thirdly, even though repetition was identified in the present cases the sample size did present a limitation. Based on the current influences of the pandemic, the focused population is in a state of crisis management which affected the general size of the sample. Some Safari Operators were out of business or had a severely smaller staff size which meant they did not have time to take part. Furthermore, as the governmental body is also acting as an operator of the study areas in focus but did not take part in this research as they were not reachable, an important viewpoint is missing. Nevertheless, within the context of the aim the study results are still perceived as valid and generalisable and should be recognized as a starting point for further research.

Lastly, the available time to conduct the study impacted the responsiveness. In total the researcher only had four (4) weeks to gather data. Specifically, when dealing with a population in an African setting this duration was too short. The time available to study the research problem and to measure changes over time was constrained which creates a need for future research. This will be discussed in the subsequent section.

6.5 Recommendations for further researcher

A number of gaps in the knowledge surrounding the individual as well as the measurement of resilience within research can be identified and would benefit from further research. Below further recommendations are given:

- I. The implementation of a long-haul study approach. Thus, researching and capturing the problem over a longer period of time to gather an in-depth insight.
- II. A study of quantitative nature will be beneficial in developing resilience scales which can be utilized by professionals to analyse their resilience capacity in a time efficient and understandable manner. This can be achieved by utilizing a spiderweb diagram for instance where participants have to score, requirements and factors which build but also hamper resilience. Here extensive research in the different factors within the requirements is needed. Furthermore, a mixed method approach is beneficial, specifically when focusing on climate change a journaling technique combined with a spiderweb diagram could create further insights.
- III. Further investigation of the power, influence and role of an individual within resilience studies. Here a gathering of multiple cases would be beneficial to highlight this factor in different settings.
- IV. Additional studies from other regions in southern Africa that face similar challenges could increase the generalisability of the results. This would specifically eliminate the uncertainties which rise based on the small sample number and create a bigger knowledge base the industry can utilize.
- V. Research specifically focusing on the information (social) networks and their importance, correct usage in building resilience is beneficial within a global context.

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Appendices

Appendix A – Time management

Activity	Sep 20				Okt 20				Nov 20				Dez 20				Jan 21				Feb 21				Mar 21				Apr 21				Mai 21				Jun 21							
	W1	W2	W3	W4																																								
Develop a topic	█	█	█	█																																								
Outline project proposal																																												
Review Literature	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█																												
Decide on methodology													█	█	█	█																												
Hand in foundation																									█																			
Write Chapter 1					█	█	█	█	█	█	█	█																																
Write Chapter 2									█	█	█	█	█	█	█	█	█	█	█	█																								
Write Chapter 3																	█	█	█	█																								
Organise Data collection																					█	█	█	█																				
Data collection																					█	█	█	█																				
Analysing data																									█	█	█	█																
Chapter 4																													█	█	█	█												
Chapter 5																																	█	█	█	█								
Chapter 6																																					█	█	█	█				
Production of Final Draft																																									█	█	█	█
Consult with editor																																												
Make minor revisions																																												
Print thesis																																												
Hand in final version																																												
28th of June 2021																																												

Table 2 Gantt chart time management research process

Appendix B – Research matrix

Aim:		The aim of the study is to explore the capacity of resilience of safari operators in nature-based tourism, to adapt to the impacts of climate change in the three main tourism areas in Zimbabwe: Victoria Falls National Park, Zambezi National Park and Hwange National Park.				
Problem Statement:		As the impacts of climate change cannot be averted, Safari Operators are challenged to develop adaptation strategies while facing their own vulnerabilities and external influences of unstable political and economic environment.				
Topic in Literature Review	Theoretical Concepts	Explanation & Relevance of Concepts	Research Questions	Information needed/ Variables studied	Research Method	Interview Questions
Driver of Change – Impacts of climate change	(1) Climate change	<ul style="list-style-type: none"> Climate change can be generally described as an infrequent shift of long term regional or global average climate patterns (NASA's, 2021; EPA, 2020). Viewed as a driver of change within tourism, the phenomenon of climate change and its impacts on the tourism industry at large, has continuously risen as an interest field in research over the past decades (Hall, 2008; Hall & Page, 2009; Becken, 2013; Pang et al., 2013; Hoogendoorn & Rogerson, 2015; Hoogendoorn & Fitchett, 2016; Dube & Nhamo, 2019; Dube & Nhamo, 2020). 	RQ 1: What impacts does the phenomenon of climate change have on safari operators in nature-based tourism in: Victoria Falls National Park, Zambezi National Park and Hwange National Park?	<ul style="list-style-type: none"> Awareness of climate risks Perceptions Perceived Impacts (past and current) 	Semi-structured Interview	<ol style="list-style-type: none"> Are you aware of the global trend of changes in climate? (CC – A) <ul style="list-style-type: none"> ✓ Knowledge and Information ✓ Awareness Do you see climate change as a threat? (CC – P) <ul style="list-style-type: none"> ✓ Perception ✓ Threat or Opportunity What challenges in the past such as rising temperatures, changing rainfall patterns or drought have affected you? (CC – L_{pa}; P – R) <ul style="list-style-type: none"> ✓ How ✓ Could you avoid this stress in the future? (A – L&R) Are you currently experiencing impacts of climate change? (CC – L_{pr}) <ul style="list-style-type: none"> ✓ Perceived impacts ✓ Get specifics
	Nature-based Tourism and Vulnerability	(2) Nature-based tourism		<ul style="list-style-type: none"> Cater, Garrod and Low (2015) most recently positioned nature-based tourism within the various forms of tourism. Based on his positioning it can be argued that nature-based tourism is a generic term which encompasses ecotourism, agricultural tourism, natural life tourism and hunting tourism. Within the context of the study the term nature-based tourism can be described as the form of tourism which is none consumptive and where one seeks and gets in contact with nature. One of the main assets of the tourism industry are natural resources. Unquestionably this is also a key aspect of the tourism industry in Zimbabwe, where natural resources build the foundation for development (Saarinen et al., 2012; Dube & Nhamo, 2019). Climate and Weather are essential assets and can hinder or encourage nature-based tourism (Dube & Nhamo, 2018) 		RQ 2: What characteristics of a resilient system are incorporated in the case of safari operators in nature-based tourism in: Victoria Falls National Park, Zambezi National Park and Hwange National Park?
(3) Vulnerability		<ul style="list-style-type: none"> According to Kasperson, Turner and Schiller (2001) the concept of vulnerability can be defined as the degree to which a system is sensitive to a driver of change, and the ability of the system to cope, recover or adapt to these changes. According to Proag (2014) it is argued, that as resilience capacity increases, the degree of vulnerability simultaneously decreases. 	<ul style="list-style-type: none"> Dependency on natural assets to survive, exposure to unforeseen changes 	<ol style="list-style-type: none"> (see question 5) 		
Resilience in Socio-ecological System's (SES's)	(4) Socio-ecological System's (SES's)	<ul style="list-style-type: none"> Generally, SES's can be defined as a complex scheme, incorporating ecological as well as social factors which consistently interact with each other (Berkes & Folke, 1998; Stockholm Resilience Center [SRC], n.d.). The concept emphasises, that humans are a part of nature and should not be perceived as separate from nature. Within the context of the research the case is studied encompassing a SES framework, incorporating the three study areas in focus, which are interconnected and co-evolving constantly, hence it should be viewed as such and not as single nonrelated components. 	RQ 2: What characteristics of a resilient system are incorporated in the case of safari operators in nature-based tourism in: Victoria Falls National Park, Zambezi National Park and Hwange National Park?	<ul style="list-style-type: none"> Connection and interaction of ecological system with humans 	Semi-structured Interview	<ol style="list-style-type: none"> There is an ongoing interaction of your people and the nature surrounding them, what challenges do you encounter? (SES – I; A – M; P – R) <ul style="list-style-type: none"> ✓ Environmental challenges ✓ Challenges within the operation ✓ Knowledge challenges ✓ Policy challenges or financial challenges

	(5)	Resilience a. <i>Evo lutionary resilience (socio- ecological resilience)</i>	<ul style="list-style-type: none"> The most cited definition of resilience is the one from Walker, Holling, Carpenter and Kinzig (2004), where resilience is described as "the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks" (p. 4). Evolutionary resilience often also referred to as socio-ecological resilience differentiates itself from earlier introduced perspectives (Davoudi, 2012; Folke et al., 2010; Carpenter, Westley & Turner, 2005). Here it is assumed that a balanced state of being is simply an illusion as all components of a SES are continuously exposed to change, which necessitates constant adaptation, transformability, and innovation within the system. 				
External Influences – Economic and Political Environment	(6)	Political environment	<ul style="list-style-type: none"> The political environment describes the stability of the government, legislations such as environmental and planning as well as levels of corruption (Fletcher, 2018). 	RQ 3: How is the external economic and political environment affecting the response mechanisms of safari operators to the impacts of climate change in nature-based tourism in: Victoria Falls National Park, Zambezi National Park and Hwange National Park?	<ul style="list-style-type: none"> Current policies and regulations related to mitigating impacts of climate change Political environment how much influence does it take on the businesses 	Semi-structured Interview	<p>8. How does the country's political situation influence your decision-making processes? (<i>PE – H; PE – I</i>)</p> <ul style="list-style-type: none"> ✓ Implementing new strategies ✓ Responsiveness to change ✓ Encouragement ✓ Hindrance <p>9. Are there policies and regulations in place which support you to take action to adjust to the impacts of climate change? (<i>PE – S</i>)</p> <p>If yes:</p> <ul style="list-style-type: none"> ✓ Guidance of business structures ✓ What Strategies ✓ Understanding ✓ Agreement ✓ Integration of these policies & regulations ✓ Taking part in policy creation process
	(7)	Economic environment	<ul style="list-style-type: none"> The economic environment refers to various factors, such as growth rate, GDP, labour demand and supply or unemployment rates (Fletcher, 2018). Countries with a healthy economic environment encourage open situations for opportunities, restructuring and starting new businesses 		<ul style="list-style-type: none"> Influence of current economic state on the business Influence on funding of strategies to overcome the impacts of climate change 	Semi-structured Interview	<p>10. How does the economic situation of the country influence your business? (<i>EE – A; EE – Im</i>)</p> <ul style="list-style-type: none"> ✓ Investment ✓ Innovations ✓ Diversification ✓ Funding
Measuring Resilience Capacity	(8)	Persistence (being robust)	<ul style="list-style-type: none"> the concept of robustness (enduring change) is important whereas one can differentiate between short term robustness and long-term robustness (Davoudi, Brooks & Mehmood, 2013). Incorporates active assistance of larger networks including entrepreneurs, which showcases a strong link to the dimension of adaptability and its sub aspects of flexibility and resourcefulness (Folke et al., 2010). 	RQ 4: What are suitable adaptation strategies for the safari operators to manage the impacts of climate change on nature-based tourism in: Victoria Falls National Park, Zambezi National Park and Hwange National Park?	<ul style="list-style-type: none"> Variety & Redundancy - Condition 1 (Hartman, 2018) <ul style="list-style-type: none"> Understanding, acceptance, and incorporation of policy frameworks Variety & Diversity (new innovations & initiatives, other sources of income) active assistance and participation of larger networks including other entrepreneurs participation in policy creation processes Robustness <ul style="list-style-type: none"> Enduring change over a period of time (short term and long-term robustness). 	Semi-structured Interview	<p>11. Do you have other sources of income to support you if business is struggling? (<i>P – V&R_re; P – V&R_unr</i>)</p> <ul style="list-style-type: none"> ✓ Diversity of business operations ✓ Range of activities ✓ Additional elements which are not important for the functioning <p>12. Robustness (<i>see question 7</i>)</p>

	(9) Preparedness (learning capacity)	<ul style="list-style-type: none"> Refers to the ability to foresee impacts as well as the capacity to identify opportunities and vulnerabilities (Davoudi, Brooks & Mehmood, 2013). Closely connected to adaptability dimension 		<ul style="list-style-type: none"> Environmental sensitivity - Condition 4 (Hartman, 2018) <ul style="list-style-type: none"> Collection of key information about outside stressors that affect the environment Identification of stressor / vulnerabilities Monitoring systems of stressor Analysing impacts of the stressor Using this knowledge for decision making Learning & Reflexivity - Condition 5 (Hartman, 2018) <ul style="list-style-type: none"> Learning capacity anticipation of change; adaptive planning capacity; reflect on and learn from outcomes sharing knowledge 	<p>13. Would you say change scares you? (A – L&R)</p> <ul style="list-style-type: none"> ✓ Opportunity or Threat ✓ Reflection ✓ Planning ahead <p>14. How do you ensure that your team on the ground is not overwhelmed by the changes or challenges faced? (A – L&R; A – M; A – F)</p> <ul style="list-style-type: none"> ✓ Training or education on climate change ✓ Special skills ✓ Monitoring your environment (journaling or reporting) ✓ Sharing knowledge with other Safari Operators <p>15. Looking into the future, do you feel prepared and strong enough for what is to come with the change in climate? (A – L&R)</p>
	(10) Adaptability (being flexible)	<ul style="list-style-type: none"> Literature argues that adaptability is a key process which contributes to the learning capacity as well as response capacity of a SES (Espiner et al., 2017). Adaptability is perceived as a key component of a resilient system as well as within this research approach. Adaptability is a response process to the impacts of change (climate change within the studied case), it is not a single occurrence but a continues process which is happening within a SES. 		<ul style="list-style-type: none"> Flexibility <ul style="list-style-type: none"> The presence of networks as routes towards resilience. Aligned with connectivity. Adaptive capacity Connectivity - Condition 2 (Hartman, 2018) <ul style="list-style-type: none"> strong links within the system; alliances Resourcefulness <ul style="list-style-type: none"> The quality to cope with changes, ability to find adequate solutions. Governance systems - Condition 3 (Hartman, 2018) <ul style="list-style-type: none"> Multiple stakeholder involvement 	<p>16. Flexibility (see question 14)</p> <p>17. Would you say you have a willingness to ask for help from other Safari Operators to find solutions to challenges? (A – C)</p> <ul style="list-style-type: none"> ✓ Active assistance ✓ Participation of larger networks ✓ Alliances <p>18. How do you react to these challenges? (A – G; A – R) (follow up of question 7)</p> <ul style="list-style-type: none"> ✓ Environmental challenges ✓ Challenges within the operation ✓ Knowledge challenges ✓ Policy challenges or financial challenges <p>19. Would you be able to explain to me the steps that you have to follow before you can adjust certain aspects of your operation? (A – G)</p> <ul style="list-style-type: none"> ✓ Within your business ✓ In your environment ✓ Stakeholder involvement
	(11) Transformability (being innovative)	<ul style="list-style-type: none"> Refers to the shift of a SES towards a new form of being (Davoudi, Brooks & Mehmood, 2013; Folke et al., 2010). Can be described as an outcome or a given to the adaptive processes a SES must undertake while impacted by a driver of change. 			<p>20. See explanation methodology (Chapter 3)</p>

Table 3 Research Matrix

Appendix C – Letter of Invitation

Dear *(INSERT NAME HERE)*,

As an expert within the field your contribution to the research study aiming to explore the capacity of resilience of safari operators to climate change in three nature-based tourism areas in Zimbabwe is particularly appreciated. The areas which are in focus are Victoria Falls National Park, Zambezi National Park and Hwange National Park.

My name is Carolin Giarra, and I am a master's student (MA International Leisure, Tourism and Events Management) at NHLStenden University of Applied Sciences in Leeuwarden, the Netherlands. The project is conducted under the supervision of Dr S. Hartman.

I am writing you to seek your agreement to take part in this research project. Due to the ongoing Covid-19 pandemic and the travel restriction resulting from this, I am unable to conduct the face-to-face interview with you in Zimbabwe. Therefore, I would appreciate your participation in an online interview. I will additionally provide you with a letter of information explaining the procedures and ensuring your anonymity and confidentiality throughout the entire process.

Thank you in advance for your consideration of taking part in this project. Please let me know if you need more information. I would appreciate it if you could respond to this email within three working days.

Best regards, Carolin Giarra

Appendix D – Letter of Information

You are being invited to voluntarily participate in this research project. The purpose of this letter is to give you the information you need to make an informed decision about whether or not you would like to take part. It is important that you understand what the research involves. Please take the time to read this carefully and ask questions should anything be unclear.

PURPOSE OF THE STUDY

The aim of the study is to explore the capacity of resilience of safari operators in nature-based tourism, to adapt to the impacts of climate change in the three main tourism areas in Zimbabwe: Victoria Falls (Rainforest), Zambezi National park and Hwange National park. Research focusing on the capacity of resilience of local entrepreneurs is relevant to overcome the lack of understanding and encourage the development of suitable adaptation strategies to ensure sustainable tourism development, desired by the countries nature-based tourism sector.

EXPECTED DURATION

This interview will take approximately 45 to 60 minutes at most to complete.

PROCEDURES

If you participate in the study, you will participate in a personal online interview via Teams, Zoom or Skype. By signing the consent letter, the researcher will ensure your and the company's confidentiality and anonymity. The interview will be audiotaped (video recorded if consent is given), and a typed transcript will later be produced of the tape. The interviews will take place at your convenience and in your desired environment.

RISK AND DISCOMFORTS

You are free to not answer questions, that you are not comfortable with during the interview, and to only give as much information as you are at ease with.

BENEFITS

There will be no personal benefits in participating in this research. Please note you will not receive any sort of payment or incentive for your participation. However, your participation may provide a better understanding of the research topic, which will lead to improvement in the field of tourism. Additionally, your contribution is highly appreciated for the successful completion of my master's degree.

RIGHT TO WITHDRAW FROM THE STUDY

Your participation in this study is voluntary. You may refuse to participate, refuse to answer questions, or withdraw from the study at any time.

CONFIDENTIALITY

The data/results of this study will remain confidential and are used for educational/academic purposes only.

PERSON TO CONTACT IN THE EVENT OF PROBLEMS OR QUERIES

Miss Carolin Giarra

+49 (0) 176 7378 4199

carolin.giarra@student.nhlstenden.com

Appendix E – Consent Form

Interview Consent Form

I agree to participate in a research project led by a student, Carolin Giarra from the NHLStenden University of Applied Science in Leeuwarden, the Netherlands. The purpose of this document is to specify the terms of my participation in the project throughout the Interview process.

Please indicate your agreement below. Your indication of agreement will serve as a substitution for your signature.

Details of the Researcher: Carolin Giarra
carolin.giarra@student.nhlstenden.com

*Required

1. Date *

Example: 7 January 2019, 11.03 a.m.

2. I _____ voluntarily agree to participate in this research study. *

3. Terms *

Tick all that apply.

	I agree	I do not agree
I have been given sufficient information about this research project. The purpose of my participation as an interviewee in this project has been explained to me and is clear.	<input type="checkbox"/>	<input type="checkbox"/>
I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any questions without consequences of any kind	<input type="checkbox"/>	<input type="checkbox"/>
Participation involves being interviewed by the researcher (Carolin Giarra). The interview will last approximately 45 minutes. I allow the researcher to take written notes during the interview. I also allow the recording by audio tape of the interview. It is clear to me that in case I do not want the interview to be taped I am at any point of time fully entitled to withdraw from participation.	<input type="checkbox"/>	<input type="checkbox"/>
I agree that the interview will be video taped.	<input type="checkbox"/>	<input type="checkbox"/>

I understand that my identity will remain anonymous, this will be ensured by hiding any details of my interview which may reveal my identity.

I understand that all information I provide for this study will be treated confidentially.

I agree that the data collected during this interview can be processed by the researcher and retained for two years.

I understand that under freedom of information legislation I am entitled to access the information I provided at any time while it is in storage.

I understand that I will not benefit directly from participating in this research.

With this I declare my written consent to voluntarily participate in this study. My agreement here will be substituted as my signature.

Appendix F – Semi-structured Interview Script

Opening:
<ul style="list-style-type: none">• Introduction of researcher and the participant• Small talk to establish a rapport and get familiar with each other<ul style="list-style-type: none">○ How was your day?○ Does everything work your side well with the internet connection?○ How are you doing during these times?• Explaining purpose and motivation of the study<ul style="list-style-type: none">○ Signing of consent form by participant
Setting the scene:
<ul style="list-style-type: none">• Moving away from the perspective of the Covid-19 pandemic.• The climate crisis is ongoing• The World Meteorological Organization (WMO) published the State of the Climate in Africa 2019 report, showcasing increases in temperature, with each year showing a significant rise and being warmer compared to 2014• Scientists see the current climate stage in Zimbabwe as critical (ticking Time-bomb)• The impact of climate change on nature-based tourism in Zimbabwe is alarming considering the crucial role that this form of tourism is playing:<ul style="list-style-type: none">○ Temperatures surpassing 45 degrees Celsius○ low rainfall○ drought in the year of 2014 to 2016○ low water supply etc.
Main question body:
<p>1 How important are climate and weather conditions for your day-to-day duties?</p> <ul style="list-style-type: none">✓ Dependency on natural assets <p>1.1 Are you aware of the global trend of changes in climate?</p> <ul style="list-style-type: none">✓ Knowledge and Information✓ Awareness✓ Do you see climate change as a threat?<ul style="list-style-type: none">✓ Perception✓ Threat or Opportunity <p>1.2 What challenges in the past such as rising temperatures, changing rainfall patters or drought have affected you?</p> <ul style="list-style-type: none">✓ How✓ Could you avoid this stress in the future? <p>1.3 Are you currently experiencing impacts of climate change?</p> <ul style="list-style-type: none">✓ Perceived impacts✓ Get specifics

- 2 There is an ongoing interaction of your staff and the nature surrounding them, what challenges do you encounter?**
- ✓ Environmental challenges
 - ✓ Challenges within the operation
 - ✓ Knowledge challenges
 - ✓ Policy challenges or financial challenges
- 2.1 How do you react to these challenges?**
- ✓ Environmental challenges
 - ✓ Challenges within the operation
 - ✓ Knowledge challenges
 - ✓ Policy challenges or financial challenges
- 3 Would you say change scares you?**
- ✓ Opportunity or Threat
 - ✓ Reflection
 - ✓ Planning ahead
- 3.1 How do you ensure that your team on the ground is not overwhelmed by the changes or challenges faced?**
- ✓ Training or education on climate change
 - ✓ Special skills
 - ✓ Monitoring your environment (journaling or reporting)
 - ✓ Sharing knowledge with other Safari Operators
- 4 Do you have other sources of income to support you if business is struggling?**
- ✓ Diversity of business operations
 - ✓ Range of activities
 - ✓ Additional elements which are nor important for the functioning
- 5 How does the country's political situation influence your decision-making processes?**
- ✓ Implementing new strategies
 - ✓ Responsiveness to change
 - ✓ Encouragement
 - ✓ Hinderance
- 5.1 Are there policies and regulations in place which support you to take action to adjust to the impacts of climate change?**
- If yes:
- ✓ Guidance of business structures
 - ✓ What Strategies
 - ✓ Understanding
 - ✓ Agreement
 - ✓ Integration of these policies & regulations
 - ✓ Taking part in policy creation process
- 6 How does the economic situation of the country influence your business?**
- ✓ Investment
 - ✓ Innovations
 - ✓ Diversification
 - ✓ Funding
- 7 Would you say you have a willingness to ask for help from other Safari Operators to find solutions to challenges?**
- ✓ Active assistance
 - ✓ Participation of larger networks
 - ✓ Alliances

8 Would you be able to explain to me the steps that you have to follow before you can adjust certain aspects of your operation?

- ✓ Within your business
- ✓ In your environment
- ✓ Stakeholder involvement

9 Looking into the future, do you feel prepared and strong enough for what is to come with the change in climate?

Helpful probing tactics:

“So, what I hear you saying is.”

“I’m not quite sure I understood... Could you...”

“Could you give an example?”

“Could you please tell me more about...”

Closing:

- Additional comments of participant?
- Any questions?
- Thank you for participating

Appendix G – Codebook

Category	Climate change			
	Master Code	Description	Subcodes	Abbreviation
	CC: AWARENESS	The fundamental knowledge of the existence of the phenomenon. - The lack of the fundamental knowledge of the existence of the phenomenon	CC: AWARENESS Lack	CC – A CC- A_la
	CC: PERCEPTION	The general view of the phenomenon, threat or opportunity.		CC – P
	CC: IMPACTS	The effects and influences of the phenomenon on past and present operations. - Climate change impacts of the past of the last 4 - 20 years. - Climate change impacts in the present of the last 2-3 years.	CC: IMPACTS Past CC: IMPACTS Present	CC – Im CC – Im_pa CC – Im_pr
Category	Nature-based tourism			
	Master Code	Description	Subcodes	Abbreviation
	NBT: DEPENDENCY	The importance of natural resources for the business.		NBT – D
Category	Vulnerability			
	Master Code	Description	Subcodes	Abbreviation
	V: SENSITIVITY	The degree to which the system is exposed to a driver of change.		V – S
Category	Socio-ecological System			
	Master Code	Description	Subcodes	Abbreviation
	SES: INTERACTION	The connection and interference of the ecological system with the human component.		SES – Int
Category	Political influences			
	Master Code	Description	Subcodes	Abbreviation
	PE: SUPPORT	The factors that encourage the building of a resilient system.		PE – S
	PE: HINDRANCE	The factors that hinder the building of a resilient system.		PE – H
	PE: INFLUENCE	The political influence, legislations, policies which affect the business operation.		PE – I
Category	Economic influences			
	Master Code	Description	Subcodes	Abbreviation
	EE: ASSISTANCE	The economic factors supporting the business operations, such as funding of strategies to overcome the impacts of climate change.		EE – A
	EE: IMPACT	The effect of the country's economic situation on the business operations.		EE – Im

Category	Persistence			
	Master Code	Description	Subcodes	Abbreviation
	P: VARIETY & REDUNDANCY	<p>The general diversity of the business operations, such as range of activities offered or means of income. The presence of additional elements which are not needed to function but are there in case of failure in other elements.</p> <ul style="list-style-type: none"> - Related general diversity of the business operations, such as range of activities offered or means of income. - Unrelated general diversity of the business operations, such as range of activities offered or means of income. - Lack of general diversity of the business operations, such as range of activities offered or means of income and the presence of additional elements which are not needed to function but are there in case of failure in other elements. - The change in perspective and need for diversity and presence of additional activities and functions within the business. 	<p>P: VARIETY Related P: VARIETY Unrelated P: VARIETY & REDUNDANCY Lack P: VARIETY & REDUNDANCY Need for</p>	<p>P – V&R P – V&R_re P – V&R_unr P – V&R_la P – V&R_nf</p>

	P: ROBUSTNESS	Enduring change over a period of time (short term and long-term robustness).		P – R
Category	Adaptability (including preparedness)			
	Master Code	Description	Subcodes	Abbreviation
	A: FLEXIBILITY	The presence of networks as routes towards resilience. Aligned with connectivity.		A – F
	A: RESOURCE-FULNESS	The quality to cope with changes, ability to find adequate solutions.		A – R
	A: GOVERNANCE	The involvement of stakeholders in decision-making and strategy formulation.		A – G
	A: CONNECTIVITY	The established links within the systems, networks and alliances, trust.		A – C
	A: LEARNING & REFLEXIVITY	The capacity to reflect and learn from past outcomes to anticipate future changes. - The lack of capacity to reflect and learn from past outcomes to anticipate future changes.	A: LEARNING & REFLEXIVITY Lack	A – L&R A – L&R_la
A: MONITORING	Critical for the formulation of adaptation strategies, as with a great level of data gathered the ability to mitigate negative impacts increases		A – M	
Category	Influential Factors (additional)			
	Master Code	Description	Subcodes	Abbreviation
	IN: MEDIA	Influences of the Media on the climate change discussion		IN – M
	IN: PANDEMIC	Influential factors of the current pandemic which have an effect on the data gathering process and validity of the data gathered.		IN – P
Category	Cultural environment			
	Master Code	Description	Subcodes	Abbreviation
	CU: SPHERE	Influences of the cultural sphere on the adaptive capacity of individuals.		CU – S
Category	Recommendations			
	Master Code	Description	Subcodes	Abbreviation
	RCOM	The recommendations and wishes participants mentioned which influence the future capacity of resilience.		RCOM

Appendix H – Interviews (with coding)

Interview 1 – Zambezi National Park

1 *Speaker 1:* OK, so I was about to say, if we lose the connection, you can always stop me, and I repeat myself. But yeah, thanks again for being here. And after after we did now all the all the needed things like the consent form, obviously we're still a bit in the middle while we are in the middle of the pandemic. So, there is, I'm sure also from your side, a lot of crisis management going on, still dealing just with the loss of all the tourists coming and actually, so I want to kind of it's a bit of an issue then pulling away from that perspective. And then I want to move a bit into the climate discussion, actually, because that topic is also still going on, even if we lost it a bit out of sight at the moment. So, I did obviously a bit of research and I mean, the World Meteorological Organization WMO also did lots of research publishing climate data about Africa. And the latest report was from twenty nineteen. And well, my concern is always that it showed an increase in temperature also, especially in Zimbabwe. I mean, we had lots of, in the past years we had lots of issues with elephant dying, drought, especially in Hwange, but also in the Falls and twenty nineteen when we had a very low water intake in the Victoria Falls itself, no fake news they weren't dry, but the the water intake was very low. So, I guess that's also something that concerns you being situated right at the Zambezi and a lot of activities take place there when you when you have your guests there. So, I want to go and move a bit into that perspective and talk about about this issue with you. So, my first question would actually be how important is climate and weather conditions for your day-to-day duties in the camps that you have?

2 *Speaker 2:* I think it is very important, both from the perspective of Guest comfort, as well as from the perspective of being able to carry out activities, certain activities are hampered by too much heavy rain and other activities are hampered by drought and low water levels. So, yeah, I would I would say probably about nine out of 10 if I had to score it.

3 *Speaker 1:* That's quite high. So, you would say that the dependency actually on that natural asset, on that climate stability is quite high or?

4 *Speaker 2:* Well, yes, I would say so, you know, a lot of the lodges in in Zimbabwe are only seasonal anyway. They're only open during the season that that works for them. We are open all year round so we feel that impact.

5 *Speaker 1:* Mhmh Can you give me an example, like when would the impact be ehm, yeah, the strongest?

6 *Speaker 1:* In general, the seasonal lodges are closed during the rainy season and and open when it's not raining. But they also rely on reasonable water levels for some of their activities. So, for us, yes, we feel the impact during the rainy season. I think it's become traditional for people to to book at certain times of the year rather than at others. We have because we're an island, we've got the most beautiful, soft, wet sand beach in front, it looks like in the Seychelles or the Maldives. And when you walk on it, it squeaks. It is just divine. And people love that that beach, which obviously is seasonal as well. So, during the rainy season and I'm trying to think now in the rainy season sort of starts and stops. Ehmm [longer pause]

7 *Speaker 1:* Now that changes as well.

	8	<i>Speaker 2:</i> Yeah, it does change a bit. But we we sometimes have people saying, will the beach be there? When we book because they want the beach, but we can't guarantee it because things are changing all the time now.
	9	<i>Speaker 1:</i> Yeah, I get that [encouraging]. Are you aware of the global trend of changes in climate in general?
..CC - A	10	<i>Speaker 2:</i> I am, not in any great detail, but but in general, yes.
	11	<i>Speaker 1:</i> Yeah, so you just have awareness, and you know that something is happening there.
..CC - A	12	<i>Speaker 2:</i> There is a bit of a problem. Yeah.
	13	<i>Speaker 1:</i> Yeah. Do you see it as a threat? That would be actually my next question for you.
..CC - P	14	<i>Speaker 2:</i> Yes, absolutely. And I think both in terms of temperature, because the summers are getting hotter and hotter, and the winters seem to be getting colder and colder. And also, in terms of operations, you know, we had eh, the town of Victoria Falls relies heavily on hydroelectric power. So obviously when water is very low, electricity supply is more interrupted. And that happens at a time when when water supplies are also low, and they can't pump the water because of the power. So, we you know, we have a laundry in the town of Victoria Falls. On the island we we are self-sufficient. We don't use a grid, electricity or water. We pump our own. We fully solar. So we totally self-sufficient. But in town where our laundry gets done, we we had a problem where the laundry couldn't operate for some days because of lack of water, based on both the drought and the lack of electricity to pump that water. So, we've we've had to adapt and put in a water tank to catch our own water to help us through those periods when the town has no water.
..NBT - D		
..V - S		
	15	<i>Speaker 1:</i> So, these are also probably then things that you experienced in the past and while you just kinda adapted to it and tried to find the issues...
	16	<i>Speaker 2:</i> Yeah look...
..A - L&R	17	<i>Speaker 2:</i> we only opened in November... [longer pause], trying to think if it was 2017 or 2018, so we haven't been open very long. So, yes, but it's quite a recent adaptation. We didn't, we weren't expecting it. The locals would have told us we should have expected it, but we weren't.
	18	<i>Speaker 1:</i> But you planned kinda I mean, you planned the lodge on the island, and I'm pretty sure you planned it already self-sufficient and there was a reason behind it. Right, that you planned it this way.
..A - L&R	19	<i>Speaker 2:</i> Yes, we did at one stage look at whether we could connect to mainland electricity by putting a cable through under the river. But by the time we finished looking at how often that electricity is not available, we decided that it was actually better not to do it. It wasn't worth the expense of laying a
..A - R		

<p>..A - L&R ..A - R</p>	<p>cable under the river for electricity. That was not going to be reliable. It was it was more sensible to put that expenditure into solar and making sure that we are self-sufficient.</p>
	<p>20 <i>Speaker 1:</i> Hmm.</p>
	<p>21 <i>Speaker 1:</i> Did you experience other challenges in the past besides low rainfall, a drought, for example, that affected the business or any other?</p>
<p>..CC - Im_pa</p>	<p>22 <i>Speaker 2:</i> Well, both drought and flooding for us as an Island are an issue. After we opened, we experienced the highest ever recorded, I think, levels of the Zambezi River and it started eroding the front end of the island that we had constant banks collapsing into the river and we built quite close to the edge of the island so that everyone's got beautiful water views and so on. So, we spent a fortune on geotextiles and sandbags to shore up the front end of the island and make sure that it didn't collapse, taking all our buildings with. So, and in fact, every every year now it looks like there's a bit of a flood panic, doesn't always materialize. This year everyone was talking big about how bad it was going to be and it wasn't as bad as everybody thought. But yeah, that is a problem. And for us as well, because we're an island and we use a we use boats to get across a ferry and boats from the mainland and for activities and that sort of thing ehh...when the water drops very low. It's easy to just come in on the beach, but when the beach is underwater and the water's high. We had to really adapt in terms of working out our jetty and our stairs because we can't have a floating jetty that just goes up and down with the water because the water stream is too strong it will wash it away.</p>
<p>..A - R</p>	<p>23 <i>Speaker 2:</i> So, we had to try and adapt, in a way, without a floating jetty that we can still exit the island all through the year. So that was another complication. And in fact, now in the waters very low, if it goes super low, then we can't actually even get to the beach because of rocks and things. So, it's. But we have we have succeeded by working and working things out very carefully.</p>
<p>..A - R</p>	<p>24 <i>Speaker 1:</i> Yeah, like it sounds like a very tricky environment, actually, and I mean, a lot of uncertainty also surrounding it because you never know what's happening. Do you have a sense how to how to foresee these changes like someone in the company currently, I do not know, monitoring weather conditions? And these kinda...</p>
<p>..A - M</p>	<p>25 <i>Speaker 2:</i> We do get the hydrological reports and and we base our thinking and our planning around that, yeah.</p>
	<p>26 <i>Speaker 1:</i> Yeah, that's helpful.</p>
<p>..V - S ..PE - I ..A - C</p>	<p>27 <i>Speaker 2:</i> Our issue is not only local rainfall, but it's the water that comes down with the river from higher up. The local rainfall is can be a major pain when it's particularly heavy and ongoing because we transfer our guests in an open game drive vehicle, it does have a roof on it, which helps between the main bank on the other side of the island and the Zambezi National Park Gate, and those roads are shocking when there's heavy rain. Absolutely shocking and Zim Parks does nothing about those roads at all. We we all the lodges put in money together to to fix the roads. So, I'm not quite sure what we're paying</p>



our concession fees for...

28

Speaker 1: Yeah, these are actually issues. I would probably ask you about at a later stage now because we are actually, I mean, you you've said a lot of great things already, especially now also what you've experienced in the past. Do you know if you're currently right now experiencing any any impacts that can be related to climate change, or is that more like a minor issue right now for you?

IN - P

..CC - Im_pr

29

Speaker 2: It is more of a minor issue right now because right now the pandemic is our biggest issue. Bookings are really, really, really scarce ... so right now I mean. We were concerned about the river levels and and the flooding and the and the erosion that that causes, but that started to subside now to our other issue has to do with the batteries for the solar system. But that's got nothing to do with climate change.

30

Speaker 1: Yeah, that's more like an observation. So, yeah, your staff obviously on site. They also have to constantly interact with just the natural surroundings they're operating in, actually. So, I'm sure they encounter obviously also a lot of challenges. I know you already kind of mentioned a few. So, I would actually go further and ask, how do they react to these challenges? Are they able to react quickly, do they generally have positive attitudes about it or, yeah...

..P - R

31

Speaker 2: Their attitudes are definitely positive I find the Zimbabweans are an amazing bunch. They obviously suffered so much hardship in their lives that absolutely nothing gets them down. So, they just bounce back and make a plan and make a plan and make another plan. So, from their attitude perspective, it's lovely. I love working with the. But in terms of the challenges. I'm just trying to think now. They but they have to be flexible. They just have to be, but but unfortunately, being in Zimbabwe, any proper technical assistance is far away and takes a long time to get to you. So, you you end up doing a lot of your your own stuff with a bit of string and chewing gum. You know (laughter), for instance, with with the with the park roads, we. We in an area in Zambezi National Park are a hell of a lot of natural rocks, more natural rocks, so we just took our guys across the river and moved those rocks into the areas where the soil had made really bad mud and vehicles were sinking. And we pecked that with rocks. So, we we've been able to use natural materials, which was great on the island, obviously not because of the the serious erosion issues, but the geotextiles and the sandbags have been fantastic. And in fact, although it was a bit of an eyesore and our neighbors on the other side of the river were constantly annoyed by the fact that we had these three white geotextile coverings over the sandbags. We did cover them with mud to try and make them look a little less of an eyesore. But now the grass is growing through and it looks all perfectly natural and it's very solid. Yeah, but that's what it is, again, because we in Zimbabwe, we can't get the geotextiles in Zimbabwe and we can't get the sandbags in Zimbabwe. So, we've got to order them in South Africa and then send them up to Zimbabwe and and this huge expense involved with that as well as paperwork and that sort of thing. So, yeah, Zimbabwe is a it is a difficult destination to to operate in because of the lack of resources.

..A - R

..A - R

32

Speaker 1: Yeah, I think so. Would you say, well, from your perspective and also maybe the company's perspective, that the change in general that it

scares you, or do you rather see it also as an opportunity to develop further?

..NBT - D

33 *Speaker 2:* Personally, I think it scares me more than anything else. Let's be honest and with, with the Victoria falls being the main reason why anyone ever comes to us, although we in the Zambezi National Park and we twenty-one kilometers away from Victoria Falls, the reason that there's international traffic going through there is Victoria Falls. Now, it's it's not our beautiful island. So, we are reliant on the attraction of the falls. So, if they were to ever dry up completely which I don't think will happen, but it would be an absolute disaster for Victoria Falls, in fact that that fake news report that came out, did impact bookings. So, we've we've seen firsthand already that that, those falls are our lifeblood.

34 *Speaker 1:* Do you have suggestions how the country could maybe improve that issue? Because, I mean, also being in the industry myself, I'm aware of this issue that even from the surrounding countries, when guests go on safari, like Victoria Falls is often on the list for a short stay. And then I feel like often the rest of the country of Zimbabwe is actually neglected, even if, in my personal opinion, I think game viewing is extremely great in Zimbabwe in general. So, do you have maybe even suggestions how you're how this could be overcome?

RCOM

35 *Speaker 2:* I think that. Perhaps too much emphasis has been placed on the falls in respect of the tourism marketing. Hmm. It's you know, that sounds like a criticism, not really, I understand why so much emphasis has been placed on that. If you've got something that nobody else has that triumph could say, you're going to play it. But I think that in part because of the the climate change and so on, I think they may need to adapt their marketing practices a little bit. And I also think that. They they need to remove the focus from that heavy water period when the falls are full and place some on the beauty of the actual rock structures and so on, when when it's hardly flowing at all because you actually get a better perspective when the falls are low than when they're high, when they're high, the water is magnificent, the steam, the spray is incredible, etc. But when they're low, you you get to experience the magnitude of it. You can actually see how wide and how big it is. And I feel that there should be marketing the two seasons differently and that that should be an attraction for the for the dry season and the Birding as well as the the animals. Birding is amazing around there on the island. It's in incredible. It is an absolute birders paradise think they should still market the falls, but they should also be marketing other aspects that are also very attractive.

36 *Speaker 1:* Hmm, I agree. And then going you are going back again to your team actually within the operations. I know you mentioned already that they actually face quite a lot of daily challenges, I would even say operating the lodge. So, do you how do you ensure that they're actually not overwhelmed? Do they get yeah training, education or do they learn special skills how to deal with these impacts?

..A - L&R

..A - R

37 *Speaker 2:* OK, so we we have our concession manager, [mentioned name] who is a professional guide, so he's armed and he's a professional guide. He knows about animal behavior and that sort of thing. So, from from that perspective, he takes care of the safety aspect. In terms of challenges with regard to water levels, temperatures, rainfall, etcetera, we in constant



discussion with them and helping them to look at ways of solving problems. But it's all been in house training other than obviously [mentions name] qualification, which is a formal qualification. It's all in-house. My husband is a very practical kind of guy. So, he he helps them deal with issues like, say, yesterday, they said they were struggling with the batteries on the solar panels. So, we were battling to pump water with enough pressure, etc. and he said, okay, let's just raise the water tank higher so that there's more natural gravitational pull, etc... So, you know, we just we work around things and well, South Africans are almost as practical as Zimbabweans. We're good at making plans. There's an expression here 'a boer maak n'plan' [Afrikaans]. [laughter]

38 *Speaker 1:* [laughter] Yeah, yeah. I know that expression actually. Yeah, I mean I can imagine now you said that you do mostly in-house training. Do you also maybe talk with a network of the other lodges and the other safari operators and share knowledge, or do you think it's all mostly in-house?



39 *Speaker 2:* No, it's mostly in House, we do belong to a a WhatsApp group that involves all the other lodges and hotels in our area, and we do sometimes chat about issues and things, but mostly I think it's every man for himself. Having said that, the lodges on that group pull together well to make sure that the roads stayed accessible. You know, we we provided staff who we paid for to work on the roads and [name of other operator] provided accommodation for the staff and meals for the staff. And the guy, what's his name, [mentions name] from the garage in town, provided heavy equipment to work on the roads. And then we all chipped in some money to buy fuel. So, in that respect, where we have a common problem, we do pull together.



40 *Speaker 2:* But in terms of of each individual lodge. [squeaky voice] Actually, maybe they're not pretty much on their own, yeah think we do pull together because I was just thinking [name of other operator] they were unable to do river cruises, because the water level dropped so low that they couldn't they couldn't launch their barge, so they they gave us a call and we gave them a really good rate. I think it was 50 dollars a day, including fuel. And they would just drive around to to the main bank, and we would go across and pick up the guests and do a river cruise for them and drop them back again so that they were able to continue their activities. So, yeah, I would be wrong to say we are all individual, we do work together pretty well.

41 *Speaker 1:* Yeah, sounds like it.



42 *Speaker 2:* And in fact, even when they were when they were building [name of other operator] in the Zambezi National Park, just down the road from us, it was really, really bad weather. It just rained and rained and rained. And the those guys phoned us and said, look, we can't get to the camp to deliver rations for our staff. Can can you go to town by the rations and take them by boat to the camp so that our staff can be fed, and we did. And we didn't charge for that either, we just went to town bought the rations and delivered them by boat. It's the kind of thing you do likewise they had a big truck that was coming in with supplies that got stuck and never made it to the camp. And my husband went out and found them and took food to them and moved them to the camp using a lighter weight vehicle that had been there for, I think, five days. In the middle of the bush, on the side of the road, with only a truck like you, you do help each other. It's just it is the way it is.

..A - C

43 *Speaker 1:* It's just that you don't have a, like, I would say, a formal network going on between. But you have that informal network with the WhatsApp group and yeah, you kinda you kind of shout when something is happening and then...

44 *Speaker 2:* Yeah absolutely. And then we all do come to each other's rescue.

45 *Speaker 1:* Yeah. Um, that's probably yeah, a question to see if if you have a certain diversity, I know you already mentioned actually that you're quite dependent, especially on climate, for the operation itself. But do you have other sources of income to support you if the business is struggling or other activities maybe that take place? I'm not sure in how much detail you want to go, but...

46 *Speaker 2:* Yeah, no that is fine. We We don't actually market ourselves as Victoria Falls destination because we're 21 kilometers out. We market ourselves differently. We we market ourselves as an island destination. And we've played quite heavily on that. One day when you eventually get to [name of business], you'll see. So, we designed that so that it's like. The tag line is Seychelles meets Zambezi, ...

47 *Speaker 1:* Oh, nice...

..P - V&R_re

48 *Speaker 2:* ... so we got shaggy palm thatched roofs and the palm trees growing on the island. So, it feels like you and as I said, the beaches are stunning. So, it feels like an island holiday. And then in terms of activities, we we sort of split them into three different attractions. The one is, game activities, so we do guided walks in the Zambezi National Park, as well as game drives in the Zambezi National Parks, and then we've got water activities which include canoeing, sundowner cruises, river cruises, fishing, and then we've got the the trip to the falls. So, for for every three-day booking, I think, or longer you get a complimentary trip into town to go to the falls and so on. And we've also adapted the way we do things. So, we we sometimes have guests, or we give guests the option of arriving by jetboat instead of a vehicle driving through the park so they might arrive by boat during a trip up the river to get to us and then leave on land with the game drive. So, we've got more than one arrow in our quiver in terms of our marketing strategy and the activities that we offer, the attractions.

49 *Speaker 1:* Yeah. Now we come to the topic that you also kind of started a bit on. I think the questions are a bit tricky, but yeah well, not tricky, but sometimes, a bit...

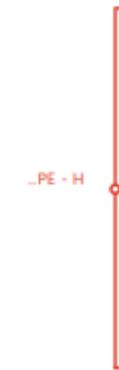
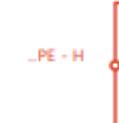
50 *Speaker 2:* ...politically sensitive....

51 *Speaker 1:* Yeah, [laughter] Yeah, so I know I mean, we all know about Zimbabwe's rich history in terms of politics and economics. So how does the country's political situation actually influence also your decision-making processes in terms of operation and sometimes also how you react to certain impacts?

..PE - I

..PE - H

52 *Speaker 2:* It's actually a little bit of a nightmare [laughter] because financially

	<p>it's really hard to plan because you don't know what things are going to be costing in the future. The agents want us to provide our rate sheets a year or two ahead of time. But it's very hard to pick that down. We always have to say this could change without notice or whatever, which is not a not a great selling point. So, in terms of the currency and also sometimes they have fuel and sometimes they don't have fuel in town and game drives and boats rely on fuel. So that's a difficulty in terms of the sort of cultural history we we have found that it's it's not a great idea to employ ehhh What do they call themselves now? Shona's and Ndebele's you go to, you go to pick one or the other for your staff because it causes ructions and issues amongst your staff if you have. Like in that area, I think most of the people are Ndebele, but if you bring in one or two or three Shona's. They're going to be a minority and there's going to be conflict.</p>
	53 <i>Speaker 1:</i> Hmm.
	54 <i>Speaker 2:</i> So, you have to bear that in mind. I know that's got little to do with climate change, but it's part of the realities of operating in Zimbabwe.
	55 <i>Speaker 1:</i> Yeah, and it also has a lot to do with in terms of just the political situation. I would say...
	56 <i>Speaker 2:</i> Yeah, I can't remember what the rest of the question was. You might have to go back.
	57 <i>Speaker 1:</i> That is fine. Yeah, it's quite I think it's also quite a big question. So, yeah, just in general about the political situation, I'm pretty sure you also have to deal with a lot of policies and regulations that are coming from the top people....
	<p>58 <i>Speaker 2:</i> [Interrupting] and it's constantly changing constantly. The payroll has to change all the time because the labor laws change all the time in terms of minimum wages and this currency you can pay in this currency or that currency. Now, you can only pay in that currency and then it's pegged at one to one and not eighty-four to one. And so, yeah, that's that's also quite hard work keeping track of. And that was the legislation creates a lot of work because they, they require a two per cent levy on every cent that your guests spend with you and you've got to send a schedule to them of every cent that every guest spent during the whole year and calculate the two per cent and pay it to them. That schedules hard work, it really is. [giggle] Every drink that got bought, every sarong that got bought, every activity that was not an inclusive activity and had to be paid for a transfer or whatever. So, you're constantly having to calculate what you owe the government.</p>
	59 <i>Speaker 1:</i> So, I mean, I can kind of hear it out of your. Yeah, out of your turn already. You would say that the political situation or rather the policies and regulations that are in place are more hindering your operations and not really encouraging.
	<p>60 <i>Speaker 2:</i> Yes, I would. I would also go so far as long as I'm staying anonymous [laughter]. I would also go so far as to say that there's a there's something of a culture of expectation. So, for instance, we pay a concession fee, OK? But they do nothing about fixing the roads we go and fix their roads</p>

because we have to because we need to be accessible so that concession fee is not going towards improving the the park itself. And then we've we went to them with another activity that we're wanting to introduce. And I'm not going to disclose that at this stage because it's it's not yet approved. And they said, yeah, yeah. They don't see a problem with it. They think that it would be fun. But what do we as a company going to do for Zim Parks if they give us permission to to do that activity? And I responded by saying, well, we'll probably be better set to pay our concession fees because we have a new market to tap into and you will get more gate entry fees because people will be coming in to participate in that activity. But that's not actually what they're wanting to hear.

61 *Speaker 1:* Mm.

62 *Speaker 2:* Yeah. [contemplating]

63 *Speaker 1:* Do you know what I think this is like a really important topic, especially when you operate in countries such as Zimbabwe, would you? Would you

64 *Speaker 2:* pay a bribe [laughter]

65 *Speaker 1:* [laughter] No, no, no.

66 *Speaker 1:* [laughter] Having lived in Africa for a bit I know. Yeah, I know how these things work. But do you actually have a saying in in the whole policies and regulations formulation phases, or are you actually completely out of the picture and only have to implement what has been decided on?

67 *Speaker 2:* No, I do I do have a say in things.

68 *Speaker 1:* OK. Also, in terms of the like within the government, like on a governmental level or?

69 *Speaker 2:* No, only only. Only within the company. Outside of the company, we we have very little input. In fact, the entire industry has has very little input. A government seems to be a bit of a law unto itself, and it's quite funny because I have experienced things from from the South African side and from the Zimbabwean side, both with concessions in national parks. And the way that Zimbabwe responds to their concession is is very different to the way that South Africa responds to their concessions. So, in South Africa it's seen more as a mutually beneficial business partnership, whereas in Zimbabwe it's seen as you damn lucky to be here and best to toe the line otherwise you won't be here anymore. And you the park seems to think that the concession is, are the only ones who are benefiting from it and that they need to be encouraged to keep you there with extras. We won't pay a bribe; we won't pay bribes and that sort of thing. But what we do end up doing is contributing towards the staff rations or their road fixing or whatever. But it's it's more to just to keep things going than anything else.

70 *Speaker 1:* That's not really a partnership. It's more like a. Yeah, like a....

..A - G

71 *Speaker 2:* It's it's a it's a boss, a boss slave relationship, and they've got the stick and the carrot, but they don't use the carrot they only used the stick [laughter].

72 *Speaker 1:* So, I'm moving a bit away from the political situation. I know politics and economics are quite tied together, I would say, especially in Zimbabwe. But I'm sure that the economic situation of the country also influences the business in terms of investments or also how you innovate, innovate itself or also in terms of funding, I guess. Can you maybe explain a few things about that?

..EE - Im

73 *Speaker 2:* So, from the economic perspective, it's very hard to get cash in in Zimbabwe and cash is king. You you need cash in Zimbabwe. So that that is that is a difficulty. They've got all these auctions and things for cash these days, but. You know [breathes heavily], it's just I don't even know how to put it, it's it's horrendous. It's absolutely horrendous [laughs with disbelief] because you need to and probably in a way worse for us than it is for those who are only Zimbabwe based, because those guys are smart, they go out on the streets and they do little deals in the back streets. There's a huge amount of black-market money being exchanged and so on. And very often they're getting paid in US dollars, whereas we aren't necessarily because our payments actually come via South Africa to Zimbabwe and we having to exchange currency over and over, which makes it expensive to do and makes it difficult to always get your money into the country.

74 *Speaker 1:* Mm hmm.

..PE - I

75 *Speaker 2:* And and the funny the funny laws that that affect the economy, the economy, like when we started out and we built the lodge, in South Africa when we started out and build the lodge, we claimed back all of our VAT on the building, which was a huge amount of money because you're spending millions. In Zimbabwe, you're not allowed to register for that until you have a turnover of at least sixty thousand U.S. dollars a year. So, we couldn't we were not allowed to claim that back because we didn't have a high enough turnover yet. So, that's a bit awkward.

76 *Speaker 1:* Yeah, I didn't know that.

77 *Speaker 2:* Actually speaking, you know, it's it's clever, but it's not it doesn't make it attractive for people to want to go in build and invest their.

78 *Speaker 1:* Yeah. A few other things you actually already answered for me during our little chat, which is great, because it also showcases just how everything also influences each other and how the operations itself works. Do you? Do you actually have, or can you maybe explain to me steps that you kind of follow before you adjust certain things or aspects of the operation, like within the business or in the environment or even with like stakeholders that are involved?

..A - G

79 *Speaker 2:* Yes, if if it's if it's more practical on the ground, things, then we will usually my husband I as operations manager, will make a decision and go with it. But if it's something that's going to cost an enormous amount of money or

<p>..A - G</p> 		<p>going to involve major changes in policy or in how we market ourselves, etcetera, etcetera, then it'll it'll be myself, my husband and our managing director who will sit down and discuss it. We'll get input from obviously from the concession manager who's there. And sometimes we will include him on the call if we need him for additional detail, etc. and then that will go to the shareholders for for a decision. So, anything that involves major policy changes or capital expenditure needs to be approved by all of the shareholders.</p>
	80	<p><i>Speaker 1:</i> And then I know you spoke about this before, that you've got a few reports here and there and that you also keep updated, I'm sure you also have your own monitoring system in place to monitor all yeah, like the environment and what's happening...</p>
<p>..A - M</p> 	81	<p><i>Speaker 2:</i> So yeah, in in on a small scale. Yes. So, we we received the hydrological reports and things, but we also have a rain gauge on the island, and we record the rain, and the concession manager keeps a diary with the maximum temperature, minimum temperature for the day and what the rainfall was. And he lets us know when what the river is doing whether its rising or going down or whatever. So, we do in terms of climate, we do keep our own records.</p>
	82	<p><i>Speaker 1:</i> Then looking into the future, do you feel. Yeah, as a company and also the team probably do feel prepared and strong enough for whatever is to come, I mean, with the changing climate. But we can also see it in a bigger picture.</p>
<p>..A - L&R ..EE - Im ..PE - I</p> 	83	<p><i>Speaker 2:</i> In in terms of the change in climate. Yes, I do. I do think that we are strong, and I do think that we are flexible and creative enough to be able to still make a go of things. But obviously in respect of the economy and the politics and that sort of thing, we don't know we don't know what sort of position we in, we think we're in a fairly weak position in that respect now.</p>
	84	<p><i>Speaker 1:</i> Yeah, that's a lot of uncertainty surrounding that. And have you ever thought I know you spoke before about the also the dependency on oil or gas, do you think you would be able to maybe adjust to electric boats or even game vehicles in the future? Also, in terms of like your needs, I know that the park is quite rocky and...</p>
<p>IN - P ..A - L&R</p> 	85	<p><i>Speaker 2:</i> Yeah, given given the pandemic, I would say not in the not in the near future, because our financial situation is not strong enough to make those sorts of adaptations. But going forward, it's something that we would be very interested in because we are we're a very environmentally conscious company and we recycle and we do all the right things, so any any opportunity we have to do whats better for the environment we will do. But and and of course, with with Zimbabwe running out of gas and fuel every five minutes is probably even more pressure on to go that route than there is in in South Africa, because you actually need to get yourself off relying on other people.</p>
	86	<p><i>Speaker 1:</i> Mhm, yeah. That's quite actually quite a nice end sentence to the conversation because I think it sums it up quite nicely that that is actually one of the most important factors that you stop relying on others and really go into being self-sufficient.</p>

87 *Speaker 2:* Absolutely.

88 *Speaker 1:* So that really sums it up. I'm not sure if you have any other comments that come still to your mind that are maybe important or if you have any questions. But otherwise, we would be at the end

89 *Speaker 2:* [laughter] then we're at the end.

90 *Speaker 1:* Let's stop the recording now.

Interview 2 – Hwange National Park

- 1 *Speaker 1:* Thank you so much for agreeing to meet me today and agreeing to the interview, you have been informed sufficiently and you have also signed the consent form just now. So, we can so we can start with the actual interview process. And I know that you guys are struggling at the moment, obviously, with the covid-19 pandemic. And the topic that I am interview on is a whole different direction. So, I just want to try and set the scene a bit for you so we can move away from the issue of the pandemic and actually look at the issue of the climate crisis, which is also still ongoing, but lost a bit of interest in the past year just because of the issue of the pandemic. But I did obviously a bit of research before I started the interview process. And I also looked at the numbers from the World Meteorological Organization that published a state of the Climate in Africa report and yeah, it is quite shocking to look at the the issues they found and at the numbers, because when you when we focus on Zimbabwe, you can actually say that the climate situation is quite critical. So, it is a bit of a ticking time bomb. And the issues that that are proven, scientifically proven until now is that temperatures are rising, low rainfall is detected. I am sure you remember the droughts of 2014 and 2016 and there is a low water supply. So, my goal is to now see how these impacts of climate change are also affecting your operation and also how you react to it. And what is your level of resilience towards it. Do you have any questions for me, prior starting?
- 2 *Speaker 2:* No questions at all. Happy to be here happy to participate.
- 3 *Speaker 1:* Thank you. So, my first question would be. Just to start with, figuring out how important are climate and weather conditions for your day-to-day duties.
- 4 *Speaker 2:* So, I think being a safari operator, we are always at the mercy of our environment. Being where we are situated in the Hwange National Park it is an it's an area which is consistently associated with your desert topography. So, we are surrounded by gusu sand as part of what makes up the soil structures out here. There is a vast diversity of different tree lands and woodlands that contribute to what our environment and climate would be on the day-to-day basis. We actually have major extremes here in the national park where we're situated because it is a Kalahari concession, meaning it is hot when it's hot and it's cold when it's cold. So, day to day operations would be early mornings. Absolutely cold, mid-morning mid-afternoon is absolutely hot, into the evenings absolutely cold again. So, we adapt and adjust for that, which then makes our operation, I think, a lot more bearable. So obviously, in the cooler times of the day, it is fireplaces that are lit and fireplaces that need to be lit for our guests when we provide hot water bottles, hot beverages, things like that. So, the product is designed to keep our guests comfortable throughout the day as the climate changes.
- 5 *Speaker 1:* But you would say that the dependency on these conditions for your operation, that you have quite a high dependency on the natural assets surrounding you.
- 6 *Speaker 2:* Absolutely, because, again, the bigger thing is safari out here, so to be able to produce a safari product which consists of guided walks as well as game drives. We really, are again, at the mercy of the wildlife and how the wildlife is reacting to the environment. So obviously, when it is much cooler,

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there is a lot more animal activity that is going on. So, you know, our guests will on average wake up from about five o'clock in the morning, if not 5:30 and anywhere between six o'clock and 6:30 in the morning. We are having people out on safari to enjoy game viewing as the animals are you know waking up, coming to life, so to speak. You know, it is lions that are hunting early in the morning. It is your plains game that are starting to move around and graze in the mornings. And it is always a bit of a rush because a big part of it is the photographic safari. So, you are trying to catch the morning light before it is too harsh and before it is too, too hot to even be out there out in the bush. So, I do agree that we are very, very dependent on what the climate and the weather changes throughout the day are to be able to give that product.

7 *Speaker 1:* Are you aware of the global trend of changes in climate?

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8 *Speaker 2:* Absolutely. I think it has been a thing that has been ongoing in the last few years, you know, just the increasing temperatures on the global scale and how that has created all sorts of environmental challenges throughout the world and different areas. You know, we talk of the the carbon footprint that we as humans continue to place on the environment, and that has been going hand-in-hand with climate change. You know, the less resilient, the the ozone layer, so to speak, becomes, the less resilient just our general climate insurance also becomes. So, we have been very aware of it. And I think playing a part in it has been minimal on this side of the world. The awareness is absolutely there, but the impact in averting all the negative, the negative impacts of climate change have been fairly minimal. But you say so.

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9 *Speaker 1:* So, yeah. Do you, um, do you see the phenomena, climate change eh climate change as a threat or what? You also say it can be an opportunity to do better.

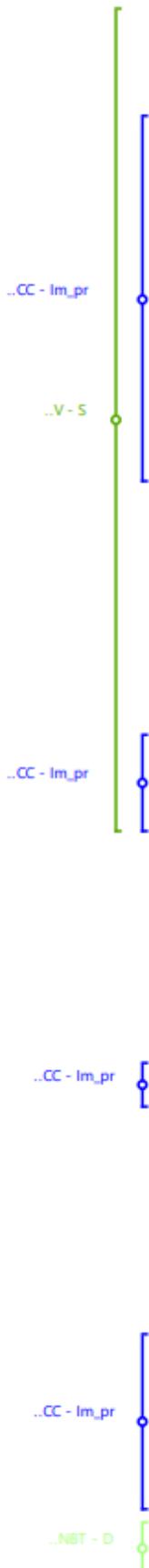
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10 *Speaker 2:* So. It is a bit of a broad question that because. Whilst climate change directly results in increasing temperatures, we the subsequent result of that, and I think we realized. This in our previous rainy season, as we have come out, you know, the increase in temperatures, you look at condensation, temperatures, clouds, all of that and the formation of rain, all of that. So, we benefited from probably the most well, the richest rainfall season that we have had country wide in the last two, three years. We had the droughts that came through. But because of all these increased temperatures, it has ironically resulted in such a positive, positive amount of rainfall that is fallen on the concession and throughout the country altogether. But in terms of averting the, the problem of it, it absolutely is an opportunity to do better. I just do not think we have had the right discussions, or the right stakeholders involved in trying to initiate the initiatives that can then help take care of climate change or else people can be positively impacting it also now. Yeah, it is an opportunity to do better. The question is just how.

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11 *Speaker 1:* Yeah, I mentioned a few impacts already a bit in the introduction that have been also scientifically proven cause they have been observed over years. Now I want to go a bit more in detail and in your case and what challenges you have noticed in the past, as it been rising temperatures or changing rainfall patterns that have affected the way the camp and your operation as a safari operator?



12 *Speaker 2:* So specific to where we are, you may have heard of the the presidential herds of elephants that move in and around the Kalahari, through Zimbabwe and around into Botswana, just through this western side of the country. And that is such a novelty attraction for tourists as well as just for the locals. And with this massive, massive increase in temperatures being in the Kalahari. We ended up having extensive dry seasons and really, really hot, dry seasons. And now obviously that reduces the water available to our animals. And with that, a massive drought was experienced on the back end of 2018, 2019, probably the worst one that we have seen in this side of the country. Sure, the droughts in previous years have always been existent, but I think the last drop that we saw 2018, 2019 was absolutely horrific. And that resulted in hundreds, hundreds and hundreds of elephants dying. And it was the saddest thing. You move around a concession and there is no water in the waterholes. There is only so much we can do to pump. With boreholes pumping water from underground into the water pens, but you are literally having a pipe which is giving you anything to about a few hundred litres an hour, but now you are giving that to four hundred elephants. And that was very sad because of that. I mean, we cannot take tourists on safari while we have to. It is a part of it. They are here to stay. But we had to, unfortunately, expose guests and expose the world to the horrible side of what drought is, you move in the concession and literally the concession reeks of carcass because elephants are dropping like flies. And it is the saddest thing that you can see. But not only elephants or other plains game that rely so much on on water sustenance as they move through. So, you know, it is always funny how the ecosystem balances itself out in that way, because whilst many other species are dying, many other species are benefiting. The vultures are feeding on the carcasses. The lions, the hyenas or predators are benefiting from that. And then that is what ends up bolstering up some populations. But the sad thing being that the impact of drought from the increased climate change has always been the biggest fight for us here. And the biggest challenge was unfortunately exposing everyone to just how terrible it can get.

13 *Speaker 1:* When you reflect back to to last year, I know. I mean, the pandemic and the effects of low guest numbers was probably the most important factor that was keeping you busy. But if you reflect back on last year and also this year. Well, what we had so far, are you currently experiencing any impacts of climate change or would you say it is actually rather normal state right now?

14 *Speaker 2:* So, I would say the the biggest impact and probably the only impact is the rainfall that the increased temperatures brought as we speak now. We are getting into we are in winter here in the southern hemisphere. And as we get deeper and deeper into the belly of winter, it is getting drier and drier. So, we have we are still experiencing the benefits of a much-increased rainfall, our waterholes are still filled with rainwater. There is still such lush vegetation that is around. So, when the rain comes in, the masses like it does, it disperses animals and everything kind of moves outwards. So. Now, I will be expecting those presidential herds that I mentioned to be coming back and eating everything and drinking up all the water. They are also still now eating and drinking elsewhere because there is just so much to go around. So, again, the irony of it all, that all those increased temperatures have managed to bring about such immense rainfall. So, there is so much water, there's so much vegetation and so much food in a large space area that it will see us through the dry season. We will do so much better this season than we did in the last few years of being able to keep water levels high, being able to keep vegetation around for all the animals. And I think that is the benefit of it all. Also, additionally, for the sake of what Safari is leading the negative side of it,

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again, two sides of the coin is that because the animals have dispersed, we end up not having so much to see specific in our area. Meanwhile, others are benefiting from the animals that are moving in the area. So, it is always a double-edged sword in that regard.

15 *Speaker 1:* Yeah, yeah. I mean, you have mentioned a few things already. And I mean, the staff your staff is in ongoing interaction with the nature surrounding them, actually. So, I am sure they encounter also many challenges throughout the day, and I mean throughout that working time. So, one of the questions would be what kind of challenges can you think of that they encounter? And also, how do they react to these challenges?

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16 *Speaker 2:* So, I think in the line of work that we do. It becomes evident that heat exhaustion is an absolute real thing, so we consistently motivate and encourage staff and pretty much anyone who comes into these areas to stay hydrated, to make use of sunscreen, to make use of sun hats, that kind of thing. We have such a dedicated staff contingent that work all day, every day, regardless of days of the week. We do not have weekends; we do not have breaks. And all that every day will attend the concession out in the camp to create a product and to preserve the environment. So, I do believe there is a greater sense of adaptability, meaning that people are used to these temperatures just as the animals are. So are we. We are used to these temperatures and can avert major extremities by any means possible. But the biggest thing being that people stay hydrated, people stay cool when its cold, people stay warm, and people are fed well. It is all part of just surviving out in the wilderness.

17 *Speaker 1:* And what challenges do they encounter within the operation? Not like them person personally, but just, um. Yeah, in the operation itself.

18 *Speaker 2:* So, the operation, all sorts of things can go wrong, you know, extensive heat can peck out fridges, peck out freezers, you know, those kinds of things. Your ice does not, your ice does not freeze well enough, things like that, fridges aren't keeping cold enough, engines overheat, engines overhaul, you know, for your game drive vehicles and all sorts of temperature sensitive issues that we experience. You know, we do not, unfortunately, have air conditioners out here where we are. We are entirely off the grid. So, when it is hot, you rely either on your fans. We do have fans, but not air conditioners. You rely on fans; we rely on swimming pools and things like that. So operationally, it is more of a machinery challenge that not all our machines and operational machinery is built to withstand the extreme temperatures.

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19 *Speaker 1:* Do you say you would you would be able to react quickly to these changes in the environment and like how is the general attitude of off the staff towards these challenges?

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20 *Speaker 2:* I think when you have been in this line of work long enough, you you learn to adapt, and you learn to react quick enough. So, we, for instance, now, last year we had a struggle in that we came across a dry season and all the waterholes were drying up because of all the immense elephant pressure. And we were late to get to the waterholes to actively pump the waterholes with generators. So, we ended up all of last year playing Catch-Up to try and fill enough water for the animals to enjoy. Having gone through that

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experience. We know now this year that we have to prepare. Our generators have to be serviced early. We have to continue assessing the waterholes early enough. And that way you are a foot to head. So, in each encounter, we know it is going to happen, but we are prepared enough to face it and to brace the staff and people around to have a positive attitude because, again, they have adapted to it. We know what to expect. It is just a case of doing the right thing at the right time.

21 *Speaker 1:* So, I would also say that the learning capacity actually of the staff and just in general from the of the operation is quite good in the sense that you learn from your past mistakes, basically.

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22 *Speaker 2:* Absolutely. Absolutely. And I think that is what has kept this operation and many others like it alive for so long. It is they are not mistakes that can knock you out entirely, the mistakes that can set you back. But once you have learned, you have adapted, you have adjusted, you move forward, and you wait for the next challenge to show up.

23 *Speaker 1:* But would you say that that is more like a cause and effect yeah reaction and not really foreseen changes that could happen in the future? Like would you say you keep the big picture always. Yeah. In focus or rather react to to the effects that are happening.

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24 *Speaker 2:* So, I would say it is a it's a it's a bit of both, it's a it's a very big part of both cause and effect in that, you know, we we can't foresee when a fridge is going to pack up, but we can plan and expect for it when it then does happen. We know what course of action to take the bigger picture, being specific to us. Our lease is specific to us actively pumping water on concession. So that is the bigger picture. We will be here to be able to constantly provide water for the animals. So that is the bigger picture. And then cause and effect is then reacting to the different things that happen. A borehole pump dies, a solar panel does not begin to work. Those are things that we cannot foresee, but we know possible to happen. So, it is literally just a bit of both and we react accordingly. We know why we are here. We know what we want to achieve, what we want to do and can expect that these things happen because it is only it is only nature. And we have learnt that from the past experiences. But we can only react as and when things happen.

25 *Speaker 1:* This is more like a personal question, I guess, or like a general question, but would you say that change scares you?

26 *Speaker 2:* I would say. It does it does bring about a bit of anxiety in terms of how best do we adapt to it, I think having given the last year that we have had absolutely it scares me and I think is scared everyone, because the global change of this pandemic, nobody could foresee nobody knew how best to deal with it. So, at the kind of present moment, there is a lot of fear that comes with change. The more we stuck through the pandemic and the more we stuck through keeping these operations going, there is a lot more of a positivity because right now all we want is change or we want is change from what has become the norm. So, I will say there's always anxiety and that is a feeling you cannot shake.

27 *Speaker 1:* But you also have anxiety towards the changes of of climate or

only now towards the pandemic.

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Speaker 2: Towards the climate, absolutely, absolutely, absolutely, we are very we are in a very delicate place and it is very sensitive to how life around here is. You know, if temperatures keep increasing, it will be the worst. You know, it is hot days. You end up reaching 40 degrees plus and you end up with no water and you end up with dying animals. And, you know, sort of the fear of of the loss of life throughout because of increasing temperatures, life of animals and life of just the environment around us is very real. So, yes, there is a lot of anxiety and fear towards the climate.

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Speaker 1: Yeah. You are in a management position. How do you actually ensure that the team on the ground is not really overwhelmed with the changes or the challenges that are faced with also the daily climate and weather conditions? Do you train and educate them about on the issue of climate change or do they gain special skills? Yeah.

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Speaker 2: Yes, so I think the the biggest thing is being transparent. You know, such information about what is going on in the world, what is going on with climate change, it is it is nothing you can keep people from as safari operators first and foremost were conservationists. So, we understand what climate change is and these are constant discussions that take place within our organization. So, We do engage very regularly on what the impacts of the environment are, including climate change and many others, and the training rather comes into the specific incident response. So sure, we talk about climate change, but we do not train people into how we are averting that? So, we are training people into the water management systems. We are training people into the environment management systems. So, the specialized skills is more specialised to our aversion strategies of mitigating climate change.

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Speaker 1: Do you also monitor the environment? Do you have a sort of journaling or reporting within the operation? Or you receive data from outside.

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Speaker 2: So, we are on a day-to-day basis, we have the systems in place with temperature monitoring on a daily basis, rain gauges on a daily basis, you know, we monitor regularly the yield of water that's coming from the ground and we visually analyse the changes in our environment. And I think that is just the bigger thing that we have skilled people in the field, whether it is your field guides or otherwise, people that can consistently and accurately monitor the environment, the changes in in and fauna and flora, everything that is taking place around us. So that is as much as we can do. And we also do well because we have so many research centres around us that are not only monitoring and researching the animals and wildlife, but also the environment. So, it is a combination of both. We are in a remote park, so we have to do our part in monitoring our concession whilst others are monitoring theirs. And all that information is shared with the relevant stakeholders who are within the national park and this area specifically.

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Speaker 1: How do you share that knowledge, if may ask?

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Speaker 2: So, we there is there's constant communication there are WhatsApp groups, we have got the Hwange tourism WhatsApp group that is in

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there and it is packed with a whole bunch of individuals all up in the local areas. There are annual general meetings that take place at the main camp within amongst the other camps. There's great social networking that happens out here amongst different stakeholders and safari operators because this understanding of the needs of each other to survive and the need of each other to to be playing an active role in conserving the greater national parks. So, all our stakeholders are brought together under certain bodies, under certain authorities of the national parks, whether it is your pro guides associations, whether it is your safari camp operators associations or tourist operations, your conservation operations, it is very inclusive of everyone who is within the vicinity of the national parks. So, WhatsApp groups, Skype groups, forums, general meetings, that sort of thing.

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Speaker 1: Very interesting. This might be a bit difficult, but how diverse do you think is the operation or I mean, does the company also have other sources of income or activities that you focus on? Or is basically are you completely relying on this one product?

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Speaker 2: So, it is a bit challenge to answer the bigger thing being that our revenue streams are solely reliant on bed nights, the rooms we are selling or the product we are selling. We have an all-inclusive product which includes food, accommodation and your game drive activities, and that's the biggest stream of our income. We are very privileged to have a very supportive group of stakeholders and shareholders who very consistently fund our operations. But the income stream then is reliant on the revenue that comes from selling our product, as well as donations that come through. However, the donations are entirely allocated for all the conservation work that we do, whether it is the wildlife conservation or the community conservation that we take part in. We have a conservation foundation which is very active in supporting the community and supporting the wildlife communities at large. And that is where that comes from. Even our revenue streams will then feed into all the conservation efforts. But as safari operators, it is the revenue from our bed nights, the donations and the inputs and capital of our shareholders.

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Speaker 1: So now you are obviously living and operating in a developing country still. So that is what Zimbabwe is known for. And obviously also history shows that Zimbabwe has quite a yeah, a lively history in terms of economic and political situation. So, I am a bit interested in how does the country's political situation influence also the decision-making processes in terms of implementing new strategies to avert the impact of climate change or the responsiveness also to change? Do they encourage like does the political situation encouraged this? Or actually, is it hindering?

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Speaker 2: So admittedly, I do not believe that our government is active enough in environmental conservation as a whole, and what you see in Zimbabwe is that a lot of the efforts to to fight for conservation and for the preservation of wildlife and the environment happens on a private stakeholder basis. And this is why you have private safari operators, excuse me, and private private conservation organizations. There is no immediate funding or participation that comes from our government. Our economic our economic challenges, unfortunately, leave us crippled in a state that whatever money is coming into the country has a bigger priority than conservation and the environment that is well at the bottom of the list in this country. It is such an unfortunate thing and a very unfortunate circumstance. But you then think of a country that has a crippled economy that has a crippled health care

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system, that has a crippled education system, and we have always been a country that has been big on agriculture. And you see that it ends up being the sole focus. The irony of it being agriculture goes hand in hand with the environment. Yet the efforts are rather stemmed into uplifting the yield that is coming from certain crops or whatever else the case may be, but not into the preservation of wildlife, species and wildlife environments. So, it is a it is an unfortunate circumstance that our government and our economy have fairly disregarded greater efforts for conservation.

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Speaker 1: Yeah. And also, probably to what's averting the impacts of climate change, because obviously climate change will also have quite a high effect on agriculture activities.

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Speaker 2: Absolutely. Absolutely. And again, you know like I was saying, it is the irony of it all is that whilst they want to focus on on uplifting agriculture, the focus, rather, stems on building more tractors, building more or supplying more irrigation systems, but failing to understand how climate change is a part and parcel you know of agriculture, how well, how soon you can harvest the damage on the crops, etc... So very interesting.

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Speaker 1: Are there policies and regulations in place which support you to take action to adjust to the impacts of climate change, like guidance or business structures or strategies, or is there nothing from the political perspective?

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Speaker 2: So, they are absolutely laws and policies that guide that guide the way entities operate in terms of, you know, averting climate change or just environmental changes as a whole, I can say that unfortunately, I'm not too well versed in all the in all the legislation, but I do know it is restrictive, more than than productive. So, it ends up limiting things that can be done. For instance, operators will be limited to the amount of square meters they can have to be building irrigation systems or whatever else. We you really have people that are trying to do things on a larger scale of dealing with climate change, you know, hindrances into greenhouses, how they being built, things like that. They they try to divide and limit what can be done as opposed to encourage and promote what should be done, if that makes sense.

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Speaker 1: Yeah. Does does that mean that you have as an organization that you have no saying in the political decision making like or like, do you only have to implement these strategies that the government sets or do you also have a yeah, a voice in saying what would work best?

44

Speaker 2: Over the years, I think that has kind of diminished whilst there is always an interest in hearing what people have to say, it is nothing that will ever get listened to or something that will just take too long to deliberate. And that is one area and aspect of what our governance has just been brought down by the inability to make effective decisions, inability to make inclusive decisions of involving people and stakeholders that need to be involved. So, like I was saying, when people people can discuss these things sure, fair and fine, people can say what they feel, but it doesn't always mean they'll be listened to. It does not always mean it will be followed. So, I do agree with that. We can have a say. Yes, absolutely. But whether or not it's acted on a whole different story.

..PE - I

..PE - H

..PE - I

..A - G

45 *Speaker 1:* And so besides, obviously, the political situation, that always causes a bit of, yeah....

46 *Speaker 2:* ...bit of turmoil... [laughter]

47 *Speaker 1:* [laughter] yeah thanks. That was the word that I was searching (laughter) in the country. Obviously, the economic situation also has a quite a big impact. So how does the economic situation of the country actually influence your businesses in terms of, I mean, investments or also innovations? Because, I mean, capital is needed to also innovate an operation. How does that situation affect you?



48 *Speaker 2:* So, we are unfortunately always going to be at the mercy of our economy and our government, and I think the biggest impact that it has is in pretty much ensuring the the credibility of our financial and accounting practices. For instance, there is I am pretty sure you will be aware of how in Zimbabwe we operate with numerous currencies at numerous different rates, what is known as a bank rate and a street rate. So very often you find to get the most out of your money, you need to be purchasing at the street rate because you have more for you have more Zim dollars for the dollar. And so, for instance, the street rate would give you I would give you one dollar to try to even do the math's now. So specifically, let us go one hundred Zim dollars to one dollar. Yet the bank rate would give you 80 Zim dollars to one dollar or something like that, which is quite absurd. Any case, for accounting purposes, we have to operate at bank rates, but for actual realistic purposes you have to operate on street rates because you can buy more. You can you can use more in that kind of that kind of thinking. So, it is always challenging with with an exchange rate and an economy that fluctuates. You never know. You really never know. So, in Zimbabwe, you always have to have reserve stocks of finance. And again, like I said, it just makes all your financial accounting less credible because do you really know the value of your money? Do you really know the value of what you are purchasing and all of that? So that is the bigger challenge.

49 *Speaker 1:* And it also probably makes future investments quite difficult.



50 *Speaker 2:* Absolutely, absolutely. And that is something that, again, like I was saying for us specifically, we are lucky enough to have shareholders who believe in the work that we are trying to do. So, the injection of capital into worthy, innovative causes will always be supported no matter what the cost is because of the bigger picture. But of course, it just does not make it to. Is it worth it? Can it be done now? Is it feasible now? It is a constant financial debate on a daily basis.

51 *Speaker 1:* That is also then being reliable on these investments from outside the country.

52 *Speaker 2:* Yes, yeah, absolutely.

53 *Speaker 1:* I know you spoke about this a bit before in terms of your WhatsApp groups and that you have also annual exchanges of knowledge in terms of your data climate change or monitoring and evaluating data within

your area. Would you say that you have a willingness to ask for help from other safari operators surrounding you to find solutions for challenges like is there, also active assistance when it is needed or alliances? And do you participate in larger networks or is it everyone like fighting for themselves?



54 *Speaker 2:* No. So, there is definitely a lot of cooperation that happens. You know, like I said, we are all in this together and we are all here for the bigger purpose of preserving the national park. So, for instance, it happens regularly. You spoke about the dry season and how it happens for some safari operators who are either less privileged in terms of their assets, meaning they do not have generators or do not have diesel to be using their generators to be pumping and water holes, we help each other. In that sense, people that do not understand certain practices of, OK, we are struggling with this was struggling with this how do we want to do that? How do we do that? They then connect and collaborate with people that have been doing it long enough, people that do understand well enough and everyone just literally tries to help each other as far as they can.

55 *Speaker 1:* And what is the role of are their also, I mean, official collaborations or alliances going on in terms of, yeah that are also recognized by the government, or is there are their park regulations that you have to consider?



56 *Speaker 2:* So, yes, you do have entities that are recognized by the government, we are in a national park that in itself is a government entity, the Zimbabwe national parks within where we are, the Hwange National Park, we have things like friends of Hwange, which is a conservation alliance, which then actively moves throughout the whole national park. And you know there are not any restrictions to who participates or who can actively do that. If you are within the national park by right of location, you are considered a friend of Hwange. So that goes on throughout all the various national parks. It just is a way of bringing people together with certain goals in mind. So again, because of the National Park Friends of Hwange, it is more specifically driven within line of water, water, water, water, is key out here. So that is their kind of bigger priority. The other than being how it is branches out into all the the lion research, the elephant research, the painted dogs research that happens out here. So, it branches down into different entities, but by right of location, they are absolutely so many different other entities which are recognized by the government.

57 *Speaker 1:* Would you be able to shortly explain to me steps that you basically follow before you can maybe adjust certain aspects of your operation, um, be it in within your business or in the environment or even with the stakeholder involvement?

58 *Speaker 2:* You're going to have to repeat that question for me.

59 *Speaker 1:* So, would you be able to explain to me steps that you are following before you can adjust certain aspects of your operation? I am sure there is a certain protocol in place. I am sure you cannot just especially when this may be something in the environment happening happening you cannot just yeah, you have steps to follow before you do so.



60 *Speaker 2:* Absolutely Yeah. Yes (laughter). So, yeah, that is an active thing that

<p>..A - G</p> 	<p>we have to do again, because we are a national park it goes through everyone in terms of, you know, before you build a new road, you have to seek permission before you clear patches of patches of land when there are trees. You have to consult with environmentalists and all sorts so we always do seek approval from national parks, and they will then kind of guide us towards other environmental management authorities. We, for instance, if we want to build a water hole, a manmade water hole, there's certain things that are involved in your cement slabs, your plastic PVC piping, your borehole drilling, things like that. Those are all things that have to go to certain authorities first. So, anything we decide to do or change, regardless of us being on a private concession, we always, always have to consult with national parks and various environmental management authorities always without fail.</p>
	<p>61 <i>Speaker 1:</i> OK...</p>
<p>..A - G</p> 	<p>62 <i>Speaker 2:</i> and then so that is the case. That is what we want, what we are thinking of. And they will assess and point in the right direction. It is different on a case-by-case situation.</p>
	<p>63 <i>Speaker 1:</i> Do you company wise have set a set adaptation strategies or do you just kind of adapt when there is need to be?</p>
	<p>64 <i>Speaker 2:</i> [long pause thinking, laughter] I would say they are adaptation strategies. But again, it is it is a very reactive environment, you adapt as and when you need to, so we will always have strategies of when this happens, do this when that happens, do that. And that is and that is always in place. And again, you can only do it as and when needed. It is a very, very reactive as much as we can have a plan of the implementation of it ends up being entirely reactive.</p>
<p>..A - L&R</p> 	<p>65 <i>Speaker 1:</i> Hmm. So, looking into the future, do you do you feel prepared and strong enough for what is to come with the changing in climate?</p>
<p>..A - L&R</p> <p>..P - R</p> 	<p>66 <i>Speaker 2:</i> Absolutely, I think we have been at this long enough to see both sides of extremes and on a daily basis, we continue to experience that. And because we have been out here for so long, we are well versed in what I think the direct environmental impacts are and are well equipped to be able to brace them and to be fighting them. So, the future. We are absolutely prepared for. But again, I think if you have been in this long enough, you always know if it is not one thing, it is the other. And anything can happen. Anything can go wrong and not according to plan. And again, when that happens, we just react accordingly. But definitely prepared for the future.</p>
	<p>67 <i>Speaker 1:</i> Can you maybe think of just a follow up question, but can you maybe think of possible adaptation adaptation strategies that you would implement maybe in the future? I mean, it can be also changes.</p>
	<p>68 <i>Speaker 2:</i> So, off the top of my head, that's a [long pause thinking]</p>
	<p>69 <i>Speaker 1:</i> I mean I mean, there's also discussion within the within the field. There's also always that discussion of, for example, electric game viewing vehicles or, um. Yeah, just I guess just getting the the operation even more</p>

sustainable. So is there anything planned in the future or.

70

Speaker 2: Those plans, unfortunately, are not existent for us at the moment. I have to admit, I think given the financial loss that has been experienced over the last last year or so, it's it's it's harder to to initiate those extensive innovations towards sustainability. I think as much as we can do is we look into we look into increasing, whether it be our off the grid capacity, increasing our solar capacity to be able to provide more and more power for our borehole pumping more power for, things like when it does get too hot. We do want to be able to have air conditioners for our guests. We do want to be able to have in-room fridges for our guests, things like that. So, but then you also have to ask yourself, is it more sustainable? There is always a different conversation that goes on with the show you off the grid. But then all the use of the batteries that you have got, the inverter batteries, all sorts of different emissions, and it can always do the most engaging people with that. So, yeah, I mean, there is always an open debate so we can always discuss it. But I think we end up being very limited given the time that we are in now.

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Speaker 1: Very interesting. That was my last question for the interview. Do you have maybe any additional comments or also questions?

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Speaker 2: No, none at all, just to say thank you very much, was awesome to participate.

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Speaker 1: Yeah. Thank you for your participation. I will stop the recording now.

Interview 3 – Victoria Falls National Park

1 *Speaker 1:* Yeah, so maybe I'm not sure if you read through the letter of information explaining a bit what I'm trying to do with this and if you have any questions before we actually start.

2 *Speaker 2:* Yeah, I read through the letter so far so good, and I am willing to be of assistance. Because I know what these universities require yes. You know, also being a graduate, I am keen on helping other to do their studies as well.

3 *Speaker 1:* Thank you. I really appreciate that. Normally, I would I would have to I would send you actually now a consent form that you had to fill in. Now that we have a bit of a special situation, we obviously have to adapt a bit because I can't send you a link right now. So, I would maybe just go through a few points and just ask if you agree, just to make sure that I'm not doing anything that you're not liking here. So, my first question was that, I mean, you've had you've been sufficiently informed, and you agreed to voluntarily participate here and are you OK with me Voice recording and well, not video recording, but voice recording everything that's being said here.

4 *Speaker 2:* I agree

5 *Speaker 1:* Great. [laughter]

6 *Speaker 2:* No problem at all.

7 *Speaker 1:* So, the data, yeah, the data that I'm gathering is obviously only going to be used for academic use. But you also know this already. And and if there's anything in terms of questions that you don't like during the interview, you can always say that you don't want to answer something. But otherwise, we're just going to have a nice chat.

8 *Speaker 2:* Sure, sure yes that's fine with me.

9 *Speaker 1:* OK, so, yeah, I yeah, so my topic is that I am basically interested in researching how resilient are safari operators in Zimbabwe. So mainly in Hwange, Victoria Falls and Zambezi national park towards the impacts of climate change. And during my research process, I obviously came across a few studies that have been done before. And I know that we are right now in the middle of the pandemic. So, it is a bit hard to obviously think about climate change as a problem because right now we're dealing with bigger issues

10 *Speaker 2:* ...with a bigger problem yeah

11 *Speaker 1:* Yes, with a bigger problem. And I still want to move a bit into that perspective of the climate crisis that is also still ongoing. And I came across a few things from the World Meteorological Organization because they've published the state of the Climate Report in 2019 and well, I when I looked at the numbers, I was quite shocked because they obviously showed an increase in temperature and also especially in Zimbabwe, it actually showed quite a critical situation, I would say. And I know that in the past the country I mean, especially in Hwange, but also the falls itself, they suffered of drought and low

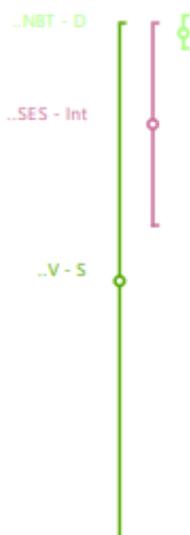
rainfall patterns. And we had quite a few elephants dying. And then obviously the big, big deal with that, the Victoria Falls were dried up. There weren't dry, but they just had yeah, they just had really low yeah, just a low water state. And so, I'm guessing like all of these things are already impacts that we can actually now see what climate change brings with it. So, my first question would be now working in the field, how important is climate and also weather conditions for your day to day duties in your work?

12 *Speaker 2:* OK, how the day to day conditions impact ...

13 *Speaker 1:* No how important, how important are they?

14 *Speaker 2:* How important...

15 *Speaker 1:* Yeah, how important is climate and weather for you for your day to day job?



16 *Speaker 2:* I would say they are extremely important. But if you say that, you know, being in the tourism or the safari industry is all about getting out there, you know, total tourists or visitors who would have travelled all the way from their homes to come and visit Zimbabwe. Right, so it is really important that when they come they don't need to be, you know, confined into their homes, so they need to be out there visiting the falls going on game drives going on boat cruise even helicopter flights all that. So, you know, I would say, you know, it's extremely important because. You know, if there's any change in the weather or in the climate patterns, it impacts heavily on the day to day activities of the tourism or safari industry, because say, for example, there is drought, I'm sure you've heard already the drought that has been here a couple of years back where, you know. Tourist would go on game drive in Hwange national park one it is dry everywhere. Elephants dying to the extent that, you know, you just look left to right, front back, everywhere you just find the elephant carcasses. If you get waterfalls and the that caught up with the animal is will the animal species dying, zebras, giraffes and all that. So, which was not a good sight even for the tourists. So, when they discovered is around, you look to them to always thinking about, oh, maybe climate drought. They also are because they feel that maybe this is good enough what the government provides and all that if you do the your team or your pocket or the Japanese for the government to us, because if you try to the company, what good is it harder to read through these two articles because they are. All right. I've got to go. I'm sure you already know that what you call your horse being fried. So if it's going to dry completely, but you don't think that we drive, that was what was being publicized so much because of the drought or, you know, whatever it was, we little but it got so negatively affected so much because you about to get kids who are thinking in know the United States to try to protect Zimbabwe or Victoria Falls wanted it go back to someone who is good for the vetoed the idea that you had to use it object to your. So, they really don't like. Are you crazy? You look at something to ask which is to. So yeah.

17 *Speaker 1:* So yeah. Yeah. So, saying that you know.

18 *Speaker 2:* Yeah.

	19	<i>Speaker 1:</i> So, thing that I obviously don't really have to ask you if you are aware of the global trend of climate change, because I'm pretty sure you've got quite a good knowledge of it all.
..CC - A	20	<i>Speaker 2:</i> Yeah. Yeah I'm, I'm aware of it. That's why I was to say, you know, it was just like a bit of coincidence that your request came through just when I was attending this two day workshop that was here in Victoria Falls arranged by the the government it was the Ministry of Environment, Climate, Tourism and Hospitality Industry and the United Nations. So, they hit the this switch, which was all about support towards implementing Zimbabwe's national contributions and the Paris Agreement on climate change put into 2018 to 2020. Yeah. So, to me it was also I was not impressed that. Despite the economic problems, but with. And fight the good fight. Yeah, well, we was actively trying to play it safe. So, what should you do about climate change? We think that they are also taking it seriously.
	21	<i>Speaker 1:</i> That's true. Yeah. I will maybe ask you a few questions about the about that a bit later. Do you personally see climate change as a threat, or do you see it also as an opportunity for the country or even for your operation that you or your job?
..CC - P	22	<i>Speaker 2:</i> Climate is, you know, obviously, I think it is a threat especially in terms of the impact of, you know, the impact on the environment and all of that, I think will I know with it down that opportunity as well. Now, of course, we did talk of this climate change where we never had such programs to be implemented or any changes need to be done. You know, opportunities come along the way.
..CC - P	23	<i>Speaker 1:</i> Yeah. Now, are you currently or would you say that you are currently experiencing any impacts of climate? Well, that relate to climate change.
..CC - Im_pr	24	<i>Speaker 2:</i> Currently, I don't see you know, of course, it may be difficult to make out at the moment, but I would agree that we are experiencing some climate change, really, you know, like those droughts in one area. And it is a huge change in rainfall patterns that seem to be like. You know, they are looking at this big table as they wait for you to give. It is in 2020. We get where we value. We don't worry. Is that in have been about as much, but what thing we want to do and if that was detected by the law, you know what? The Victoria Falls, what they did, we have had the biggest, the hottest of water. Yeah. It so of things, you know, we could attribute them to climate change and also cut was with, you know, parts of the country in the where we had these tropical cyclone destroyed. You know, it was something that is experience. What sorts of things can be attributed to everything.
	25	<i>Speaker 1:</i> That's a bit of a general question. But I know you kind of mentioned already quite a few challenges that you encounter. Also, I'm sure during your work, uh, let it be drought or heavy rainfall. Low rainfall. How do you react, react to these challenges? Is there any certain procedure or...?
..A - R	26	<i>Speaker 2:</i> Right, reaction to each challenge it just comes of the nature of the challenge itself, so should it be drought. Yeah, well, we felt like we kind of lose sometimes experience heatwaves over the past years we've been

..A - R

experienced before. So, the reaction to that is little if we are having guests around we encourage them to stay indoors and or not to be in the direct sunlight. We have to give them more water to drink to make sure that they stay hydrated. And they have to have all that sun lotion [unrecognisable] that is in the case of heatwaves. When it comes to drought, then we make them aware as they arrive in Zimbabwe or in Victoria Falls or in Hwange to notify them about this drought so that they could save water as much as possible so that the water with water. When they are bathing or brushing their teeth not to let the tap water open while brushing teeth rather to put, you know, to put it in a glass than just use that they need, at the moment. You know, I know [unrecognisable] everything possible about conserving water. Then out there in the parks where the animals are we try to work along with national parks ehm, you know, for them to ensure that they have, eh, various boreholes next to the waterholes in the park So their boreholes have to be, in the past they used to use fuel to pumping water but as they are going more environmentally aware, or going green, they now are using solar pumps. Yeah, but yeah so we make sure to sponsor them eh so that they can have constant water supply all right. Yeah are you running out of power [laughter].

27 *Speaker 1:* So, do you, if I may ask you, because now you tell me a lot of things that you react quite quickly to changes. Right. Um, so if there is a drought coming, you then do do react to it like boring more boreholes or pumping more water. But do you also do anything to kind of predict changes that may be coming?

..A - M

28 *Speaker 2:* Right, that like the organization or just locally as a operator, you know, the [unrecognisable] predict but now we let the [unrecognisable], because in the past, we used to rely so much on our national services, they would tell us if any floods are coming, but it turns out that their equipment is so dilapidated, or outdated, that they don't know if things have happened already. So now, now we got to go to as it is now. We have to look online at all this several websites where we can check what's happening. What's the weather going to be like, is there going to be a tropical cyclone or something? Because it's so unfortunate that even it it's a national crisis and know we're not even aware when the tropical cyclone be in the country, people they're within that area even had to make phone calls to people who were elsewhere in other towns to say there is a rain coming there is a storm coming. But, you know, a view nobody paid attention just because people say, well, you know what are you saying there is nothing in television about it, no one is aware so maybe you're just overreacting. But then I think 100 of people who could have been avoided if, you know, you know, the government had meteorological services, you know, predicted this event in advance.

29 *Speaker 1:* Yeah.

..A - M

30 *Speaker 2:* So now that's when we, we are now trying to do it ourselves online. If we predict if we see that there's predictions that there is going to be drought is going to be flooding, that's when we make preparations for that because the operators here have also being affected by the droughts. But know if we know in advance, they know that okay there is going to be flooding there they know they do that already know that there are going to be affected, would you be blown off [unrecognisable].

31 *Speaker 1:* And then in terms of the operation, when you when you work and

also the team works together, how do you ensure that the team itself that they're not really overwhelmed with the with the issues or the challenges that they face? Do they get special training or are they are they maybe even get educated about climate change?

32 *Speaker 2:* Okay so you mean the team as in our operation or of the government department?

33 *Speaker 1:* No at the operation!

..A - L&R

34 *Speaker 2:* At the operation, yes they get the that we will do staff training, and even when there is decide what we have to do from the government we listened to all of that. Yeah, we do it as a team the members of staff attend as well. So, they are aware because the impact is this they have to be doing them ehm the staff hast to do that because as we talk about climate change we also go now looking into sustainable tourism, going green, you know, so it goes down even to the cleaners when they are cleaning the rooms or the yard separating the waste took at biodegradable, what is there, recycle or which is the way. You know, it has to start from the grassroots level to make that point upwards. So yes the team is aware.

35 *Speaker 1:* So that's very good. And I know you kind of spoke about it a bit, but do you also share knowledge or experiences, experience experiences with the other tour operators or safari operators surrounding you? Do you have a network where you also share?

..A - F

36 *Speaker 2:* Yes that's right. The thing is operator in Victoria Falls we all fall under the Zimbabwe's tourism authority. So, Zimbabwe tourism authorities is the government department dealing with tourism issues, but [unrecognisable] Information, so anything we do, is as a team, as operators you know, with the Zimbabwe tourism authority so we share the information on ehh e-mail and even on WhatsApp, there is a WhatsApp group if anything, is happening like this. Last Friday, we had you know a clean-up of Victoria Falls, where each operator had to decide a sight for cleaning and then they would clean it. So, we do meet every month, but eh, last week this past Friday we even did it along with the leaders of tourism and the other delegates who came for this climate change workshop, so it was even a great event. So yeah we do it as a team as the whole operators in Victoria Falls. Even the operators in Hwange well a lot of them have their offices in Victoria Falls so everyone is involved.

37 *Speaker 1:* Nice and then do you also share maybe climate data or maybe ideas when they I don't know, for example, when they have to deal with a flood, then you come and then you share knowledge about how to deal with that, or would you say everybody's rather doing that on their own?

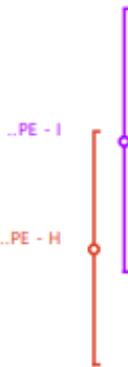
..A - C

38 *Speaker 2:* No, we do that as well we stay equally if anything happens, you know, say for example, something is coming up we share this information through out to everyone among all the operators. So that we can give warnings and precautions to what [unrecognisable] doing all that. In the event, for example, the tropical cyclone that happened, each operators even also had to like send help like part of their staff to go and rescue people who were affected, and the operators also even came up with different types of donations from, food, clothes to transport anything to go and assist were

needed. And even afterwards, you know, just to hear information on what to do, any recommendations yeah.

39

Speaker 1: So now, obviously, I mean, from the outside, it's always a bit of a struggle. And because Zimbabwe obviously also has quite a hectic history of politics, I would say. And yeah, and you already mentioned that there are also some governmental bodies are quite involved in the whole process. How ehm How does the country's political situation influence your decision making processes, in terms of reacting to also the impact of climate change? Do you what would you say they support you as a safari operator or does it also sometimes hinder you maybe?



40

Speaker 2: Yeah in the past it really has been a challenge because anything to do with climate or any efforts that you be it for conservation or that. You'll find that most of the support was not the government rather it would be from outside of the country from non-government organizations, from outside Zimbabwe, and they can be problem if you get the support from outside Zimbabwe then somehow you do be paid to be kind of opposition because you are getting your support from outside the country, and it became a big problem for any organisations eh non-governmental organisations within Zimbabwe who get funding from outside Zimbabwe. Because then government You've got to be OK if any funding to come through, you come to the government. Whereas when we're going through with the government, it will go into different other pockets and not go on to the internet, which became a big problem. But now with time that we are we are actually impressed that the government is now being of support for example with this workshop which was being funded by the UNDP and also the government of Russia was also supporting it and tough the support was coming through the government of Zimbabwe but at least action we can see that action is taking place. So, and also recently they also they put in some other measures they put down recently a statutory instrument aiming to reduce this carbon emissions. They put in a statutory instrument where there are now fighting the impacts banning any cars or motor vehicles that are older than 10 years. So, such actions you will see that interest now the government is coming on board, but otherwise in the past yeah politically it has been quiet challenging. There has not been support.

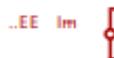


41

Speaker 1: So, because now you make a nice comparison between past and now what's happening now that they're showing a bit more interest, do you receive any guidance in terms of strategy for the future from the from the government?

42

Speaker 2: Like I said that in the past, it hasn't really been doing it. But as of now, it seems they are going towards there because this workshop that was there they were actually making out strategies, what is going to be done in the future. I would later one e-mail you just a draft of what was discussed and what it was about. So yeah they are waiting for it so they can engage the local authorities in Victoria Falls, the local tour operators yeah it was quite an eventful one and future one because they were even doing practical things like having to do away with end of this h the traditional lighting that we have to have solar lights and eh solar geysers going green they were even encouraging tour operators for the transport sector to look into having this solar vehicle, smart vehicles that that are not using fuel all of that, I know some of them kind of like farfetched dreams. When you look at funding's because it is quite expensive. But if it is really implemented ehh at all we are going the right way.



43 *Speaker 1:* Yeah would be great. And that was the first time you as operators were ever able to participate in something like that. Also, in like decision making.

44 *Speaker 2:* Yeah, yeah. That was the very first time and as we speak even in some of the things that we really applauded them, saying oh it is good that you came up with this thing, because they were even talking about other developments to happen in Victoria Falls with everything, they need to expand the town to eh you know to move somehow towards the Victoria falls airport. And you have, you know, you know, these five star golf courses and, you know, it's five star conference centres and all that. But then they were saying that though this development is going to be there. This is now an opportunity for that development to take place in a smart way, unlike in the past where they would just, you know, have this without considering [unrecognisable], you know this climate change and all that. So, they are saying that they are trying to think of a smart city to do you know when they expand this town is going to be different from this old town because everything starting from the lighting, everything has to be solar light now and the waste management they have to look into things for example, the sewage system they have to look into implementing biogas, you know, as energy and all that. And so, it shows that somehow they are getting ready [unrecognisable] towards climate change something that has not been heard of in the past. So, this is the first time, and we were really impressed that it happened.

45 *Speaker 1:* Yeah, that's true, that's really encouraging. I think you also spoke a bit about that already because I know funding is always an issue, because I think that is one of the biggest struggles, because I think there's always a lot of potential but then it just the resources, especially economic resources, of just funding is often missing. So how did or how does the economic situation of Zimbabwe influence your business, actually, in terms of also investing in yeah more sustainable resources or even diversifying the product?

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46 *Speaker 2:* Yeah, that is a big challenge because Zimbabwe as a whole I am not sure if you are aware that, you know, when it comes to tourism. If you look at the whole of southern Africa, Zimbabwe is actually the most expensive destination. Because of the economic problems that are in it, so to start with, when we look at the currency, Zimbabwe and for the past years did not even have a currency of its own before that they adopted the US dollar. So, the fact that they are using the US dollar, whereas other countries like South Africa using the south African rand and all that. Ehh it becomes more expensive, because whatever currency you bring in you know would be lower than the US dollar. So, you lose out when you get into Zimbabwe. Then secondly, when the US dollar was implemented, it seems it was not kind of understood. You know, it's value was not really understood. Some of the things where just literally taken some of the prices some of the prices were literally taken from the local currency to the US dollar because, which made it very expensive. Such that you find that in the end, the price you will get for a two or three start hotel in Victoria Falls the price of the room there, if you go to South Africa or elsewhere you'd sleep in a five star hotel or in a honeymoon suite something like that. So, it seemed to be an expensive destination just because of the eh those economic problems. So now to implement this smart [unrecognisable] ehh solar and all of that, yohh it will be even much more expensive. Because despite the big expansion, it's also even about availability of things there hasn't been any in production happening in Zimbabwe, you know, over the

..EE - Im



past decade or so with the economic problems that were happening a lot of the [unrecognisable/network issues] and ehh so the country was relying so much on imports so be it from South Africa or even as far as [unrecognisable]. So even our meeting about the statutory instrument about the cars who are older than ten years. Just because the motor industry has also shut down so people relying on imports from Japan, used cars from other European countries, so that ehhh shows that the economy is not stable. So even with the thing of going green and we decided to bring in, like you know, solar equipment for you to take over to solar, then if it comes through to duty you have to pay heavy at the board to come through. So recently we also appreciate we hear the government saying that it has reduced duty on solar products. But we wish it to be even scrapped off now because generally those solar products are expensive even to buy a from abroad and then coming into the country and paying duty again it then even increases the price furthermore. So now for people to have their operations going green totally yeah it will be a mission unless there is heavy funding for that to happen. Yeah, because ehhh imagine say, for example, a safari operator decided to bring in this solar vehicle eh it is also support that you get because say you manage to provide funding for your and all that, but then you need now the vehicle even to go to Hwange [unrecognisable] when the vehicle gets there you need the same facilities for it will be plugged in there for charging and all that but so it will be pointless to have you go green at one station but then you go leave that station to go elsewhere. You can't get it

47 *Speaker 1:* You can't you can't use it, yeah.

48 *Speaker 2:* Yeah, you can't use it. So, it has to be you know there has to be huge investments in that such that even as a country in these different towns there has to be, you know, such facilities. So, I think, for example, another thing that is affecting even economically is the challenge there. Us as operators and even the hotels in Vic Falls they have decided to go green and so they are doing recycling eh well they are separating the waste I can say so they have these separate bins for plastic, for paper, for metal for glasses and all that which is nice when you see them it is [unrecognisable] and the staff is already trained to do that. They do spend all their time and effort to separate all that they put there. But then what's next?

49 *Speaker 1:* And then it all gets back together at one stage.

50 *Speaker 2:* The truck from the [unrecognisable] comes because there is no resources on whatever they don't even have a recycle centre and what they just take everything and put it together again and take it to the dump side. So, yeah, you see, yeah so it becomes a big challenge. So, this local authorities, eh, the government has for this economy problem they have to invest, ehm, in solutions for recycling centres, at the moment in Zimbabwe I think there is just a recycling centre in Harare, which is the capital city that's about 880 kilometres from here, so it will be pointless just for you to collect the waste here and there's no way for it to be recycled. So yeah, there need to be funding to the government and in all its entities, especially to the local authorities and all that and the other departments even the meteorological department anything that is dealing with climate, environment there has to be adequate funding for them to really implement the systems correctly. And then us as operators will be happy.

51 *Speaker 1:* Would you wish that there would be maybe one like that? All of these organizations kind of come together in like one body and that you can deal with that one yeah, with that one organization and they work all together to implement yeah more positive things for the future?

52 *Speaker 2:* Definitely. Yeah, definitely.

53 *Speaker 1:* Because right now as operators you deal with all these different organizations. Right.

54 *Speaker 1:* Yes, yes that is correct...

55 *Speaker 1:* And everybody kind of tells you something, something different. But it's not one message.

56 *Speaker 2:* Yeah we would wish there would be just one organisation or one body that deals with all that.

57 *Speaker 1:* I think that would also be a nice idea.

58 *Speaker 2:* Yes

59 *Speaker 1:* Yeah. Do you I mean, you said earlier that you see climate change more as a threat than an opportunity now looking into the future, I mean, we all don't know what's going to happen. But do you as from an organization's point of view, do you feel prepared and strong enough to let forward what whatever is to come in terms of climate change, that you can handle it?

..A - L&R Ja



60 *Speaker 2:* Well, you know, as an organisation I would not say really prepared, because it all comes back to what is being said on international level. As a [break due to no connection] the country itself, because from the country, it comes from national level even to down to the different towns, districts, how prepared they can become because being on the ground as an organisation we can say, yes we are prepared but then we are faced with bigger challenges, if you will, in the district, provincial level or even national level. So that becomes really a problem, for example I can even tell you about eh about what I mentioned already the cyclone that we had in [unrecognisable]. You know as an organisation, we heard about what's happening and we knew it was coming but then we could not really act on that you know by ourselves go and evict people from their relocating to somewhere all that, that we expect that you know the government would have to be doing that, but nothing was done until the cyclone hit less than it was late again for people who have stranded there to be relocated from there, there was need for food, there was need for clothes all that. As an organisation we even had to arrange you know some food donations, clothes and all that, even had to send our vehicles there to go and rescue the people. But then guess what? Before we even getting to the site you know something like 20 kilometres before you know, the affected areas, there was the government, roadblock, police roadblock with army and all that. So, who are you now to bring this, you know, all this help? Who are you? So, you are somehow going down. How do you know if you are not going to convey for the opposition? So so, give us everything that you have that that you have which you need to go and give

..A - L&R_la

..PE - I



them. Well, give it ourselves. So, they took everything there, that roadblock no one was allowed to take the food there, and all that then the government not really the government the ruling party took their own party branded vehicles and started carrying these things. Yeah, you know, and say see we are looking after it was now made into a political thing, which is so it becomes a bigger challenge. So, there's no way I would say safely say as an organisation we are prepared, because I know that somehow, you know, we are governed by these state rules. So, it gets to start from the top I think because it seems us on the ground we are struggling to get past the government has to come on board as well. The government has to be [unrecognisable]. And like I said that when we saw even the government coming to have this, you know, in getting local operators like this we were so impressed because we see that the government is taking action.

61 *Speaker 1:* Very, very interesting to hear your hear your point of view and also all the yeah I mean, all the experiences that you had so far, um, and all the challenges. I think it's very interesting. That was actually my last question.

62 *Speaker 2:* Oh, OK.

63 *Speaker 1:* I mean, if you have any if you have any more remarks, you can obviously use the time and still chat if you want. But yeah, that was my last question.

64 *Speaker 2:* [Smalltalk]

65 *Speaker 2:* All right. Thanks very much.

66 *Speaker 1:* Yes. Thank you so much.

Interview 4 – Hwange National Park

1 *Speaker 1:* Yes, it started. Great. Yeah, thanks again for coming and for actually agreeing to take part. I really appreciate that because yeah, right now, I mean, we have actually bigger things kind of to deal with in terms of the pandemic. Yeah. So actually, the mindset, I am sure your mindset is also still a bit at crisis management of the pandemic, actually, and not really thinking about the issue of climate change, which is also still out there. But I think it was pushed a bit back in our heads, I would say. So, before we just start well, before I start asking my first question, that is quite important for me, that we kind of get our mind set in that direction now. So, when I obviously started researching for for the project, I also came across the data from the World Meteorological Organization. They published a climate state report. And also, while the situation in Zimbabwe, I think the data that was published was also showing quite a critical stage of the climate in Zimbabwe. I mean, you have been working in the bush for I do not know how many years already. And I am sure you experienced issues in terms of climate and weather conditions yourself first-hand in terms of the droughts that Hwange faced with the elephants dying, low rainfall patterns. And I want to put our minds in that perspective now.

2 *Speaker 2:* Okay no problem.

3 *Speaker 1:* So how important are climate and weather conditions for your day-to-day duties, would you say?

..NBT - D

4 *Speaker 2:* I think they're very important in terms of the fact that we have to constantly wonder as to what sort of season we're going to have, and because remembering if we're just talking about the sort of the ecosystem, which is Hwange national park, it was artificially set up in terms of the fact that when they started the park in 1928, they realized that the only way they were going to hold the animals there was to pump artificial water. So, by pumping artificial water, it is created, although it is a massive environment, 14 and a half thousand square kilometres. It is still, you know, with all the animals, obviously populations have grown and all that sort of thing. And so, our concerns are firstly, how much water still under the ground? And secondly, can we pump enough water? And the more we pump in, the better we get at it, the more elephants we get to those particular areas. Because the animals realize coming, especially from Botswana especially, we you know, we just get bigger populations coming through all the time. So, yeah, it plays a huge part. Like this year we have just had fantastic rains and I would have said it was actually for the first time in many years, it is hard to remember, but a proper rain and rainy season where we got showers from October going through. It is a normal rainy, rainy season, which is will help us a lot and help replenish the underground water. Now, if that helps answer the question.

..V - S

5 *Speaker 1:* Definitely. Are you aware, are you personally aware of the global trend of changing climates?

..CC - Im_pr

6 *Speaker 2:* I will tell you what I have noticed, listen, I am not a scientist or anything like that, but I will tell you what, we've all, you know, guides and all of us talk about a lot nowadays is the storms that come now, the first rains. It is quite scary, actually. They have become a lot more violent in terms of the wind and the actual storms. We had it in the end of 2019. One of my camps took 15 minutes and the whole tented camp was blown down. And that that is

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..CC - A

something that is just it is crazy. It was like a little mini sort of hurricane type thing. I do not know what you would call it. Obviously a huge, little system that had come through, took 15 minutes, was just in the valley we were in, and it just flattened our camp. So, yeah, it is something I started to notice over the years that come November you need to start paying attention to where you are camping, where you are going to be, because those first storms can be quite violent. And that is not something I remember from when I first started guiding.

7 *Speaker 1:* Do you see so would you say that you see climate change as a threat to your operation or also maybe an opportunity for future development?

..CC - P
..CC - P

8 *Speaker 2:* Look, it is quite a that is quite a broad question that I do not see it as a threat. I do not think I think we just need to make sure that we are better prepared for the situations that might come. So, if we just dealing with us on an on a commercial scale, yeah. We have got to be better prepared for these possible storms that might come through. In terms of the animals the biggest problem we face is that we have to be better at pumping water and looking after them. But it is it is so variable. So, it is difficult to plan these things. And the biggest problem is when we have got good water, we do not always have good you know, there is not a lot of food on the ground. So, the two are quite hard to manage. However, remember that obviously national parks are the authority on all of that, but we as operators play a very big role with all of that. And in fact, at [name of company] we have taken to helping with that sort of stuff.

..A - G

9 *Speaker 1:* That's very interesting. And what challenges in the past, such as rising temperatures, changing rainfall patterns or drought have affected you? In Hwange specifically? I know you spoke a bit about it, but maybe you can elaborate a bit on it.

10 *Speaker 2:* In terms of the the operation or the animals? Sorry.

11 *Speaker 1:* More, in terms of now your your operation.

..CC - Im_pa
..V - S
..A - R

12 *Speaker 2:* OK, so I think well, I mean, the rising temperatures look, to be honest, we we kind of just deal with it. It is it is something we know and it is quite interesting. We always say in Zimbabwe, they talk about October being suicide month. In actual fact, November can be even hotter, especially when the rains are late, which has been the trend over the last sort of our least the last 10 years anyway. Just feels that I guess it just it builds through October and yeah, I think OK, well, if I take my clients as a whole, it is you know, one has to be very careful with them because most of them are coming from Europe or the States and they are not used to that dry heat. And so, you have to be very careful with that sort of in terms of the animals. Well, yeah. The issues we face then are is we have to obviously pump water much longer. So, there is a huge, considerable cost involved there, as well as the fact that it is it gets to the stage where it really gets sad. And, you know, you do see bits of die off and things like that. Having said that, though, must be a hasten to add. Look, the populations of elephants especially are good in Hwange. So, losing some animals due to poverty during those times, I am not saying is fantastic because if you have ever been through one of those seasons, it is not pleasant at all. You know, it is not. So, I guess all of us kind of do affect us, but in typical

..A - R
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Zimbabwean fashion, we kind of just get on with it and make it happen. So, I have never really dwelt on it or been asked before, how do we handle it? We just kind of do we make sure I tell you what we do for OK, if we take my camp, we make sure that there is enough water pumped so that they do not start coming to the camp and pulling the camp down. Because I can tell you now, if you do not have water out there, we have got a few naughty bulls that literally can pull the taps off every night and they behave badly. And so, yeah, I guess that that is an effect, you know, the wildlife itself will try and get water in the camps. And that is where you have got to be very careful.

13

Speaker 1: Yeah, it is quite interesting because you kind of already answered my next question, because that would be how? Because I mean, your staff on site is also constantly interacting with their natural surroundings because I mean, you live there basically. So, I would have asked what challenges do they encounter? But you already answered that. But maybe do you think there is also maybe a sort of knowledge challenge for them that they maybe don't actually know where or how these changes occur? I know that something comes up and you deal with it and you say it is hard to prepare. But I am pretty sure over the years and over your experience, you must have learned how to to prepare for certain situations or?

..P - R
..A - L&R

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Speaker 2: Yeah, so, yeah, so yes, if we if we go to the staff, I mean, obviously the staff for most of the staff are really, you know, just cracking on and getting on with their jobs and things like that. And we will all talk about the fact that the rains are late again, etc. So, I do not think you will find that most of the staff who most of our staff come from the rural areas, some of the guys are really well educated, some not as well. And maybe we have not gone in as in depth as possibly we could in terms of saying, well, this is actually what is happening. You know, this is this is a possible effect of global warming or a cycle or where we are right now is, you know, a situation caused by that. And then, you know, the staff being affected by these things. Are we you know, literally we change up a lot of the things we do, you know, because there's obviously safety involved in terms of who is in camp? I mean in the dry months we have 30 Buffalo plus living in camp the bulls. They come every dry season and they live in the camp. So once and then. So, if that is not bad enough, of course, what wants to eat them as lions? So that does not help the matters, but it is not all the time. It does happen. But yeah, again, I do not think it is anything that we have ever overthought. We have just thought, sure OK, another bad rainy season. But what we do is we look at we look at the fact that we say, OK, hold on a second, these rains have only started in January. We have got till possibly March; April are the pans going to fill. And then we look to a certain date. And if the pans waterholes are not at those levels, we already know straight away. Right. We are going to have a really bad season this happened. So last year, before last year, last year, we thought it was going to be bad, but actually it rained in the right places. We did not have good rain, but we had, you know, so this would have been the 2019 into 2020, what we would call that rainy season. It was not great rain, but it fell in the right places. And the year before that, it was higher rainfall, but it did not fall in the right places. And it was a nightmare. We it was it was tough. It was pretty tough. So, every year you kind of just watching what the rains are doing and then trying to manage the situation from their And I am now we already talking about the waterholes and making sure that the animals have enough water to drink in the park. Yeah, and there is a guy actually doing some studies on the underground water in Hwange, and they are also just trying to work out, you know, in terms of how all that water is and all that sort of stuff. And is it being replenished enough in terms of while we are pumping it out, etc., on

..A - M

..A - M

the boreholes that we are utilizing.

15 *Speaker 1:* Very interesting, would you say that your staff on site when something comes up or they are presented with a challenge, that they are what that relates to climate change, that they are quickly that they can react quickly to it? Or is there anything that is maybe hindering also your your reaction time to certain things?

..A - R



16 *Speaker 2:* No, I think adaption is the name of the game. So, you know, people adapt quickly. Look, I mean, most of the staff, as I said, I think in camp, they are not really going to be as affected pretty much in there for a certain period. They do what they need to do, make sure the guests are happy and crack on with their job, as we all do. And then, you know, they are out to their families, whether it be in the towns or rural areas. Now, most of the people who live in the rural areas in the rainier months, that is when they will be growing crops. And so that is where they get affected because the guy, you know, the person might be out there planting crops normally as of late November, possibly into December, and then the rains come in January. And then they are obviously affected by that. But that is more of a farming issue as opposed to something in Hwange National Park.

17 *Speaker 1:* Um, do you um do you monitor um climate data or anything or do you even get maybe climate data um from somebody else that you look at?

..A - M



18 *Speaker 2:* The only thing we actually have access to is our rain gauge, so to be honest with you, we just watch our rain gauge and that is all that is the only information we sadly get. We would would love to get more information, but we do not get anything, no.

19 *Speaker 1:* What kind of information would you love to have more?

..A - M



20 *Speaker 2:* Well, I think I think it is all very well and good, just, you know, monitoring your rainfall, but it would be it would be nice to know, kind of, you know, what has been happening over sort of the last 10, 15 years. So, someone to put that all together and give us an overview of of where we have and also to show us the signs that if you have this happening in, say, the winter months on this time or, you know, and also tracking where our weather is coming from exactly. I think that is some understanding that we need better off. So just understanding the weather patterns better, for us to be better prepared for what type of a season we should get. There is one outlet that we do get a bit of information from, and they usually quite good the farmers. They put out some forecasts. There is the agricultural side. And we do take and even this year they already said that there was going to be very good rains and it actually did work out. I think the more information the better.

..A - M



21 *Speaker 1:* Yeah, yeah. And it is interesting that connection then from actually agriculture and then I mean something that actually relates to tourism and how you work together there...

22 *Speaker 2:* ...yeah very much so

23 *Speaker 1:* Do you.... This is might be a bit of a strange question, but I mean,

you are very you have a very focused product and a very focused operation in terms of that. You focus on tourism and mostly safari. Do you have other sources of income that can support the business or maybe even activities? So, in case your business is struggling, that it is still going to survive.

..P - V&R Ja

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Speaker 2: No, not at this stage, sadly. I wish we had a little, you know, I wish we had so yeah, we are very much a tourism enterprise. We have an operation in Botswana. Uh, you know, we would do tented safaris and then obviously the two two camps here. It is certainly something I must admit that we are going to be looking at from now on. We are, in fact, looking at different projects where we can maybe try and support the others as best we can and also try and help support our staff, because to be all through heart, the biggest and heart-breaking part of this whole thing is that in many cases it is going to be yourself and your staff and all that most of the staff that suffer during these terrible times where tourism falls on its face for whatever reason.

..P - V&R nf

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Speaker 1: And so now we obviously situated in Zimbabwe. And you and I, we both probably know that the political and that the economic situation of the country is always very tricky to deal with. So how does the country's political situation actually influence your decision-making processes? Also, in terms of your your adaptation capacity, sometimes.

IN- M

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Speaker 2: Well, to be honest with you. You know what? We we we do not actually overthink it too much, to be honest with you, that the press is such a, you know, a devious thing. And I have concerns with, you know, it seems that look, to be honest with you, since the Mugabe era, the press has always vilified Zimbabwe, which I think in many cases unfair. There is a lot of positive stories and I wish that start telling them it is very strange. We have a country next door to Africa which has the highest crime rates in any of the region, any of the region. I mean, just take Cape Town and it takes your breath away. And yet Zimbabwe supposedly and I even have South African people saying, you know, oh, my gosh, is it scary there? Then I say I think you are confused. I think you are very confused. So, in terms of making decisions due to political decisions around us at this point, you know, I think we have the normal things that as a business you have to do. And no, we do not. The biggest threat we had well last year, you would have heard about it was the mining issue that was in, as far as I understand, was dealt with. I do not think it has gone away, but it was dealt with very well. And the president, you know, managed everything there. So that was a good thing. And that would have been massive for us as tourism. In fact, it would have wiped us out. So, because in fact, the original. So that would have been a problem. But they did deal with it when it was brought to the surface. So that is a good thing. So that would have been something we would have had to make some big, big calls on, that is for sure.

..PE - I

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Speaker 1: And then are there any policies and regulations maybe in place that support you taking actions to maybe adjust to the impacts of climate change?

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Speaker 2: So, yeah, it may well be something in writing somewhere here in Zim, but I am not sure. Let me tell you. So, we have [name of organisation], which is our environmental organisation, they drive to the mines in Hwange to get to my camp to fine me for the fact that my fuel storage is not compliant. And yeah, it intrigues me as to how you go through what is basically these people. I mean there is more, you cannot have the, you know, the way they

..PE - H	}	29	mining, that cannot be lawful. Well, it might be lawful, but I do not think it is environmentally friendly and it certainly is not as far as I am concerned. And yet so when you ask about the fact that, you know, they might be some documentation that could help us, but we do not know it.
		30	<i>Speaker 1:</i> Yeah, it is not OK. It is not really also brought to your attention or even I guess you do not really have an influence in those processes in terms of decision making...
..A - G	}	31	<i>Speaker 2:</i> Nah, no, no, no
		32	<i>Speaker 1:</i> yeah...
..A - G	}	33	<i>Speaker 2:</i> No, we do not. So, what we do is if we have an issue, we deal through the organizations being the [name of organisation], which is the Operators Association. But again, that can be complicated, too. But hey we certainly do make make sure, you know, we put forward our concerns and then we go from there, to be honest with you
		34	<i>Speaker 1:</i> Yeah, and then. Maybe you can quickly just tell me something, how the economic situation of the country influences your business also in terms of, I mean, investments or also investing maybe from your side into a more sustainable future of the camp.
..EE - Im	}	35	<i>Speaker 2:</i> Yeah, it is quite tough, actually, to be honest with you, as you know, we have a two tier currency sort of system, which if you do not live here, it is quite difficult to understand even for those who do live here. And so, it is you know, the economies run on pretty much US dollars and Rands really behind the scenes, but we have this thing called an Artigas. And the biggest problem is that. So just in brief, you have the bank rate, which is at 82, and you have the street rate, which is anywhere between 100 and 150 to one, and all the stores run all their businesses off that rate. So, you have it economically. It is very challenging to run a business. You get a two percent. We taxed a lot, and it is very difficult. It is difficult....
		36	<i>Speaker 1:</i> Probably then influences your ability to plan a bit more ahead in the future and be more...
		37	<i>Speaker 2:</i> It is quite difficult....
IN - P	}	38	<i>Speaker 2:</i> Yeah, it is. Look, again, to be honest, we are in survival mode. So, our mindset is very different to what it was. End of 2019 were quite gung ho. We had actually had two years where we made a little bit of money. I mean, it was a very exciting time. And so, 2018 and 2019 with some of the biggest years for Vic Falls and Hwange in all of us. So, it finally got to a position where tourists were coming. It was constant. And you know how it is. If you are turning over good money, you know, it is then these things do not bother you as much. You know, you just get around, you are making a bit of money. You move on and you carry on. In years like we are going through now, we literally we have no income. It is it makes it quite tough. So, you have to plan literally almost to have a strategy meeting to spend, you know, what are we spending this week? Little strategy. OK, so we have got to move the money from one

IN - P

account to that account. That means 40 percent of it is going to be moved away by law to at 82. And then we have got this left and maybe we could draw that money out of that other account because you cannot do it from that account. And then we can go purchase in US dollars, which is a lot cheaper. So, yeah, to give you an idea of how things that's kind of so yeah. It can make it quite difficult; you know.

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Speaker 1: Would do you say you have a network of people who offer you support or do you maybe have an existing network on collaborations between the operators.

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Speaker 2: Yeah, so we are very lucky. So, within Hwange, I work with a lot of the other operators in terms of if something that needs to be done, whether it is on the other side of Hwange or our side, we all work together. I am a trustee of [unrecognisable] Trust and we operate we we sort out all the water in Zambezi National Park, the Kazuma ,Robbins and Cinemateca. We also help with anti-poaching. I am a big part of that Trust as a trustee, but also I am very lucky. A lot other people that I well, I make sure that I personally surround myself with people that are firstly positive thinkers and secondly, at the top of the game, I am very lucky. So here in the falls, you know, the head of [company name] , the head of [company name] the head of, you know, all these different organizations I see on a daily basis. And, you know, if I need help with anything or making a decision, a big decision, I can go and bounce it off them. So very personally, I am very lucky. Having said that, so we all work together, you know, if there is something going to happen, just give a small example. This weekend, we just had what they call the [unrecognisable] race. The money goes to Vic Falls anti-poaching unit, as well as the Vic Falls Wildlife Trust we do all the darting of the animals, all that. And everybody in Vic Falls donated their time to be marshals to help out. They get involved, run the stalls, do whatever was needed. And that is that is very much a Vic Falls. And we are all in the tourism game and we are all wanting to help as best we can.

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Speaker 1: Yeah, I think that sounds really good. And I think it also sounds like there is also then a will a willingness from your side also to ask maybe for help if there should be a challenge also in camp or whatever and then others...

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Speaker 2: Yeah very much, you know, especially when you are dealing with people that have done it for 20, 30 years, more so, you know, rather just ask them if they have got they have got the experience and they will help you. You know, you go to them thinking this is a big drama and they are like, no, no, no my friend, this is how you fix that. It might not be what you want to hear [laughter], but, you know, you are very lucky to have someone. So, I think it is a good thing to be able it is we do not have a closed minded approach here. I know some of the areas they do, but certainly Vic Falls, Victoria Falls and Hwange national park very open minded people.

42

Speaker 1: Yeah.

43

Speaker 2: Which is great. You know,[name of company], all of them. You know all of those guys. Yeah.

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Speaker 1: Do you, do you would you say from yourself that you keep your eyes on the bigger picture even in challenging situations or because now you

said, well, now we are definitely more in survival mode, that is for sure. But would you say that you would still keep your eye on also, the bigger picture maybe of climate change, that is also a crisis that maybe could affect you and that would be five or ten years.

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45 *Speaker 2:* Yeah, I am not going to lie to you right now, and we are just dealing with a company associated with it is a bit like going rafting. I am dealing with the big wave in front of me right now. Um, I am looking at five years' time, but I must admit, I am not looking at climate change in five years' time, which I guess is the wrong approach. But I can tell you right now, I would just want to see my business survive in two, five years' time and actually be some form of profitability. But yeah, we have not looked far enough ahead for any of the other stuff. And it is going to bite us on the bottom, that is for sure. But it is right now, it is very much survival. Very much survival.

46 *Speaker 1:* So, I do not dare to actually ask this question, because you also said it a bit already, and I definitely understand your point of view, but looking into the future, do you feel prepared and strong enough for what is to come with the change in climate?

...A - L&R Ja

47 *Speaker 2:* Yeah, yeah, yeah, straight up and honest, we are probably not equipped or, you know, we are not prepared, nor do we have any understanding of what it could be. So, no, no, it is such a survival thing going on now, you know. You know, I always say, you know, when when you are prosperous and all that sort of stuff, you really can worry about, you know, five, ten years. Right now, we want to get our businesses to this. So, you've almost the commercial aspect of what we do has taken a front seat to everything. And and that is because we want to be here in five, ten years now. But yeah. So maybe we are looking at the bigger picture. Having said that, though, it is not something that we could do because like for myself, the last year, year and a half, I have put my own myself into training. So, I am the chief examiner for Zimbabwe Professional Hunters and Professional Guides Association. And we have literally just been training people all over the country. And it has been good fun. So, we are it is not that I have just said, OK, we are just going to do this commercially. We have also said, OK, well, this is something that when we open up, we need to understand better. So, the fact that, you know, you contacted me about this and, you know, there's things to think about is a good thing. So, there is no reason why we can't not start looking at it, because I will tell you where it will be. Understanding is a good thing. Being able to react or do something about it. I am not sure if there is a monetary cost to it. That way. There is going to be an issue in terms of do I pay salaries this month or do I do X, Y, Z, whatever that would be on the scale of things, you know? So, it is an interesting one and interesting times, you know, right now.

48 *Speaker 1:* Yeah, that is true. That was literally already my last question.

49 *Speaker 2:* There you go.

50 *Speaker 1:* Yeah, I am I am just going to stop the recording for. No problem.

Interview 5 – Zambezi

	1	<i>Speaker 1:</i> How important are climate and weather conditions for your day to day duties? In terms of water shortage and...and what impacts of climate change are affecting you?
..CC - P ..CC - Im	2	<i>Speaker 2:</i> No, it is not critical because the Zambezi is never dry, so it is more on the food side. So, if we do not get ample rain and there is no grass, no leaves, then that is when the animals have to travel further inland in search of food. So that is that is a very very big part. But I think possibly even a bigger part than that is from a human perspective. So, on the Zambian side of the river, we have got a lot of human settlement and they are pushed into marginal areas, meaning these are areas that you cannot really grow crops on. So, the people on the Zambian side do rely heavily on fishing and historically also on bushmeat. So, when you get a bad drought year, the Zambian incursion into the Zambezi National Park is higher because they are looking for food, the people are looking for food. And it is not a commercial poaching activity. It is in such as they want to go and take ivory or the tusks, but they certainly do if there is surplus meat, they will take that back to their home places. They will it will feed their families and have the finances and to buy grains from other parts of the region. So certainly, on higher volumes of poaching in the national park than in the in a good year. And they are reaping the crops.
..CC - Im	3	<i>Speaker 1:</i> OK, are you aware of the global trend of changing climate?
..CC - A	4	<i>Speaker 2:</i> I am aware of it. Yes, how that is how that impacts us here, on a day to day basis, you know, not together all sure the numbers of the animals and all that kind of stuff. No, I am not. I am not. There is a lot of different documentaries discuss it at length and it is getting smaller and our arctic polls. So, yes, we are very well aware of it. And certainly, we are aware of a trend of our daily temperatures increasing year on year. Last year we had a 48 degrees, which was the first that I have ever experienced here in Zimbabwe. So, there was a very very hot day. But that being said, we have also had trends of very cold days. So last year we recorded a minus 12, which is also very unusual. So certainly, global patterns have been certainly have not been what we classify as normal. But what is normal, I am not sure what that is any longer because every year so vastly different from the one before.
..CC - A ..CC - Im_pr ..CC - P	5	<i>Speaker 1:</i> Yeah, that is true. Yeah. Do you, um, have you experienced any challenges in the past that affected you, like in the National Park specifically?
	6	<i>Speaker 2:</i> Our challenge is how you mean with with with temperature?
	7	<i>Speaker 1:</i> Yeah, for example, was there ever a drought affecting you or maybe challenging rainfall patterns?
..CC - Im_pr	8	<i>Speaker 2:</i> Well, yeah droughts, droughts for us here in southern Africa is one of those things that's kind of normal. We here in the Zam national park. Our our average rainfall is four hundred and fifty millimetres of rain annually. So, and that all comes a very, very small spaces that would that typically would start in about November and finish in about March. So, we get quite a lot of rain. We only get one season. And I think we have got used to the fact that we get those back sort of during October time and then it is back to November

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again. Much that we have had on this year and this year being the last 12 months and the and the results of covid. And I think the result of less carbon emissions around the world. We have had week and I am talking last week, Friday, which we've never had before in May, a we [unrecognisable] millimetres of rain in May. And I do not even know that Zimbabwe's ever had that before. Yeah, maybe at the moment with fewer carbon emissions, beautiful blue skies. And we are getting it. It is coming through. That is unusual and that is pans that are inland, a greater choice or variety of places to go and drink, which means that they are not congregated in small areas along the Zambezi River and stripping bark of trees like the elephants do and eating all the grass. And as the the Buffalo do, they come down to the waterholes to drink or to the river line to drink. So, there is more water around, which means there is less pressure on key areas. So, from that perspective, I have certainly seen that there has been an improvement this year. But in subsequent years, it has always been it has always been known that animals come down to the river. So, you find that the vegetation on the river's edge is thinning out as a result of of longer and longer periods of time when there is no no food available for them.

9 *Speaker 1:* I am... you kind of mentioned that a bit before when we spoke about the challenges that you also said that it is also I think you went in the direction that it is also hard to prepare sometimes for things that come up, let it be flood or drought. How do you make sure that your staff on site, I mean, they are in constant interaction with the nature surrounding them. How do you ensure that they can deal with the challenges and that they can react to them?

10 *Speaker 2:* Well, I guess in the national parks, such as where we at the answer will be vastly different to someone who is in their home place. And if I can just explain that a little bit here, obviously in the national park for example, food required for the starter food is food here is not really a problem. However, if you go not far away from the national park, literally on the other side of the fence, then we have got communities and if the communities are growing food, but because [unrecognisable] corn grain and elephants will often go to the fields and will destroy this field, that would that would grow for a year they were destroyed in one night. So, with more and more drought and people being pushed into more and more the human wildlife conflicts that we experience as a lot of there is a lot more reporting of human conflict. I cannot say that that is specifically just down to drought. And I cannot say specifically it is just down to human encroachment. But certainly, it is both of those things so that the more difficult it is to grow food stuffs and the more people that we have spilling into more and more marginal areas, that certainly is increasingly the human wildlife conflict. So, in terms of mitigation for that, it is one of education. We have to educate our people. And I mean, I think Africa overall, not just Zambezi National Park with Zimbabwe, I am talking about Africa as a whole, has got some incredible spaces that are available to us to grow crops. And if we could just utilize those spaces efficiently and ensure that we had we had food available to the African people, then we would not need to spill over into these marginal areas. However, that being said, now, this brings in a whole economic issue. And that economic issue is the African governments do not have jobs enough to give their people because they are just too many people. So, in Zimbabwe, for example, I think we got about a 94 percent unemployed. That is a huge number. And if we had commercial farmers working, which would then employ people, give give people money enough to be able to afford and purchase their own food stuffs, that I mean, that is a huge economic thing. And that is not necessarily to do with drought.

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No, but certainly there is an economic angle that needs to be explored. If we are going to combat climate change in the future, we need to figure out how that are ideal for crop growing. And I am sure that we take people are marginal and mitigate that human wildlife problem that we are facing today.

11 *Speaker 1:* Yeah, that would also be my yeah. One of the questions actually, you kind of spoke a bit also about education. And I was wondering if your team on the ground, if. Yeah. If if they are receiving any special training or education or even special skills on on climate change challenges. I mean, there are different challenges, like in terms of the operation. I mean, yes, we mentioned drought, but there is also something like flooding, for example. I mean, weather conditions can have all sorts of different influences. Do they receive any special training for that or are they being even educated about the global trend of changing climate?



12 *Speaker 2:* No, my area that I am looking after. No, we do not we have not focused in on any of that and even on a larger platform. Within the tourism sector of Zimbabwe, I do not think that there has been much debate, discussion, open forum to climate change. I have not really looked at because as a nation, I think that we we basically in in a mode of survival, a survival mode, rather than being in a place where we can actually debate what what is happening around us. And I think everyone is so, so focused on on trying to survive at this moment in time that no, we have basically forgotten about that. I think I mean, unless people have got, you know, available Internet to them, in which case they will be looking at that. But it should be it is something that we have not really focused in on sufficiently at this moment in time. I do not think

13 *Speaker 1:* that is a very honest answer, I think. Do you have other sources of income or even maybe other activities that support the business if it is struggling?



14 *Speaker 2:* No, not at the moment, we have got we've got one shareholder, one one owner for Zambezi Sands and Gorges, and they they funding. They funded. You know that form, but again, you know, in in a time of the support comes from the tourists themselves, as you know. So, you know, obviously a tourist comes out here, they they pay. They they not only our internal our internal staff, but also our national parks. National parks and also national parks staff said it is kind of far reaching in a time like this, a global pandemic like we got We we rely on support to prop up what is going on, but I can tell you. Today, Zambezi sands we had 24 staff. We are down to four. So, 20 people have been made redundant and they have now gone better. They have ploughed and have planted and many of them do not have access to Internet. So, the the climate change for them at the moment, and it is something that they would sit around camp for or maybe their home fire at night. I know how the whole global warming effect is, how it impacts. They will discuss it, but they would not really necessarily know how. So, at the moment, you know, around us, the whole place around us, it is like you come back to that survival mode. Everyone is in survival mode. Yeah, it does give us time because at the moment we have got a lot of we have got a program called Guides Against Poaching, and we have got a number of guides out in the field at the moment protecting our wildlife and also going out and educating our communities on human wildlife problems and issues. But that is obviously that is not a result of climate change necessarily. That is a result of us having time on our hands because of a global pandemic that is enabling us to better educate our

communities. Now.

15

Speaker 1: Very interesting, um, so, I mean, now we are dealing with an operation, um, in Zimbabwe and I guess it is not really a secret because we also can see the news that Zimbabwe had a yeah. Has quite a, um, hectic history, political history and also economic situation that is always going up and down. So, my next question would be, um, how does the political situation influence your decision making processes in the operation itself in terms of implementing maybe new, more sustainable strategies or also your responsiveness to change or even, um, yeah, investing maybe even in a more sustainable and a more sustainable future. Would you say it is more encouraging or rather a hindrance from politics?

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Speaker 2: Well, that is a very difficult question to answer, really, in a in a short space of time. But yes, certainly politics in Zimbabwe does play a shooting overall because of how difficult it is to do business in Zimbabwe. Investors, foreign investment is always nervous about bringing money into Zimbabwe because they want to ensure that the money is looked on and. But certainly, in the ways of taxes and things like that, it is very difficult for for foreign investment to come in and for them to make a profit. And at the end of the day, that is what a lot of people want. Of course. And you have also got a lot of big businesses, huge businesses, [company name], for example, they were in Zimbabwe, they pulled out and they look at I think they they look at, you know, who might be on sanctions lists and might not be able to do business because of world sanction lists and political opinion. So that certainly plays an issue in a part. And then certainly on the ground, you know, when you when you when we looking at large enterprise coming into Zimbabwe into it, it would be beneficial. But, you know, in Zimbabwe, we are also looking at ways to create employment and jobs and revenues. And some of those some of some of the ideas that come up do not best fit into a Western world thought process. For example, the current thing that we are looking at right now are our elephants. It is a very, very big topic of discussion right now throughout the conservation world. And we as a country are able to harvest and trade 500 elephants a year according to our psyche's permit. And that is that means a thousand tasks, but at the moment, Zimbabwe's got the conservation efforts in Zimbabwe has meant that we, our national elephant herd, far exceeds the carrying capacity of Zimbabwe. And so, we. If you mitigate that option, but one of the options is collaring, and so national parks have been at the moment and your beautiful elephants, they. Oh, hang on a second, what is Zimbabwe getting up to? And with an emotional viewpoint, not a scientific viewpoint, and so that the effects of funding coming in from NGOs to protect our wildlife. So that has been so there a lot of different aspects that we need to explore and look at and political policy that that affects our day to day operations. So right now, in the Zam National Park, we have got a number of different things. Obviously now there no guests in the park. So, funds and finances from guests does not help us in the chatter about elephants and what might happen with these elephants. Has as wary about putting funds into existing projects and programs for protection, so therefore funds start drying up. And that is on that area. So certainly, the political landscape has definitely affected us, but a very resilient country. And we are a resilient people. And we always we always refer to making a plan. If something goes wrong, we find a way around it. And that is that is what has always been good for Zim. You know, we will make a plan. Right now, we look at, you know, who is in Zimbabwe and who is working, who is not. And there is a vast number of of guides that are sitting down at home watching TV and sitting on their bums, doing nothing all day. So, we look at them and what we saying to them is, we



need your help. We need your support. We need you in the field. So even with no money coming in from whatever angle, we have made a plan and we are utilizing people that are otherwise unemployed and they are now volunteering their time to get into these magnificent areas and actually protecting them so that that is what we do on the ground. It is it is highly complex because without funding, without them, without money coming in to support food, diesel, servicing our vehicles and our purchasing of uniforms, even paying salaries, it has been a very, very, very difficult time. And we we have just had to look at a different method of running our operation. And so that means sort of running operation is is volunteering guides who are sitting at home, you know, they come in and they help us on all sorts of different things. And that is, you know. But as much as volunteer time, I will get a I will get five or six volunteering guides to come in and I will teach him how to be me, but they are learning, so actually the educational side is going up quite nicely. Yeah, but certainly the funding side is going down. So, there is always there is always give and take. Really.

17 *Speaker 1:* Yeah. Really interesting. I think, um, you also already started talking about about policies and regulations. And I was wondering if there are actually any policies and regulations in place that support you taking action. Um, yeah. To adjust to the impacts of climate change. Is there some sort of guidance or agreement from a policy kind of you?

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18 *Speaker 2:* Not that I am aware of. Again, I mean, any anything that happens within a national park has to go through the threw national parks themselves, which then goes up to government level, to the minister of tourism who who is overall in charge of all national parks. Now, any any policy you need, guidance has to go through very big official channels you can imagine a lot of ripple effects that happen if we try and take action ourselves slowly. So, it a big ship, but I do I do think that overall, the policy and the and the legal paperwork, the acts and the statutory instruments that have been in place for many years have enabled us at grassroots level to be able to deal with many of the things. I mean, for example, in an in a time when you have got big drought coming in and you get elevated poaching, we do have the ability to go in and police and stop that. So that is always good. So, I do think that our policies and that are in place, the existing ones, do enable us to cope with it quite nicely at this moment in time.

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19 *Speaker 1:* That's that is good, I think, uh, I know you also spoke about this, but I am still going to see if you might add something on here. And how does the economic situation of the country influence your business? Um, do you think you have anything to add, or I think you spoke quite elaborately already about funding and how important that is. Um, and I am pretty sure that also that influence is actually the ability to also innovate the business.

20 *Speaker 2:* Yeah, well, I think the thing to add there really is that. Historically, when I started this, historically, Zimbabwe had. Has had three main sectors, brought in a lot of revenue because of the exports of cash crops, tobacco, maize, beef country in terms of of minerals and tourism. So those are the three sectors that our economy was built upon. And more recently, our tourism sector has been looking at International or international markets, which we were selling our goods and services externally, so tourism in the same way selling. What we got, our national parks and our place of accommodation more to an international market, not necessarily to a local market, and the idea there was we wanted foreign currency coming into the

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country. We could not literally be spending all of our foreign currency in the country. So, we always look externally. And with a pandemic like what we have had, we have now had to adjust that business model somewhat because our borders are being closed and very few people coming in with airplanes based on our land borders or locked up. So, we have to look very carefully internally. And it has been kind of amazing how all of our businesses that have opened or have remained open during this covid lockdown have been very, very well supported by local tourism or in country tourism. And it has been it has been incredible to see and to listen to fellow Zimbabweans who say, oh, my gosh, I did not realize that we had this many camps. Oh, my gosh, I did not realize that these camps are so wonderful and. Oh, goodness. And the last time I came to Hwange National Park was was 30 years ago and I did not realize that it was it was looking so good. So, it is certainly the economic situation that has been brought about by covid has necessitated us looking at business in a different way. And I encourage all businesses around Zimbabwe at the moment that when our borders to open and let us hope that opens soon and I hope that we will have international tourists back very quickly. I hope that our businesses. Internally to Zimbabwe, do not support these businesses over the last year and a half because they have. Been they have been a lifeline and they really have looked after us, and I think we need to start looking at business models that do not just look at internationals and Western world, but is just as important, is just as vital to us as. International about our own country, about our region, subregion and also the world and nothing it again, through no fault of our own, we have now been stopped, started Zimbabweans and us ever. And I think we need you. We need to rekindle that and ensure that.

- 21 *Speaker 1:* Oh, I am not sure if the connection is gone
- 22 *Speaker 2:* Did you get the last bit there?
- 23 *Speaker 1:* No
- 24 *Speaker 2:* Where where did you last hear me?
- 25 *Speaker 1:* You said that we really need to try and see that we I think you spoke a bit about that you want to keep that actually that diversity because the focus was mainly on international tourists. And now there is the focus also on the domestic market. And you would wish for that. That focus will stay right so that it is not then one side again, but actually also keeping the domestic market in there. I think that is a pretty valid point.
- 26 *Speaker 2:* Yeah, yeah. I mean, I think we need to do that. That is important.
- 27 *Speaker 1:* Yeah, I think yeah. I think that is good. Yeah. Do you have any existing networks or collaborations with other safari operators? So let it be that you face a challenge that yeah. You have like active assistance from a safari operator surrounding you.
- 28 *Speaker 2:* Yes, on a number of different levels. So, and it is probably I get a lot of support personally because of of who I am and the committees that I sit on. But certainly, within the Zam National Park, we have got we have got seven different operators in the park and we all talk to each other regularly, so



there is in our own individual capacities, then we have got we have got a small forum of people that we can talk to. But that is local, that's that's Zambezi National Park, but then in Zimbabwe, we also we've got other associations. So as a guide [unrecognisable] that association is a very big one. And we have got about four issues from around the country on a guiding level that you can talk to you. From a camp perspective, from an Operator's perspective, we have got Zimbabwe, and so if there is any business related issues that we need handled, we go through to SOAZ Safari Operators Association, so we speak to them and then again, in the national parks, you've got aviation. We have got the Zimbabwe professional guides, the Safari Operators Association, we have got all sorts of different bodies that are looked after by one overall governing body, which is it is called TBCZ. That is the Tourism Business Council of Zimbabwe. And that TBCZ looks after three very, very broad areas and that those three broad areas are accommodation, transport and activities. And so, any issues that that we face or if I have to face, go up all the way through to TBCZ, and TBCZ then lobbies government through the minister of tourism. And we can we can change policy. So, the structures and the and the support network that we have in Zim from a tourism perspective are very good and very strong. And they are very well, well supported. And we we probably have too many business meetings, to be quite honest. There is a lot of time that is wasted at different meetings, but at least those meetings can be had. And it is not a void. It is it is a place, an open forum where we can discuss issues and we can take them forward. So that is all very very good. So, yes, we have got to we have got a huge network and a huge support base in Zimbabwe. And, you know, anything that happens on the ground is kind of funny. You know, anything that happens on the ground gets up to the minister very, very quickly. So we can we can we can change direction and policy if required.

29 *Speaker 1:* Um, I think it is very interesting to hear that. I mean, that actually all the support systems and also the the structure itself is actually in place. But what do you say that it is also working effectively, or does it still take quite a long time to then respond if something happens?

30 *Speaker 2:* Yeah it does take some time to respond if something goes wrong or something happens because of the chain of command, that needs to be followed, I guess.

31 *Speaker 1:* Yeah

32 *Speaker 2:* and also, the decision that means that the minister of [unrecognisable], when it goes through parliament and and they they discuss changes to to our legal framework. So, if there is anything that requires a legal framework, it obviously goes through. But it takes that takes time. There's lawyers, there is all sorts of things involved that would take time. But certainly, one of my issues, one of my worries is when we look at Zimbabwe and how Zimbabwe performs, are we are we looking at and are we looking at the greater good of the country or are we looking. In trying to shorten thing, obviously without fund, that funds are first and foremost, but also how do our policy changes affect the next generation or even us next year? And sometimes those can be negative and sometimes we do not have a handle on what those could be, because some of some of the time that has made up of quite a very much higher level. And we sometimes get the advisory that policy has been changed, and we then have to go back through our network and say, excuse me, you know, this has been changed and we do not think this is good

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for us. It is going to it is going to bring about negative change. And therefore, can I please have a meeting and sit down and address these matters. And so, of course, that takes a long time, because when the decisions have been made and I will be trying to understand the impact of those decisions on our day to day business and operations, that can be very difficult. But it is certainly it is it is something that that we we do quite a lot of. And it is well received. And we can we can certainly go forward with our with different associations and we can apply pressures within any be applied. And so at least we have got a voice. That is the big thing. We do have a voice and we and and we all listen to, which is very good. That is a very big positive.

33

Speaker 1: Yeah, I agree. Yeah, I definitely agree with that. And I think it is it is it is nice to hear that I mean that because that would also be one of my questions to you. If you actually have a voice in decision making and to hear that you do have a voice, I think that is quite positive. Um, would you I mean, I could already hear but that but still that priorities are rather on a short term perspective and not really on a long term perspective. I think that is something that we can take from this. Um, my last question would be actually looking into the future, do you feel prepared and strong enough for what is to come with the change in climate? Um, or do you maybe have advice?

..A - R

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Speaker 2: [laughter] Advice on this particular one? Look, I think I think we are in a place where we can adapt and we can change at in quite a quick turnaround, quite a quick space, quite a short space of time, so, yes, I think they are the key things that we need that we need to work at. And it is not just on the I do not think it is just on climate change necessarily, but also the way that we do things. You know, what's our policies on on cleaning up our environment. And I am not just talking burning of fossil fuels and things like that. I am talking about the clean-up of plastics and rubbish and all that stuff that goes into our waterways and channels. If we go to if we are going to survive in the future, we need to ensure that our environment is clean so that any water that we might be requiring in the future is not polluted, it is not contaminated. And we need to start looking at at different ways of of using or utilizing fuels for energy at the moment. A big worry of mine is the the destruction of forests, specifically teak forests, which people are chopping down at an alarming rate. And they are using that to to burn fires at night to cook because there is there's very little energy supply, i.e., our power national power grid is is that critical levels. So, but with forests coming down and deforestation areas, that certainly does not help with climate change. If we want to if we want to ensure that climate change is going to be you need the natural environment intact and we need those trees and grasses to ensure that the they are able to remove, which obviously, if they are left in check, will aid in the stations a big problem, but we are tackling that by trying to go back and plant trees for the great ones and asking schools for the full one and to grow a tree, and if every kid in Zimbabwe could grow at least one tree maybe chops down two trees will hopefully. But more trees growing than we do, you know, what are we doing with our coal, that is another big topic and opening up coal mines in national parks.

..A - L&R

35

Speaker 1: Yeah...

36

Speaker 2: ...and I am not against totally, you know, opening up a coal mine. I've we going to open up a coal mine let us use that coal mine to offset some of the costs elsewhere. So, for example, in Hwange, my opinion would be if you want to have a coal mine, well, let us fence off that area. And if we take a

100 hectares or 500 hectares, whatever the ground mass is going to be, then we need to go look elsewhere for an equivalent size and then fence that and make sure that that is looked after. And let us look at that mine and say to them, your your requirement is to ensure that all of the boreholes in Hwange National Park and all of of well-funded and serviced for the next 25 years and every road needs to be redressed and made it accessible for the 25 five years. So, if we are going to bring in mining, we need a policy that goes in there and says, all right, you are going to be destroying an area. We get that we are not. And if you want to do that, then you go to offset that destruction by improving another area. And I think if we if we look at places like that, then it would be it would make mining a lot more palatable to a larger audience. And at the moment, mining is certainly one of those things where it is just destruction, destruction, destruction. And we need to turn that around and send a mining. Yes, it is destructive, but it is not about complete destruction. We need to start rehabilitating other areas that might have been depleted and let us use the mines to do that for us. No. So, like I said, I am not against it, but I think that we need to have a look at a different policy. To look after everything,

37 *Speaker 1:* but would do you feel prepared for the future, or do you say you rather take it day by day and adjust accordingly?

38 *Speaker 2:* I think we we probably day to may be a bit small, but maybe it is more monthly, I am sure that we got some good visions about what the future may hold on. But certainly, I do not think that we have got to. I personally do not feel, and I think probably I am just speaking for myself here look like in five years' time, I think that is that is a little bit further ahead for us than we are capable right now.

39 *Speaker 1:* Yeah, that is OK. That was one question I actually forgot to ask. I was wondering if you actually monitor your weather like conditions, do you monitor weather patterns or do you actually get data from outside?

40 *Speaker 2:* For myself, personally, I do measure weather patterns, we have a very basic weather station here at Zambesi Sands. I do monitor being good, but things like like like the river, for example, we rely heavily on Namibia, who produces a flood bulletin, and that flood bulletin now subsides as the rivers subsiding. But certainly, we watch it very carefully in about January, February, we start watching it very carefully. And it is issued every day because that gives us warning warnings as to how high the river might be and where the flood waters are. Bearing in mind that the Zambezi river only, you know, it is very it is such a big river. And it it actually starts from where we are set now where I am set. And only it starts about a thousand six hundred kilometres upstream from me. So, all of the water that is collected over a thousand six hundred kilometres comes all the way down here. And at this time of year, it is actually now starting to recede. The water's going down. So, there is no more issue now until until next year. But like I said, we will look at Namibia for that flood bulletin. So, we do look internationally to help us and that there is lots of little hydro stations, all of it on the Zambezi River. And then you have a meteorological socie...ehm area.

41 *Speaker 1:* OK. I am not sure if I lost you again...

42 *Speaker 2:* ...Zimbabwe and we look at the patterns and if it is clear, you know

..A - L&R

..A - M

[unrecognisable] who trains companies to help us with that.

43 *Speaker 1:* Now, that was actually my last question.

44 *Speaker 1:* Oh, OK. Time flies when you are having fun. [laughter]

45 *Speaker 1:* Yeah, well, I hope it was fun for you. [laughter] Thank you so much for. Yeah, definitely. Giving your insight and your opinion. I think you said a lot of great things. Um, and I really appreciate the help.

46 *Speaker 1:* My absolute pleasure...

47 *Speaker 1:* [small talk]

Interview 6 – Hwange National Park

- 1 *Speaker 1:* Welcome and hello from the Netherlands.
- 2 *Speaker 1:* Yeah, thank you so much for participating in the modified version of the interview process for the research project and due to time constraints, you have decided to accept participation via WhatsApp voice note. So, with this message, I will talk you through the tailored interview process before I will start reading the questions to you. I will provide you with a short insight and ask for your consent. Please start your answer with giving consent and agreeing to the process, because this will allow me to analyse and utilise to gathered data.
- 3 *Speaker 1:* So please give your agreement to the following conditions. You have been informed sufficiently about the research project, the purpose and accepted to participate voluntarily. You are aware that your participation will be treated confidential, and you remain anonym. You can withdraw at any time and choose to not answer certain questions. You agree that your information is audio recorded and understand that the information will be used for academic purposes.
- 4 *Speaker 1:* Should you feel during your answers that you have already sufficiently answered a few questions ahead? You may skip and carry on with the next questions.
- 5 *Speaker 1:* So, let us move away, but from the perspective of the ongoing covid-19 pandemic. I'm fully aware that everyone in the business right now is still doing crisis management due to the impact of the pandemic that. Yeah, that is still ongoing, unfortunately. So, I also understand that it can be a bit difficult to then put your minds towards the climate crisis, which is also still a hot topic. But it was pushed away. But yeah, I think from our focus because of the covid-19 crisis.
- 6 *Speaker 1:* During my research, I came across a lot of different reports. One of them was also the report of the World Meteorological Organization, who published The State of the Climate in Africa 2019 report showcasing increases in temperature, with each year showing a significant rise in being warmer compared to 2014. Scientists also agreed that they see the current climate stage in Zimbabwe as quite critical. And I would even go as far and describe it as a ticking time bomb.
- 7 *Speaker 1:* So, I looked during my research, particularly in the areas of Hwange National Park and Victoria Falls National Park and Zambezi National Park, and the impact of climate change on nature based tourism in Zimbabwe is alarming, considering also the crucial role that this form of tourism is actually playing in the country. So, temperatures are surpassing 45 degree Celsius. Low rainfall has been detected drought in the year of 2014 and 2016. I'm pretty sure you're aware of this and low water supply.
- 8 *Speaker 1:* So, I hope you are now in the bit of mindset that we will be focusing our questions and our time on the climate change crisis. And I will start reading out the questions for you now.
- 9 *Speaker 1:* Would you be able to explain to me the steps that you have to

follow before you can adjust certain aspects of your operation?

10 *Speaker 1:* I want to say thank you again for your participation, and I know it can be a lot of questions and overwhelming, but I'm looking forward to your answers and your insights. Thank you so much.

11 *Speaker 2:* OK, just starting off by agreeing to all of the research information that you require here. So, I'm aware of the participation and yeah, no problem with that.

..CC - A {
12 *Speaker 1:* Are you aware of the global trend of changes in climate?
Speaker 2: Yes I'm aware of the the global trend of changes in climate.

13 *Speaker 1:* Do you see it as a threat?

14 *Speaker 2:* Absolutely I see it as a very big threat and one in which that we will need to address.

15 *Speaker 1:* How important are climate and weather conditions for your day to day duties?

..NBT - D }
Speaker 2: So, regarding the next question, our day to day activities Hwange are very weather dependent because we're outdoors all the time. So obviously, if it's raining, we can't go on game drives and if it's really, really cold, yes, then the game drives are also hindered because people don't want to be out on an open vehicle because all activities are done in the open and an open track. And so, people are exposed to the weather a lot. So, we have ponchos and warmer clothing for the cold months. And then, of course, in the summer months, we have rooftops on our game drive vehicles to, you know, stop the sun, the sunburn of our clients, but also in case it starts to rain as well. So, the ponchos are there for rain and for cold, but all activities are based outside, whether we sitting by the pan watching game come through to a waterhole or we're driving around, we are outside. So, yeah, that's the the impact on our on our activities.

..V - S }
16 *Speaker 1:* Are you currently experiencing, impacts of climate change, or what challenges in the past have affected you?

..CC - Im_pr }
..CC - Im_pa }
Speaker 2: So not being a scientist, I wouldn't know whether I could put this down to being an impact of climate change. But certainly, in the year 2016, we had severe drought. 2020 we also had a really bad drought. And you can see that through the you know, the lack of water in the waterholes, the rainfall is below average and. Yeah, you can you can see by even the water table in the boreholes when you're pumping water from the boreholes, water hole boreholes were drying up. But then I believe there is also you have to consider a cycle in the seasons. So, um, you know, 2021 and our rainy season this year, which starts in November, we have had the most phenomenal rains over an extended period of time. So, we were above average rainfall this year, um, where at times, you know, there was the water just could not go anywhere. The water table was right up high. And, you know, all you can the bush is extremely thick. The trees were just blossoming. The grass was really, really tall and thick. So, you know, I don't know if that is a measure of climate change or whether it's just one of our our cycles of good years where we've had good rainfall. Um, we will waiting to see what it's going to be like this year. Because when I say this year, when the rains come in November, whether we're going to receive average or below average, again, rainfalls. But you can see now that there's definitely the water table is high, the dams are full, the waterholes are full. There's still lots of water hanging around in certain places even now, which is in May. And generally, by now, things have



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started to dry up a lot. So, I don't know if I can say that those are if we're experiencing change, but indefinitely in the past with extreme drought years. You know, as it does impact us, it does impact the wildlife

Speaker 1: And how do you react to these challenges?

Speaker 2: How do we react to the challenges of the environment and the weather? We are very, like I said, much outdoors. Our camp is tents and the thatch. So, in extreme heat, yeah when you get temperatures of up to 45 degrees, the thatch does keep you cooler as opposed to other lodges which are just tented all the way around. You know, a lot of the time we we ask our staff and temperatures, well, it's really high that we have an extended sort of lunch hour where they in the heat of the day, they are just seated and not doing any running around. And we ask the clients and guests to either sit by the pool or take a siesta in their rooms and just not be out in the sun. And in the extreme cold we have because Hwange can become very cold at night it has Kalahari sand. So, at night-time we have electric blankets in the rooms. So, you know, that also helps. Water, when there's not enough water, you know, our wildlife is dependent on the water that we pump in front of the pan in from the camps and in the national park. So, you can you know, we've turned a lot of the waterholes to solar and then our pump during the day when there's sun. But unfortunately, they don't pump at night and that diminishes the amount of water that can be pumped into a certain pan. And I think that is difficult, especially when when it's really, really dry and the waterholes cannot keep up with the amount of wildlife there is, especially the elephants. So, they don't. So, they will use a combination of solar during the day and then the the diesel pumps at nighttime just to make sure that the water is still there for the wildlife and. Any other impact, you know, there's there's nothing else we can do in terms of feeding, because wildlife has a way of of kicking back in after bad years, you know, and they have, you know, good years of birthing rates and stuff after that. So, there is always a natural die off and where animals will die from lack of food or water. And I think that's just a natural cycle, is we can't interfere too much other than doing what we are with the water at the moment. I don't know if that's OK.



18

Speaker 1: There's also an ongoing interaction of your staff and the nature surrounding them in Hwange, what challenges do they encounter?

Speaker 2: This is quite a long one. Yeah. So, there is a lot of interaction on our concession with the the rural people, the villages, because of their threat of encroachment onto our wildlife area, which is seen as a barrier between Hwange national park and the communities. So, the challenges there are that they are live hand-to-mouth. They don't get much sustenance or or support from government. So, they are subsistence farmers. And with that, they're always the the people who are not happy enough or not willing to just live off the land. They want to make more money from the land, of course. And some and some parts they are the the elements of of. Criminal activities. So, where you'll get people coming onto our property, chopping down trees for carving for the Trinka trade or for firewood, burning firewood in their in their homes because their trees have all been chopped down and they have not replanted trees, they don't have any education or support and replanting trees. And they don't know that if you cut a tree down, it's going to take years to grow another one. So, the education side of of protecting the environment is dismal. And so, it's just seen as a resource and as long as a tree is standing its firewood. So, let's just chop it down and there'll always be trees. You know, that's the mentality. There's always trees we will just just go and chop more down somewhere else. And so, if you look at their areas compared to wildlife areas, you know, they're quite barren. Fires they will burn, they will make fires and burn properties just so that they can flush out the wildlife or just bad



..SES - Int

elements and the communities, there's also the threat of of poaching bushmeat poaching is one thing that's just for the pot. But when it becomes commercial poaching, then it's a lot worse. The cyanide poisoning of elephants just to get the tusks out and then the onward repercussions of that because it kills everything else that the elephant that is eating the elephants are vultures. Lions, if they're eating any part of the stomach content, they will die. So, there's, you know, the the ripple effect of cyanide poaching for commercial trade is really bad. Bushmeat poaching is also really random because you can put up a snare or a trap to kill an antelope kudu or an Impala, and you'll end up killing a lion, you know, or an elephant that can get away but is then wounded and becomes dangerous to other animals or to other people. And that area, they charge, they get aggressive and so do buffalo. So, and often, they don't go back and check on their snares either. So, they'll kill randomly, and those animals will suffer a horrific death and not be even eaten after that. So, there's issues with them poaching or setting up snares to kill animals so that the lions come and eat the animals. They kill the lions then and then chop off their paws for the Trinka trade. They chop out their teeth for the Trinka trade. And that is also because there's no more way of them earning money. So, they're starting to see the wildlife as a resource. That doesn't necessarily mean that it has an end to it either. They just think as long as it's there, they will carry on killing it. So, we have a lot of issues in that way. We have to do a lot of negotiations with the chief and the communities and give back and help. But unfortunately, on that side, it just is a take all attitude and a continual taking attitude. So, they you know, whilst we might be educating children for them in the school and sponsoring that and building predator proof bomas to stop the wildlife eating or the predators eating their livestock, they they still will take as much as they can in terms of firewood, wildlife poaching. Driving their cattle on to our concession to drink at our waterholes because they don't look after their own waterholes and their own pumps. So, yeah, it's it is an ongoing issue.

..SES - Int

19

Speaker 1: How do you ensure that your team on the ground is not overwhelmed by the changes or challenges that they are facing?

Speaker 2: Mainly the the the most biggest challenge is that they are uneducated when it comes to the environment and what they can do to save the environment and to work with the environment to better their lives, as opposed to just using it as a resource that, you know, is just going

..CC- A,Ja

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Speaker 2: The challenges are described in the other voice note. And it's just trying to work with communities, trying to sponsor the communities and the villages and individual households. And, you know, through our [name of trust], we are trying to engage with them all the time and and support in terms of giving back. And that education is one big thing, because the elders, the elders are aware the mindset is as best. And even if you are educating kids at school, the elders still go by what they want to do. And there they have the last word, really. So, it's it's a whole shift and paradigm and a whole mindset to to move on on the educational side of the elders before anything is really going to be changed.

CU - S

..CC- A,Ja

..A - L&R

CU - S

..CC- P

Speaker 2: My team on the ground is very much bought into our mindset and thinking of the environment and how to preserve the environment. So, we we whenever we can educate them and talk to them about what's going on in the villages, what's going on in the national parks and how things are impacting us. So, we we update them all the time and we counsel them on how we can be different and how we can change and make a change. But I have no doubt that when they go back home to they come ashore, they their homes and the community, that they carry on doing what they always do. So, I don't know if

CU - S
..CC - P

if we are making headway in changing that paradigm, even with our own staff, other than that they they take it as a job and they don't feel impacted by climate change, they just think that's how life is, and we need to understand that the the mentality of of the general African person is that you live for today because you can die of so many things. You can die of hunger, disease, you can be hit by a bus. You can have a fight and be killed because life is not valued and it's a lot cheaper than what we value life as. So, there's a lot of ways that you can die, and they don't expect to live a long time. The average life span in Zimbabwe is, I think, 64 for a female and 48 for a male. So, you know, you you live for today and you don't think about the future in terms of longevity and living

..P - V&R_la

21 *Speaker 1:* Do you have other sources of income or activities to support you of businesses struggling?
Speaker 2: Tourism and our lodges are our only source of income and we have no other activities to support us if our business is struggling so yeah.

..PE - I
..PE - H

22 *Speaker 1:* How does the country's political situation influence your decision making processes, particularly looking at your general responsiveness to change and implementing new strategies for future sustainable development?
Speaker 2: The country's political situation, uh. Not only influences us, but it's seriously challenges us in not only our decision making process, but also the fundamental issues of growing a business or developing a business, because in tourism, so much has as seen as what the politics are in a country before people visit there. And Zimbabwe is a dictatorship. It has been for the last 40 years and it's not done itself any favors, certainly through the politicians to paint on our face and in a much pleasing manner. We are we don't look at that. We just our government is very much seem to do this once and they don't really care for what damage they're doing to industry internationalise or in the international arena.

..A - F
..P - R
..PE - H
..A - R

23 *Speaker 2:* Responding to change you have to you have to live on your feet. You have to keep being dynamic and changing you know, the way you work, the way you do business in Zimbabwe. And depending on our political changes in our government and the new things, the new laws, the new statutory instruments that they implement that hinders us in growing and taxes us heavily. So, yeah, you have to you have to be quick on your feet and to be dynamic in order to to adapt and to change. Yeah, that brings on implementing new strategies, so you have to be pretty good at it looking forward, but not always looking forward at the negative, trying to find the positives and trying to make that work for you as opposed to sitting in one place, you know, you know, you got to keep moving, whether it's sideways for a while, backwards for another bit further, another few steps, and then before you can go forward again

..PE - I

24 *Speaker 1:* Are there policies and regulations in place which support you to take action to adjust to the impacts of climate change?
Speaker 2: Are there policies and regulations are in place that support us to adjust to the impacts of climate change. Not that I know of. I don't believe they are. We have a, uh, an authority called Emma Environmental Management Authority. They are corrupt. They are easily bought. And you can tell that, by the way, the Chinese have come into Hwange and just taken over wildlife areas and for mining. So, they don't have they don't have any policies that they adhere to that are jailable offenses. If you want to tear trees up in your garden, whether it's in the suburban areas or in the rural areas, they you know, it's amazing what you can do with twenty dollars.

..A - C	}	25	<p><i>Speaker 1:</i> Do you have an existing network or collaborations with other safari operators surrounding you, for example, supporting each other or you giving active assistance when, yeah, there's there are challenges to deal with?</p>
..A - C	}		<p><i>Speaker 2:</i> We believe in collaboration with other safari operators. There's some that don't fit who we would then obviously not work with. But yes, we are open to collaboration. And we do know work with other networks and try and bring the idea that it's a bigger picture. You know, it's the good of the greater good that is important and not necessarily, you know, what I term as an all mind bunny, you know, somebody who just keeps everything to themselves and doesn't share anything that doesn't help the greater good of Hwange.</p>
..A - G	}	26	<p><i>Speaker 2:</i> You can support each other. You can be actively assisting each other. But if it doesn't suit the political agenda, then there's no matter what you say and what you do, you will be suppressed. And so generally, a lot of the the senses that you just get on and you just try and work your day and keep your business going to be a big mouth and shouting out on a platform to try and do any changes, you just going to get chopped down at the knees. So, you have to work in different ways, and you have to be a lot more submissive and know that at the end of the day nothing's really going to change because the way where there's money, there's opportunity and where there's opportunity, there's greed and a way to be corrupt.</p>
..A - C	}	27	<p><i>Speaker 1:</i> Would you say you have a willingness to ask for help from other safari operators to find solutions to challenges?</p> <p><i>Speaker 2:</i> To ask for help from others, for operators like at the moment we're doing a big cleaning up campaign in Hwange. So, we've also done a big removal of telephone lines and telephone wire. And there's there's some will and some just won't, some we'll just plod along and do their own thing and not willing to to help out or put anything back. But they will I think there will be that kind of mentality in any place. So, but there is there is there's a love for our country. There's a passion for our country amongst many tourism operators. And we work very, very closely with many of them. And I think as a country, as a whole, it's a we probably do more together than any other country does in terms of collaborating with other fellow Like-Minded tourism players.</p>
..EE - Im	}	28	<p><i>Speaker 1:</i> How does the economic situation of the country influence your business?</p> <p><i>Speaker 2:</i> Yeah, this one is quite a tough one. I actually haven't written anything down there. Yeah, there is a massive red tape in any shape and form, whether it's with our banks or whether it's with getting licenses to operate. Yeah, there there's you got to jump through all sorts of hoops. I can't even sit and write them all down, but as an industry, we are the most severely taxed. We have to pay for many, many licenses and stuff. So just to operate and it's really difficult to start a new business if that's the you know, it's six thousand dollars in licensing before you even start as a start-up. I think it's really difficult to to to begin a company right now if you don't have the backing and funding to do that. We have massive interest rates, high, high, high interest rates. So generally, the the you know, to borrow money from government or from the bank is prohibitive because you're looking at 18 to 20 percent interest on, you know, on the US dollar. So, it's it's just not you know, that's not easy to to set up business here. And that's why you will find many unemployed well the unemployment rate is like in the 90s. But actually, people are employed probably, you know, probably drops down to 60 percent unemployment because of the informal sector. And there's a big informal sector of people who trade, who work without paying taxes, without being licensed, without being fully authorized to do so because of the red tape that is involved when</p>

you when you are trying to start out. Yes, sir. I can't even go into that. There's just you have to decide, you know, what particular thing you want me to talk about, because there's just way too much policy to have to to get, you know,

29 *Speaker 1:* And the last question is looking into the future. Do you feel prepared and strong enough for what is to come with the change in climate?

Speaker 2: Certainly not prepared, not at all prepared. And if you are prepared, then you have the strength for what is going to happen in climate change. And so, without the preparedness, then then you don't have the strength. So, no, we're not feeling strong nor prepared for for what could come in terms of climate change.

30 *Speaker 2:* Carol, I think the thing that you have to understand is that the and the footprint of what what happens in Safari's certainly in the bush where in Little Bush camp is not impactful on the environment in any shape or form if you consider what's going on in the minds and also what is going on in other industry and the pollution throughout the industry. So, yeah, I mean, being off the grid, using solar is, you know, and disposing correctly of rubbish and refuse is something that we all follow. We're not putting any pollutants back into the ground and we're not running masses of heavy trucks and vehicles around polluting the environment either. So, um. Yes, I think our footprint is pretty minimal, but, yeah, we are where we are. I think that the the effects of climate change. Um. When you say it's it's quite dramatic and, yeah, it will have dramatic consequences, but will we see that dramatically in the next 10 years or the next five years? I don't know. Um. I've always said that there's there's definitely. You know, when we were growing up, there was much more rain and much more greenery and water around than there is now. Um, and I don't believe that when you look at what's happening with Victoria Falls that that can be any judgment of climate change, because the falls right now are have exceeded the amount of water on record for probably 65 years. So maybe that is also a sign of climate change, you know, drastic highs and drastic lows. So, I'm not in this. You are. You're the scientist. You're the one who's doing the research. But, um, I hope that everything I've said here has helped you in some way. Um, and let me know if you have any more questions.

Interview 7 – Victoria Falls National Park

	1	<i>Speaker 1:</i> Hi Carolin, this is Luke Brown in Victoria Falls, Zimbabwe, thank you for the opportunity to participate in your research, work and research project. And I do agree to the conditions and I do consent and agree to you using, using and analysing the data that I provide. And then I'm aware that my participation will be treated as confidential and that I can remain anonymous.
..CC - A	2	<i>Speaker 1:</i> So, let's move on to the first question, which I answer to question one. I'm aware of the global trend of changes in climate. Yes, I am.
..CC - P	3	<i>Speaker 1:</i> And number two, do I see it as a threat? Yes, I do.
..NBT - D	4	<i>Speaker 1:</i> And number three, important, our climate and weather conditions for day to day duties in your operating area and for this one. Look, I think it's obviously indirectly it's very important because it effects the tourism area that we are operating in. And so, you know, if we've got adverse weather conditions, then we could suffer from poor public relations around that. A lot of our tourists are exposed to wild animals seeing wild animals and those wild animals are struggling due to a drought. And then that information gets out and then we'll see a natural drop in tourism. Um, and, you know, if if we are experiencing very hot, hot weather, that could also adversely affect us. So, it is very important and does does definitely affect answer the next question in the next voice note.
..V - S		
..NBT - D		
..CC - P	5	<i>Speaker 1:</i> Number four am I currently experiencing impacts of climate change or what challenges in the past have affected you? Um, well, I tell you, what has affected does affect us is when big media outlets come in and paint a picture of climate change in our destination, which is not always necessarily based on fact, and it affects us from a public relations point of view in that people on the other side of the world think, for example, that Victoria Falls is drying up, um, when in actual fact it is part of a natural cycle throughout the year that we have high points and low points in terms of the volume of water coming over the falls. And if you do have a look at records over the last 40 years, we are not. The flow of the falls has not necessarily been impacted to the extent that is being spoken about on these news publications. So, yeah, the negative effects do come as a result of sometimes incorrect or false reporting. And that, again, is not to say that we don't believe climate change is happening. And yes, we have been through bad droughts and there have been times where we've been adversely affected purely by climate because animals have died as a result of not being able to achieve, not being able to to browse on sufficient resources, grazing etc., or find enough water ehm in
..CC - P		
IN - M		
..CC - Im_pa		
..A - C	6	<i>Speaker 1:</i> How do we react to these challenges? First of all, if information has been put out incorrectly, we have to, as an industry, get together and put out our own report and justifying exactly what is happening on the ground, um, and make sure that the world tries to get the correct information. However, that is difficult when you're dealing with big global media houses who have a lot bigger reach than we do. Um, so that was questioned five months and I will answer question six in my next voice note.
..SES - Int	7	<i>Speaker 1:</i> My answers to questions six, um, the main challenges that that face our our staff and ourselves, actually, um, living in a town which is which has wildlife moving in and out of it. And if wildlife becomes stressed for whatever reason, and in this case, if it's due to climate change, that they are

..SES - Int



..P - R



..A - R



..A - C

..A - C



..PE - H



..A - F



..PE - I



under pressure to find food under pressure to find water, that those animals are then stressed and then, um, staff who live on the fringes of wild areas are put under challenges as well and the other challenges as direct challenges, of course, is, you know, we have electricity challenges here. Um, however, what we do to deal with that is solar is becoming that much more popular. And the other thing is, you know, facing a challenge of of water. However, we do live next to a river and there's quite a strong water table here. So, but there is definitely, um, intermittent water supply in town. And so, people are having to find ways to mitigate against that and have storage tanks and so on. Um, and I go back to an earlier message, you know, sort of sometimes indirectly, because this town is so reliant on tourism that if there is negative stories, you know, about the climate or wildlife dying or, you know, the falls drying up and so on, staff are directly affected because they draw their income from tourism. How do we face those challenges? Well, fortunately, we are quite a small, resilient community and everybody adapts pretty quickly and helps each other out. Um. And this town does help its own. You know, it's it's we might compete on a business front, but we all work together.

8

Speaker 1: Um, number eight do you have sources of income or activities to support your business if it's struggling. I think I've kind of answered this in the previous one. You know, at the end of the day, it's been it's been a heck of a difficult year with covid, and everybody's had to adapt and find ways to support each other. And, you know, people have done that. People have really cut down on normal expenses and tried to support each other. So, coming together has been very important. Adapting, pivoting, um, opening up new services. You've seen a lot of people do that. And and in some cases, unfortunately, some people have had to leave and go abroad to to make their money. In other cases, people have had to go back and live off the land and so on. So, yeah, it's, um, it's a difficult one. But for the most part, businesses are finding a way to survive.

9

Speaker 1: Next voice note uh number nine with regards to the political situation and how that influences decision making processes. Obviously that does, um, influence us. And and, you know, in terms of our responsiveness to change, we we look to government to provide us with direction and well, a point in case in covid crisis. Yeah, our town has been, um, all the adult population have been vaccinated. And I think this was a great response from government and gave impetus to our sector. And we need them to react in a similar way on on other things. We have a struggling economy in the country and through that economy and, you know, it it does force us to be careful with how we utilise money and how money is brought in and out of the country and does force us to to look at new strategies as suggested by point B, um, you adapt. Fortunately, Zimbabwe is is a country that is flexible, and we are able to adapt. And we do have a strong tourism industry and we do have clear lines that we can communicate to authorities and and trying to make things work wherever possible.

10

Speaker 1: Number ten are their policies and regulations in place which support us to take action to adjust to the impacts of climate change? Um, I think we are very new to this as a country. But yes, there are certain things like if you bring in solar and solar equipment that you've imported, there's no duty on that. And that is a very good policy that's been implemented. The cost of solar equipment in the country is coming down as well. Beyond that, I can't comment too much further.

..EE - Im	}	11	<p><i>Speaker 1:</i> In number eleven, how does the economic situation of the country influence your business? I think I've alluded in some part to this in my answers in question nine. Um, but yes, the economic situation, of course, of course, affects us. And at the moment we have sort of a dual currency system. And it's tricky, you know, because in tourism we had we were lucky in that we receive US dollars for many payments. But the government does is mandated through the system that some of that money is converted into the Zimbabwe dollar currency. And that currency is quite weak, and you can't do too much with it especially paying external payments is very tricky, so that does affect us</p>
..A - C	}	12	<p><i>Speaker 1:</i> In terms of number twelve do you have existing networks and collaborations with other operators. Yes, we do all the time through our business in particular as a tour operator, we need to deal with suppliers across the spectrum. We deal with activities providers. We deal with transfer providers both on the ground and the air. We deal with them lodges and accommodation, hotels and resorts and so on. And we have to build a very strong rapport with them. Otherwise, we won't be able to work together. So, we support each other. They provide us with better terms and conditions and rates the more business we give them. And they provide us with assistance. And in the same way we do, we do that back to them.</p>
..A - C	}	13	<p><i>Speaker 1:</i> Number thirteen do you have a willingness to ask for help from other operators? Yes, we do. I think we we can be quite open. And whether we directly competing with operators or they are suppliers of ours, we are able to negotiate with them, talk to them and and work together to find solutions. And that's not to say it's always easy. People obviously can be stubborn at times and it is sometimes tricky. But I think the Covid situation has brought us all much closer together and helped us to find solutions to our challenges and problems together and much easier.</p>
..A - R	}	14	<p><i>Speaker 1:</i> Number fourteen would you be able to explain the steps to follow before you can adjust certain aspects of your operation. Ehm for us, being a small operation is quite easy for us. Um, you know, we were able to adjust. We are where we're small, which makes us flexible and adaptable. We're not big and cumbersome. We don't have a large workforce. And so, it's quite easy for us to pivot and and adapt. And over the last year, we've you know, we've got more into media, which supports our tourism business. And we also have been trying to help out in the in the conservation side as well. And it's literally doesn't take much of being an owner of the business and sort of co-founded it with my wife. It's quite easy for us to make a change.</p>
.P - V&R_unr	}	15	<p><i>Speaker 1:</i> Number fifteen, looking into the future, do you feel prepared and strong enough for what is coming with the changing climate? Um, I'm not sure. You know, I don't know if we know enough. I think we need more information. I think yes, of course, we see the international news. But in the country, I think we need to understand it better as a population. We're dealing with so many other challenges that it is difficult to to focus on the climate. Um, and possibly we don't have a full understanding of what's coming to us as a country. So, I think, um, yeah, we we need to be more prepared. I think we we are aware that we need to change our habits in some ways, but maybe not completely, fully understanding of what needs to be done.</p>
..A - L&R	}	16	<p><i>Speaker 1:</i> I hope these messages help. I hope these questions or my answers rather, to these questions have helped. And please let me know if you need clarification on anything. And thanks for the opportunity, take care.</p>

Interview 8 – Hwange National Park

- 1 *Speaker 1:* Welcome and hello from the Netherlands.
- 2 *Speaker 1:* Yeah, thank you so much for participating in the modified version of the interview process for the research project and due to time constraints, you have decided to accept participation via WhatsApp voice note. So, with this message, I will talk you through the tailored interview process before I will start reading the questions to you. I will provide you with a short insight and ask for your consent. Please start your answer with giving consent and agreeing to the process, because this will allow me to analyse and utilise to gathered data.
- 3 *Speaker 1:* So please give your agreement to the following conditions. You have been informed sufficiently about the research project, the purpose and accepted to participate voluntarily. You are aware that your participation will be treated confidential, and you remain anonym. You can withdraw at any time and choose to not answer certain questions. You agree that your information is audio recorded and understand that the information will be used for academic purposes.
- 4 *Speaker 1:* Should you feel during your answers that you have already sufficiently answered a few questions ahead? You may skip and carry on with the next questions.
- 5 *Speaker 1:* So, let us move away, but from the perspective of the ongoing covid-19 pandemic. I'm fully aware that everyone in the business right now is still doing crisis management due to the impact of the pandemic that. Yeah, that is still ongoing, unfortunately. So, I also understand that it can be a bit difficult to then put your minds towards the climate crisis, which is also still a hot topic. But it was pushed away. But yeah, I think from our focus because of the covid-19 crisis.
- 6 *Speaker 1:* During my research, I came across a lot of different reports. One of them was also the report of the World Meteorological Organization, who published The State of the Climate in Africa 2019 report showcasing increases in temperature, with each year showing a significant rise in being warmer compared to 2014. Scientists also agreed that they see the current climate stage in Zimbabwe as quite critical. And I would even go as far and describe it as a ticking time bomb.
- 7 *Speaker 1:* So, I looked during my research, particularly in the areas of Hwange National Park and Victoria Falls National Park and Zambezi National Park, and the impact of climate change on nature based tourism in Zimbabwe is alarming, considering also the crucial role that this form of tourism is actually playing in the country. So, temperatures are surpassing 45 degree Celsius. Low rainfall has been detected drought in the year of 2014 and 2016. I'm pretty sure you're aware of this and low water supply.
- 8 *Speaker 1:* So, I hope you are now in the bit of mindset that we will be focusing our questions and our time on the climate change crisis. And I will start reading out the questions for you now.
- 9 *Speaker 1:* Would you be able to explain to me the steps that you have to follow before you can adjust certain aspects of your operation?

10 *Speaker 1:* I want to say thank you again for your participation, and I know it can be a lot of questions and overwhelming, but I'm looking forward to your answers and your insights. Thank you so much.

11 *Speaker 2:* Hi, Carol, thank you so much for giving me this opportunity, you know, to be part and part of this research off of yours. And just to start off. I would also like to say I agree to the process to allow you to, you know, to analyse and utilize the data that I'm going to provide. And as you have said earlier before, it's going to be anonymous and you have to actually giving me more information on, you know, about the research project. And I have accepted voluntarily to to do this. So, yes, go ahead and use this information for your project and. Yeah, and I'm also willing to help you in any way possible to make this a success. So be it now, be it next time. If you have any other questions that are also related to tourism and impacts on tourism, and it will also help you and support it's an ethical way of doing that, like what we're doing just now. So, yeah, let me start off with the first question.

..CC - A

12 *Speaker 1:* Are you aware of the global trend of changes in climate?

Speaker 2: I am aware of the global trend of changes in climate. I have seen, you know, some changes in, you know, weather, temperatures and so forth, these things that have been caused by, you know, climate change itself. Of course, I know a bit about, you know, the changes in climate. I might not be, you know fully informed as to the what the current states are, but I do know that there are some changes and some changes that I have also noticed, you know, in my existence here, here on Earth. So, what I've noticed is there's a lot of things that have changed and are still changing and that a lot of things that we have implemented to make sure we counter those changes, and we try to, you know, make this earth better and also a better place for those who are going to come after us because we inherited this earth and we're going to, you know, give it to those who are going to come after us. So, it has to be, you know, in good condition for those who are only going to come back to.

..A - M

13 *Speaker 1:* Do you see it as a threat?

Speaker 2: Question number two do you see it as a threat? Yeah, of course, I see it as a threat if we don't do anything if we sit back and relax and just watch, it is going to be it is actually going to be a big threat. But, you know, if we do some researches is if we do work together and if we all come to a consensus of, you know, trying to counter these climate changes and those effects that harmful effects that come along with it, yes, the threat will be minimal. And not to say it will disappear, but it will be minimal threat. So, yeah, I do see it as a threat.

..CC - P

14 *Speaker 1:* How important are climate and weather conditions for your day to day duties?

Speaker 2: How important are climate and weather conditions for your day to day duties in the Hwange national park. Yeah, to be honest, uh, the weather conditions in this area are important. First of all, you know, we are a tourist company. We offer accommodation. We offer, you know, safari drives and so forth. So, and we communicate with guests before they leave their areas, you know, before they leave their homes or, you know, their comfort zones. They want to know, you know, what the temperature is going to be like. They also want to have, you know, information about, you know, the area, you know, the fauna and flora that is in the area. So, yes, it does, uh, it is important for our duties because when you have to communicate with guests, you have to give them, you know, full information. And some do their research before they

..NBT - D

..NBT - D

come here. And, you know, they know that Hwange is a very hot place and stuff like that. So, you might find that in winter, some may take it for granted and, you know, bring their, you know, bring their jerseys and stuff like that. But yet Hwange when it's winter, it's very, very cold. And, you know, the temperatures now are going way beyond than we used to record. So, it does affect, you know, the information that they're going to give to guests. And it's our duties like on the ground. You know, the time that you have to go, the guests have to go and the drive will be shortened because let's say if, you know, the guests are to leave at 6 o'clock in the morning for their morning game drive, and when they come back in around, they say 8:30, 9 because it's now too hot and stuff like that, you know, the duration of the game and life is shortened because of those, you know, high temperatures. So that's one thing to look at. And also, it affects the animals as well. Like, you know, when it gets too hot, the animals also the animals, they tend to go into the shade. That's why we only have, like morning game drives and evening game drives, because when when we have cooler temperatures, the animals actually also prefer the cooler temperatures. That's when they make their moves and stuff like that. So that also affects the animals that we have around here.

15 *Speaker 1:* Are you currently experiencing, impacts of climate change, or what challenges in the past have affected you?

..NBT - D

Speaker 2: On to the fourth one. Are you currently experiencing impacts of climate change or what challenges in the past have affected you? Are we actually experiencing like I said on the third question, you know, the times of, you know, our activities were so the safari company would, first of all, the safari companies. So, the times for the scheduling is a bit difficult now. And the times for those activities is now shortened because of the, you know, the high temperatures. Uh, and for the guests, if it's in winter, for the guests to leave for their morning can drive, you know, 5:30, 6 o'clock it's still very, very cold for them to leave in the morning and drive. So, you end up now we end up having, you know, some guests or I offer you actually offer to go and they can drive at a later time of the day, you know, like maybe 07:30 or 8, which, you know, is difficult to for the guide and for them also to find the animals. So that's one way to look at it. Uh, besides tourism itself and the business that we do here in Hwange, we also have to remember we also have some communities around our concession. These communities are also affected by the changes in rainfall patterns. Because, you know, they they have the crops that they do plant and expect to receive rainfall for like, uh, the past season that we had, you know, it was very strange because we received very high rainfall, which is not common and it's unusual for Hwange to receive that much of rain, so it does affect your crops was here we have like those what we call the Kalahari sands in this area. So, it's a desert climate and it affects the plants that we have around. So that's one way to look at it as well besides the touring.

16 *Speaker 1:* And how do you react to these challenges?

..A - R

Speaker 2: On to the fifth one, how do you react to these challenges? Oh, what I can say is the way we have reacted in a positive way, I should say, like in terms of energy, we now using, you know, the renewable energy. We try to use the sun, which is readily available and at no cost. Yeah, of course, you might find the cost when, you know, trying to put up solar panels or the batteries and stuff like that. But at least it's a it's a renewable energy that we now have. We also have tried to reduce, our you know, the you know, the wildfires and stuff like that because it also contributes to the climate change and also affects the ozone layer. Like if you're burning, if those areas catch up, catch fire and, you know, there's going to be smoke, and the smoke is going to affect also the ozone layer. So that's what some of the things that we've tried to do, like, you know. Try to do some of the areas to do what we call back

..A - R

burning, back burning is you when you know there's a road fire, then you just go ahead of the fire. Then you burn and you burn the fire that goes in the direction where the other fire is coming, at least that the other area is protected. And, you know, it's just a small section that is affected because believe you me, we do have flood fires each and every year. So, it's a difficult situation that we have around here. And that's one of the ways that we we try to, you know, to counter and to react to these challenges. Coming on to waste management we have also implemented, you know, and of the waste management waste management, like separating the separation of waste and make sure the right waste goes into the right area and so forth. There's quite a lot of things that we've done to be able to counter such things. And some of the the compost that actually we have like food compost, you know, we actually have some feel that actually comes from that fertilizer. So, you might feel that that actually comes from the from the compost, from the food compost, like if you bring in some worms into those food compost, those worms are going to eat up that compost and it becomes liquid and it becomes liquid. That liquid is good for you or for you or communal areas around the concession centre.

17

Speaker 1: There's also an ongoing interaction of your staff and the nature surrounding them in Hwange, what challenges do they encounter?

Speaker 2: There's an ongoing interaction of your staff and the nature surrounding them. What challenges do you encounter? Well, the the biggest challenge is, you know, actually we having people believe what you saying, like, uh, some of the people, they don't believe in climate change. They think, you know, what's happening was meant to happen. And, you know, nothing is going to change what's or what's happening right now. And, you know, so it's very difficult to be able to convince those people the staff. And you just have to be on your toes to try and monitor, you know, like no litter is thrown away at any places, you know, cause it will affect the animals. Like if you throw your plastics around animals, come and pick the plastic up. They eat it. It's going to affect them. We've seen some of the areas where, you know, animals have suffocated because, you know, they've put their head in a tin and it's devastating to nature, but also affects, you know, such things. So, yeah, I would say the issue is having people to buy this climate change issue and having them to see, you know, the negative effects of it. So, it takes you know time and I think money to be able to do that.

..CC - P

..A - M

18

Speaker 1: How do you ensure that your team on the ground is not overwhelmed by the changes or challenges that they are facing? (Interview 6_Hwange, Pos. 19)

Speaker 2: Question number seven, how do you ensure that your team on the ground is not overwhelmed by the challenges or the changes or challenges faced? Well, what we have tried to do it here at [name of safari operator] is we introduce these changes gradually. We don't bring them all at once. We introduce them gradually. And what when you introduce them gradually, you will try to have, you know, different people who are responsible for each and every task that we have and that we're looking to counter. So that's one way that we have used in the way that we are also continuing to use. So, if you have one person who's responsible for such a thing, no. If anything is if anything goes worse according to that that person, you know, he's the first one to step in and be like guys, you know, we need to do this ABCDE. And yeah, it just helped because, you know, people it raises awareness, to be honest, because if you put someone in charge, then they know it's their responsibility. So, they do try to help. So, it hasn't, you know, helped in a very big way. But we are going in the right direction.

19

Speaker 1: Do you have other sources of income or activities to support you of businesses struggling?

..P - V&R,Ja



Speaker 2: Eight question, do you have other sources of income or activities that support you if business is struggling? Oh, not really. Not really. Of course, some people do have, you know, spon... sponsors, donors or investors that, you know, would step in and try to help. But it's not always the case. It's difficult if you don't have business, it's really difficult for you to be able to counter. So, yeah, that's all I can say on that one. It's not always the issue.

20

Speaker 1: How does the country's political situation influence your decision making processes, particularly looking at your general responsiveness to change and implementing new strategies for future sustainable development?

..PE - I



Speaker 2: To a certain extent, uh, sorry sorry, just to answer your question number nine, how does the country's political situation influenced the decision making process? a your general responsiveness to change? Well, with this with this question, yes, it does. It does have an influence. And the way I would say it is, you know, whatever we do, it evolves around money.

..PE - H



Whatever we do has, you know, things that will make the thing viable and a success. So, we have had some instances whereby, you know, at times there's no fuel or there's no money laying around. So those things make whatever your decision is or whatever you your project is that you have going on a bit of a challenge because you don't have the all right resources because of, you know, the political influence. And some people would also want to, you know, to to be in charge of, you know, the funding so that at least, you know, the corruption and stuff like that happens. So, yeah, in the political sphere, it does have an influence, as in the sense of corruption agency. Implementing new strategies mhm. Well, yes. I would say, but this one, I'm not quite sure, but I according to you know what I think I think it does have, you know, an influence to the implementing the new strategies. Like I said before, everything revolves around money. So, whatever you need to do, it has to do with money. So, if you don't have, you know, the the funds to be able to to cater for the needs that you need to put that you have in place, then it makes it a challenge. So, yeah, he does have an effect on us.

..EE - Im



21

Speaker 1: Are there policies and regulations in place which support you to take action to adjust to the impacts of climate change?

..PE - I



Speaker 2: Are there policies and regulations in place which support you to take action to adjust to the impacts of climate change. Of course, there are policies and regulations, but speaking on behalf of, you know, the company that I work for are you know, they are actually doing this by themselves and, you know, also having some, you know, funds from well-wishers, you know, trying to help and counter those effects of climate change. So, yes, there are some policies and regulations that are in place. And on a lower level, like a four four four four four four four staff here. We have put some, you know, some rules and regulations as well as to like simple things like, you know, no litter everywhere. We just watch the, uh, carbon emissions and stuff like that. So, try to reduce on all those fronts.

22

Speaker 1: How does the economic situation of the country influence your business?

..EE - Im



Speaker 2: The economic, eh how does the economic situation of the country influence your business? The economic situation of the country does influence how you know, the business in the sense that we when the guests want to come here. Firstly, what they look at is how safe is the country? What kind of money do you know, the currency that they use, the exchange rates and stuff like that? So, we are in tourism and, you know, the foreign exchange rates also affect have an effect on, you know, people traveling and people making decisions to come to Zimbabwe or to Hwange national park, eh Hwange national park. So, of course, does have an influence and yeah it does.

23

Speaker 1: Do you have an existing network or collaborations with other

..A - C

safari operators surrounding you, for example, supporting each other or you giving active assistance when, yeah, there's there are challenges to deal with?
Speaker 2: Number twelve, do you have existing networks, collaborations with other operators support eh supporting each other? Of course, we do have these kind of systems in place. And, uh, I would say, well, some of the systems are, you know, to fight things like, you know, poaching this climate changes as well, the outbreak of fires, like speaking on the outbreak of fires. We have supported each other in the sense that, you know, when like let's say for the [name of operator] concession, you know where [name of operator] works, if there's an outbreak or fire, some of our guys from here actually go to help put out the fire because, you know, if it if they get affected, we also get affected as well. So, we try to help each other and also support each other. If we do have, like, no problems that we have no you know on our concessions, we also consult each other and, you know, get help from from the other camps.

24 *Speaker 1:* Would you say you have a willingness to ask for help from other safari operators to find solutions to challenges?

..A - C

Speaker 2: Would you say you have a willingness to ask for help from other operators to find solutions to challenges? Also, yes, I have the willingness to ask for help because, you know, no one, two hands are better than one. That's all I can say, two hands are better than one, so if you can help each other, if you can come together more brains, which means more solutions and better outcomes. So, yes. I do have that willingness to ask for help from other operators and also to find solutions to challenges.

25 *Speaker 2:* Be of active assistance. Well, this depends on, you know, what kind of help or assistance you are seeking because some things like outbreak of fires, they really do need, you know, active assistance, just have to react then and there, you know, go and help. But some others need, you know, consultation's from, you know, the head offices and stuff like that. So, yes, there is active assistance, but it also it depends it depends on what kind of challenges the other operators are facing. But we do help each other across the board.

..A - F

26 *Speaker 1:* Would you be able to explain to me the steps that you have to follow before you can adjust certain aspects of your operation. Oh, well, it's yeah, we we don't own the land that we operate on. This land belongs to the national parks. All the animals belong to the national parks. So, we are just custodians, and you know, we do whatever we have to do. If it's in relation to the land, in relation to the animals, we have to consult the national parks. So that's one of the things that I can say, like, uh, let's say we want to to have another another another tent built, we have to consult the national parks and they have to come and see where we we want to build another tent like the site of the new tent. And also, they'll come in and also give us some advice and, you know, also inform us on some of the laws, rules and regulations of the parks if we are. Stepping out of the you know, the norms of course, we we just have to look at what that problem is what we are trying to solve is and seek the relevant information from the relevant authorities. Then you also have situations like, you know, environmental environmental awareness or environmental changes that might want to happen like that of no building camps. You also have to to inform our ecologists about it. So, he has to know as well, and he also has to be to come and inspect and know what's going to happen so, yeah

..A - G

27 *Speaker 1:* And the last question is looking into the future. Do you feel prepared and strong enough for what is to come with the change in climate?
Speaker 2: Looking into the future, do you feel prepared and strong enough

for this to come with a change in climate? Well, uh. I would like to say yes. Because I'm just someone who is very positive in whatever I do. So, yes, I feel prepared and strong enough for what is to come. You know, a lot of people, a lot of organizations are also trying to, you know, raise awareness about climate change and also, you know, try to support people, be it financially to change those some of the things that we are accustomed to or have been used to and also adapt to the new systems that will help us going forward. So that's one thing that makes me positive.

28

Speaker 2: So, yeah. Thank you so much, Carol. I hope I answered your questions and gave you maybe the information that you really wanted. If not, please. You know, you can you are free to use the information as well. And I mean, I'm not perfect for sure. I know that. And yeah, just give me your feedback. You know, if you find what I just said, if it's valid and just be honest, please, because this will also help me. You know, having answered these questions that you gave me also, you know, opened up my brain and also, you know, it gave me time to think actually think more about, you know, this climate change issue. So. Only positive outcomes, only positive answers would help. So, I'm really looking forward to hearing from you about, you know, how I've answered if it was if it was a fair answering answer, you know, discussion between me and you or maybe I didn't really answer you well, yeah, I still stand corrected. So, thank you so much for giving me this opportunity. Hey, I'm sorry to have answered you to have taken a long time to answer you to get back to you. It's just that, you know, we have a lot of things going on. You know post covid. And, you know, everyone is starting to get back to their feet. We have guests coming in and some of the guests, you know, you you can't you don't have bookings and, you know, people then decide to travel. So, you have to try and squeeze them in. And, you know, it takes time for you to be able to to to get back on to things and some of us. Yeah, we have like what we call the skeleton staff. We have a very limited number of staff. So, we. I now sort of like Jack of all trades away, but you have to be the manager and at times you have to be the driver, at times you have to be, you know, the waiter and stuff like that so as to, you know, be financially sound. So, thank you so much. I hope to hear from you soon. Ciao

Interview 9 – Zambezi National Park

1 *Speaker 1:* Right. OK, so I obviously know I mean, you mentioned it as well it is right now, a busy time for everyone, actually, in the falls and in the surrounding area, because you mostly still dealing with the impacts of the covid-19 pandemic. And I know that it's then hard to shift the perspective from actually crisis management towards what I'm trying to research in terms of climate change. But obviously did a bit of research before I started the study and I looked at a few numbers and the state of the climate in Zimbabwe, but also generally in the southern part of Africa was, I think, quite critical. Like, at least from the numbers that I saw from the World Meteorological Organization, and I know that it's a bit of a yeah struggle, I would say, because we can't really say that the fake news of that the falls were dry, for example. But then I think last year it was 2019 or was it no 2020 sorry. Where the falls were actually at the at the highest water level.

2 *Speaker 2:* Yeah...

3 *Speaker 1:* So, I obviously want to just move your perspective now bit into now the thinking of climate change and not thinking too much about the pandemic.

4 *Speaker 2:* Sure OK.

5 *Speaker 1:* So, my first question would be how important are climate and weather conditions for your day to day duties?

..V - S

6 *Speaker 2:* Well, they're very predictable, and that's what surprises us when these people come out to tell us that we're experiencing big changes because we go well. But really, we don't really recognize it. We understand why these guys come up with the figures because certain things have happened that they haven't taken into consideration. But I've just helped to set up an organization called destination Livingston to make sure, amongst many other things, that people realize when is the time to come to Victoria Falls that people always say to us, when is the best time to come to Victoria Falls? Well, actually, any time is the best time because, but you just got to come knowing what is going to be happening. So, for example, I now have this phrase you could feel it, see it and do it. And you feel Victoria Falls when it's at its peak, and that is March, April, May, Juneish, when the river is always very, very full. You can't see very much of the falls at times because there's so much spread, goes up two thousand feet and comes down on the head like a torrential rainstorm in the middle of the Indian monsoon. OK, but if you want to see the Victoria Falls, then you come, which are the best time would be say July, August, September, because that is where the water is a little lower right across the falls still, but you can see it now, but obviously that would also be January, February, March, January, February time, and that's when you could see it, great photography. You see what's going on. But then you have to do it. Now, what you do at Victoria falls low water when everybody says it's down with a drop, which it isn't is you swim you swim by the edge of Victoria Falls in the devil's pool. You swim at the bottom in the pools down there, which you you can't do either of those activities at higher water because you go over the rafting is at best October, November, December. And you certainly can't do it at high water levels because you will die, OK and of course that is part of our peak season. So, people come and see, whoa, there's no water going up the falls or the Zambian side. Well, again, there's a reason for that. And it's always best to

understand. Now, I've got a book in front of me which was written by a chap called Desmond Clark 1952.

7 *Speaker 1:* Yeah.

8 *Speaker 2:* And in it, it tells us that the lowest recorded water going over the falls, the water going over was 4.6 billion gallons of water per minute. Just double check that now. OK. Now, what happened was in 1936, they put in a small power station and it produced eight megawatts of power. OK, so even with eight megawatts of power. So, it was 6.5 million gallons, 6.5 million gallons of water per minute going over the water at the lowest water level, and they were drawing off at that time 8 megawatts of power, well after 1952. In 1968, they increased the the power to a 108, 108 megawatts. And I checked I checked last week. I said, how much water do you draw? It equates to 1.4 billion gallons per minute. Now, at low water, if we have 6.5 million and you take off one, nearly one and a half million, that's 20 percent of the water and they take it off the Zambian side because that's where the power station draw office is. So that would surely negatively impact the amount of water going over the falls. And it happens every year. And that's why everybody thinks, oh, this is terrible change. It's all drying up. Well, no, we take water off. That makes it look like that. But actually, the water is the same as it has been for a very long time. It's just we use we've been using more of it more recently to produce power. Now, what happened at that time, 1968, during the 1970s was the Rhodesian bush war. So, there was very little tourism then because there's a war going on. Yeah, OK. And it was very, very recently in our history that that tourism starts to come. People start to ask these questions. You go, there's your reason. That is why perhaps it's not producing the amount of water that it used to. But we have these cycles. And if you go back and look at history, the high-water levels when you have a big flood is normal is we found it was 1948, 1958, 1968, 1978, 1980, 1988 at 2009. And then we had a pretty good word just recently into the 2019. So that up to now, if you go back and read the books, it'll tell you that the King of [unrecognisable] could not come to see the new settlers of the Livingston area because of a huge flood at the year was 1898. Now, you tell me, is there a pattern that there is a pattern at the low water levels when I was rafting was lighted racing over 1993 and 2003, I know that for a fact. And I bet if you go back and have a look at the records, you'll find around two to three or four period each decade. You have a very low water. So, these things are reasonably predictable. Put that into the equation. Have we got a massive climate change? Well, not really. Not not a sudden. They really try to make it out to be.

9 *Speaker 1:* But would you, would do you then say that you you don't you do see climate change as a threat now for your business or actually not?

10 *Speaker 2:* No hardly, hardly really. But there are if you look at the decade, you can see the changes during the decade. A decade to decade. You see the pattern is sort of there. But, you know, and as you know, you would have looked into this anyway with Alex Crawford, all the rest of them. There are seven major rivers that feed that they all come out of the equatorial rainforest to suggest that they're going to dry up is just impossible. Seven big rivers are going to fail us...

11 *Speaker 1:* But but would you would you say on the global on a global scale that I mean, I can I don't have to ask if you're aware of the global trend of

..SES - Int

..V - S

..CC - P

..CC - P

changes in climate.

..CC - A
..CC - P
..CC - A

12

Speaker 2: Now, of course, now, of course, there is change. All I'm trying to suggest is the climate is changing all the time. We're not trying to say there's no global climate change, of course there is. Yeah, but I don't think it with us and not quite as dramatic as some try to make it out to be. So, I think things are things are definitely changing. Is human is the human being causing them? A hundred...Yes, I do believe they are. For example, if you go upstream now into get away from the river, you'll find that the area around villages is no longer 10 kilometres. In the old days, if you approach that area, approach the village about 10 kilometres before it, you would notice trees cut down and things like that, because that is as far as somebody could walk in a day, they're back. But today, of course, the village has got bigger for one more people. And secondly, they're getting the vehicle to travel much further. So, we are creating a problem of that. There is no doubt. And of course, that means that the groundwater will be affected, the grazing for wild animals is being affected. That, in turn, will affect various other things, certain certain small streams or rivers are no longer flowing throughout the year, like the [unrecognisable] river, because people are taking too much out of it further upstream. So definitely there are changes. Yeah. That we are affecting it. But my point really is they've tried to use the Victoria Falls as the poster child for climate change. That is not right. They must find other things which we totally support. Yes, there are things happening. Yeah.

..CC - A
..CC - P

13

Speaker 1: Are there any challenges in the past that have maybe affected you, like challenged the business? I mean, yes, we talked about rising temperatures, the rainfall patterns and the drought. It now sounds to me that they actually have not really affected your business.

..NBT - D

14

Speaker 2: They have affected, for example, because we are now drawing water not only here, but elsewhere. We over the past few years, because of the low the low flow of the river we be getting more. Would you call it electricity blackouts? You know load shedding. And that definitely affects our business, because when the river gets very low, it's also our hottest time of the year, October, November. And people these days, they want to travel with air conditioning. And we've got to we have 8 or 10 hours no power. People watch it. People people travelling from Europe and America, they what they want to have. Sorry just hold on... [phone is ringing private conversation]

15

Speaker 2: Yes, so that obviously affects our business. [phone ringing private conversation] OK, just give me two seconds.

..NBT - D

16

Speaker 2: And so that obviously affects business, it affects not only the guests comfort stay at the lodge, it affects all the fridges, it affects everything else. And you could lose a lot of your your your your produce if you have sold yourself up in it. Even if we have big generators, it cannot it at that heat it cannot handle doing the lodge and everybody having that conditioning unit to the middle of the afternoon. Now so it causes us huge, huge stress and things like that. So, yeah, it goes right down to the smallest levels, but it affects the whole business of the whole country because everything all the water levels that are low in Kafue, Kariba and they're all drawing much more water. The population of Zambia has gone from about one point five billion to sixty-four. I think it was to give me 19 billion today. Yeah, they will doing a hell of a lot of power at that time. Yeah, that is going to affect us. So, yeah, overpopulation is

adding the weight of the problem to us all.

17 *Speaker 1:* So, I think you already mentioned also a lot of issues that also your staff, I mean, within the operation encounter like the challenges ehm do can you maybe shortly explain about how how they react to these challenges?

18 *Speaker 2:* The Zimba.... [unrecognisable due to network issues] so we just have to get on with it. But it does put extra stress on them, when they got guests who are not particularly happy when things go wrong. Yeah, and of course, the prices of everything goes up. It affects everything at the end of the day. So, but they are historical people, they are incredible folks they put up with an awful lot. So, but yeah.

19 *Speaker 1:* Um, would you... that's a bit of a personal question, I guess. But does change in general scares you?

20 *Speaker 2:* Say that, again, does it?

21 *Speaker 1:* Would you would you say that change scares you?

22 *Speaker 2:* No, no, it it concerns us it doesn't scare us. And I think if I think if those of us who live in Africa have can take are very flexible, we take everything with a pinch of salt. We find a solution. If the government isn't able to do something, we find the solution ourselves. Get on with it. We we problem solve; we tend not to complain. Yeah, it's like a small lodge here with with twenty-two beds. We provide a hundred thousand litres of clean water to the village of four thousand people every single day. We feed 500 children every school day. We do all things like that because it's good. It's being a good neighbour. It's not that it's, it's not that I have a guilt feeling it's a corporate responsibility. That's that's what people who who live in cities who don't know what to do with their money, they do feel guilty about it. We live cheek by jowl with our neighbour's. And if we can help, we'll do it. And if we can't do it, we'll find a way of helping them if they should they need it. So, we get very much involved.

23 *Speaker 1:* How do you ensure that the team, I mean, on the ground, that they're not really overwhelmed? Do they receive training or some sort of education? Do they have knowledge about climate change? What's your perception on that?

24 *Speaker 2:* You know, it comes up in conversations. I've only got a small staff. I got 40 people are very I have a very open policy with them all. We discuss this. We say what's going on. It's like with the whole Covid thing, you know, tomorrow, the team is going to come in. We're all going to get vaccinated. But I explained to them, I said, look, if it was me as an individual, if I was living, obviously, I wouldn't have it. Because I don't come into contact with people, I think because we're healthier out here, we we're not we're not susceptible to you are more likely to drown than you are to die of covid in Zambia. That's how few deaths there have been before each meal, Zambians wash their hands. I don't think that I don't think that could be said of Americans when they go to McDonald's, you know, and so as we live outside, we do things outside. We are healthier people. And I think our bodies were cut. But however, I have to realize that we're running a business where people expect

us to do so, so we're all going to get vaccinated. That's just a fact of life. I'll explain it to them. I say it's very voluntary. You don't have to. But when I explained that if we don't do it, we're not going to get any business, but they go, OK, we understand.

25 *Speaker 1:* Yeah. Would you say that? But what do you say that they also get like special skills in terms of climate change prevention or maybe also things that you have to adapt to within the operation?

26 *Speaker 2:* Oh no surely and we talk about it, we'd like we don't like using charcoal. We use a little bit of it. But charcoal is is all part of deforestation. We must move away from it. We must move it to solar. We must look after the water. We must we are lucky that we we have access to the river, but not everybody has that. Don't go abusing the water. We make sure we put nothing into it. So, we make sure and always have done from day one no grey water goes into the river. We don't dig rubbish onto the property. It all goes away. But we do realize that when it gets taken away, the people doing it are not acting properly. So, we're going to look for solutions that I'm heavily involved in the work in Livingstone city to try to turn it into the cleanest and prettiest town in Africa. But I've just come from a big meeting this afternoon to do with that. We've now probably banned bad trucks from the city, and we've just basically achieved that. Now we've got the bridge open, and we got to get all the truck parks put somewhere else and we will make this a healthier city to live and work in.

27 *Speaker 1:* Yeah, thats very interesting. So, yeah, I think, um, do you have other sources of income or activities that support you if business is struggling?

28 *Speaker 2:* Sorry I've just missed the question. Do we have any other source of income for what?

29 *Speaker 1:* Yeah. Do you have other sources of income or even maybe other activities that support if now business is struggling?

30 *Speaker 2:* No, unfortunately not. We have no other way of making money. I have raised money for the staff I've done raffles of rooms to raise money for them. I have given 8 acres of my own farm of to them so that they can grow vegetables for themselves. I provide the electrical fencing, I provide the pipes, the power and anything else to try and get us through it. We help where we can, but we've had to down scale absolutely everybody down to the down to the barest minimum. But I haven't drawn a salary since March last year, but um. But I made sure these guys have the bare minimum to make sure they get through it all and opportunities for themselves to feed themselves. But sadly, there's no other income at this stage. However, we are looking at other ways that we could bring to Zambia. So, I'll be working on a project to try and get hemp. That's medicinal cannabis legalized, legalized in Zambia will get will we want to pass this on to the local people. So, there should be the after growers so they can earn money for themselves as well. But these things take time. It's got to go through parliament, but we're nearly there and hopefully we won't be quite so reliant upon just the tourism we've moved. Livingston was not a tourist town it used to be an industrial town. They used to do timber, textiles, assembly and assembly motorcars. That that all disappeared. So, part of my game in town is to try and encourage light industry to come back in so we could soak up the rest of unemployment. Because when I got here, there was

90 percent unemployment 20 years ago, we through tourism and expansion of hotels and activities, we reduced it to sixty percent. Well, it's still too high. So that's what we need to get back into, light manufacturing. Nothing heavy because that would affect, I think, the town badly to have heavy industry, but like to assembly things would be alright. We could coexist with that. We can't coexist with truck parks because, you know, we have to realize, oh, we have tourist capital or are we a massive truck. Yeah.

31 *Speaker 1:* Um, do you have a network of people who or do you have an existing network of collaboration also with other operators?



32 *Speaker 2:* Yes. We're not as close as our Zimbabwe competitors. If you go across to Zimbabwe, they're much, much closer community. They do everything together. Whereas on our side, we tend to be doing things apart, but we are closing the gap down with the public, the public sector, because you've got to get mutual trust between the two. And it has never it hasn't been good here for a number of years. But we are getting there and that's why I work with the committee. So, I go speak to city council at various other boards. But there I am lucky because although I was born here, I grew up on the other side, I worked on both sides of the river here, Victoria Falls. So, both sides of you being from their side. And so, I able to cross over easily to see where we have the solutions to make the tourism business easier, travel for tourists easier. But we getting it. It's a bit slow, but that's what we are. We all get this like...

33 *Speaker 1:* Would you say that? Because that's quite a nice comparison. I think that you made their right now. What do you say that has also then an effect on your willingness to ask for help from other operators to maybe find solutions sometimes, sometimes to certain challenges?



34 *Speaker 2:* Oh, yeah. I am not shy on asking let me tell you. I just get in there. And we do realise the limiting factors we have in Zambia, in fact, as we have it. So that's why I went I went to approach the Zimbabweans and say, look, we need to get this together. We see ourselves as one destination and we need to forward a joint tourism association, not two separate, but joint they will always be busier than us. It has been like that for 60 years, their occupancies have been double ours for 60 years and longer. But we just got to look for the solutions together and try to work our way going forward. Because we because we have things they don't have and that's a fact, they don't have a historical town, they don't have a Jewish history, they don't have a Hindu history. They don't have museums that they don't have pretty buildings like we have at Victoria Falls town you hear helicopters all day. We don't.

35 *Speaker 1:* That's true.

36 *Speaker 2:* So, it carries on. So, there are bodies on both side.

37 *Speaker 1:* Yeah. Um. Would you be able I know this is a very difficult question that I'm about to ask, would you be able to explain to me the steps that you have to follow before you can adjust certain aspects within your operation? So...

38 *Speaker 2:* funny [laughter]

39

Speaker 1: ...looking also in terms of stakeholder involvement or also when you when you try to adjust something in the environment...

..A - R

40

Speaker 2: You know, I find it easy. I find if you just go back to people and tell them what the problem is now and work and work your way through that working from the ground upwards you get there. For example, we had the financial crisis. Years ago, I knew what we had to do, but (unrecognisable). I said, look, we've got two ways of doing this. We could do nothing that lose all our jobs by October or we could find a solution. What do you think it should be, they said find a solution? I said, good, we could do this one or two ways. We can either fire half of you or everybody goes on half pay what do you want? They said go on half pay. I said, good, we could do this one or two ways. And I just took them through the logical steps. They said there's a solution now. That's what I find. Our biggest problem we have to get over. And it's still a bit there is the is the mistrust between public and private sectors. That's the problem. Big, big problem. They with without consulting us, they suddenly put up our rates by eight hundred percent. Yeah. They said we can't afford it. They said we don't care. We shut you down. You say, well that's not going to happen, but is it. So, you've got to find a solution. You can't just be too heavy headed.

..A - G

41

Speaker 1: Yeah. I think that's also quite a big issue. Um, looking into the future, would you say you feel prepared and strong enough for what is to come now in terms of changing climate? And I mean, I kind of know your position on it a bit from the beginning, but I think that's still a valid question.

42

Speaker 2: Oh, of course. Yeah, of course. If we don't look after it's going to fall apart, I think there are indicators that things have gone wrong without a shadow of a doubt. The deforestation that's going on is terrible. The overfishing of the river using mosquito nets is terrible. Nobody thought of that one once upon a time. So, I think there are subtle things we should be doing, involvement with the local people to to show that they understand that, um, you know, what we can't do is like stop people fishing. But what we can do is to use more legal nets they have been fishing on this river for thousands of years. Who are we to tell them it's wrong? But just to convince them, so look there are more people here. You cannot sustain this fishing, which before using a reed net was sustainable [unrecognisable]

..A - L&R

43

Speaker 1: That was actually...

44

Speaker 2: We have to say we're very sympathetic or simpatico to what is going on here. It's it's the alarmist attitude of some people who don't ask the right questions, like Alex Crawford. She knew what she was trying to do. She was going to go to the Madrid global warming climate. She knew what she was going to do, and she just went in and told her story and got people to say what she wanted them to say and twisted it all around (phone ringing) I know exactly how it works. And I had people who who complained about it. And I met her at the airport. I tried to talk to her and she she never got hold of me. Later on, I was very polite, very polite. And eventually I had to go into the open because she wouldn't listen to us.

45

Speaker 1: I think it's very interesting to also hear your perspective on it. I think in...

46 *Speaker 2:* ...and, you know, she she she took the soft option because she asked the president for what he was what it was about, was he being fed information and she accepted that. Well, normally a journalist will put their sceptical hat on and and ask questions of of politicians. I don't think a journalist ever accept what a politician said before. There always question it she didn't question one thing that was said to her, I am not saying, the president was was was wrong. He was just fed the information and told what to say.

47 *Speaker 1:* Yeah.

48 *Speaker 2:* And she did not question it. Why? Because she knew she was going to go to the apparently the Madrid conference and it would suit it would suit them to say this terrible thing. Victoria Falls is drying up. Yeah, it was it was a load of codswallop. She even she even complained. She took a picture of a small bridge and said, I used to walk across this bridge as a child and it would be pouring rain on me. I can't even bring my children here to do that today. Well, she took the picture in November. It it never does. It does it in March. It will not be like me going to Switzerland with all my ski gear. I wonder why there's no snow in July.

49 *Speaker 2:* Yeah, yeah, I understand that

50 *Speaker 1:* That's yeah. So that's why you've had the reaction by ourselves saying, hey, stop. But there are problems, there are problems without a doubt and we will we will get on top of them, identify them and go from there. We can see some of it. Overpopulation is big one.

51 *Speaker 1:* Now, that's. Thank you so much for your contribution. I appreciate it.

52 *Speaker 2:* It's a pleasure. And I'm just sorry that my nose is so blocked up, so I know. But now call up any time. Any time. I'm a bit busy next week. I'm away next week. But any time if you need something just send me a message, if you can set up a call, I'll go through some other bits, pieces of you very, very happily. We simply want to get everybody on the same page again in the right direction that we're all there. You know, I don't want a fight with Alex Crawford, but she wont listen to us...

53 *Speaker 1:* (Small talk)

54 *Speaker 1:* Thank you so much.

55 *Speaker 2:* Bye

56 *Speaker 1:* Bye

Appendix I – Coding Matrix

Category	Climate change							
	Master Code	Description	Subcodes	Abbreviation	Example of quotes used for coding		Total assigned Segments	Literature
CC: AWARENESS		The fundamental knowledge of the existence of the phenomenon. - The lack of the fundamental knowledge of the existence of the phenomenon	CC: AWARENESS Lack	CC – A	Interview 5	I am aware of it.	14	Belle & Bramwell, 2005; Bohdanowicz, 2006; Gössling & Peeters, 2007; Pröbstl et al., 2008; NASA's, 2021; Davoudi, Brooks & Mehmood, 2013; Hartman, 2018
					Interview 1	I am, not in any great detail, but but in general, yes.		
Interview 3	Yeah. Yeah I'm, I'm aware of it.							
Interview 7	I'm aware of the global trend of changes in climate. Yes, I am.							
Interview 2	The awareness is absolutely there							
				CC- A_la	Interview 6	biggest challenge is that they are uneducated when it comes to the environment	2	
CC: PERCEPTION		The general view of the phenomenon, threat or opportunity.		CC – P	Interview 5	But what is normal, I am not sure what that is any longer because every year so vastly different from the one before.	19	Hartman, 2018
					Interview 3	I think it is a threat especially in terms of the impact of,		

						you know, the impact on the environment and all of that		
					Interview 2	Yeah, it is an opportunity to do better. The question is just how.		
					Interview 4	I do not see it as a threat.		
					Interview 8	I see it as a threat if we don't do anything if we sit back and relax and just watch, it is going to be it is actually going to be a big threat.		
	CC: IMPACTS	The effects and influences of the phenomenon on past and present operations. <ul style="list-style-type: none"> - Climate change impacts of the past of the last 4 - 20 years. - Climate change impacts in the present of the last 2-3 years. 	CC: IMPACTS Past CC: IMPACTS Present	CC – Im	Interview 5	if we do not get ample rain and there is no grass, no leaves, then that is when the animals have to travel further inland in search of food. So that is that is a very very big part.	5	Rossello-Nadal, 2014; Dube & Nhamo, 2018; Hall & Higham, 2005; Hill, 2019; UN News, 2020; Steyn & Spencer, 2012; WMO,2020; Hall & Lew 2009; Scott et al., 2012
				Interview 5	when you get a bad drought year, the Zambian incursion into the Zambezi National Park is higher because they are looking for food, the people are looking for food.			
				Interview 4	I guess that that is an effect, you know, the wildlife itself will try and get water in the camps. And that is where you have got to be very careful.			
				CC – Im_pa	Interview 7	we have been through bad droughts and there have been times where we've been adversely affected purely by climate because animals have died as a result of not being able to achieve, not being able to to browse on sufficient resources, grazing etc., or find enough water	5	

					Interview 4	OK, so I think well, I mean, the rising temperatures look, to be honest, we we kind of just deal with it. It is it is something we know and it is quite interesting. We always say in Zimbabwe, they talk about October being suicide month. In actual fact, November can be even hotter, especially when the rains are late, which has been the trend over the last sort of our least the last 10 years anyway.		
					Interview 6	So not being a scientist, I wouldn't know whether I could put this down to being an impact of climate change. But certainly, in the year 2016, we had severe drought. [...]. And you can see that through the you know, the lack of water in the waterholes, the rainfall is below average and. Yeah, you can you can see by even the water table in the boreholes when you're pumping water from		
					Interview 6	So, I don't know if I can say that those are if we're experiencing change, but indefinitely in the past with extreme drought years. You know, as it does impact us, it does impact the wildlife		
				CC – Im_pr	Interview 2	So, I would say the the biggest impact and probably the only impact is the rainfall that the increased	12	

						temperatures brought as we speak now.		
					Interview 5	Last year we had a 48 degrees, which was the first that I have ever experienced here in Zimbabwe. So, there was a very very hot day. But that being said, we have also had trends of very cold days. So last year we recorded a minus 12, which is also very unusual.		
					Interview 3	Currently, I don't see you know, of course, it may be difficult to make out at the moment, but I would agree that we are experiencing some climate change, really, you know, like those droughts in one area. And it is a huge change in rainfall patterns		
					Interview 2	[...] we benefited from probably the most well, the richest rainfall season that we have had country wide in the last two, three years. We had the droughts that came through. But because of all these increased temperatures, it has ironically resulted in such a positive, positive amount of rainfall that is fallen on the concession and throughout the country altogether.		

Category	Nature-based tourism						
Master Code	Description	Subcodes	Abbreviation	Example of quotes used for coding		Total assigned Segments	
NBT: DEPENDENCY	The importance of natural resources for the business.		NBT – D	Interview 3	I would say they are extremely important.	15	Adger,2006; Scheyvens & Momsen, 2008; Proag, 2014; Dube & Nhamo, 2018, 2019, 2020; Dube, Mearns, Mini & Chapungu, 2018; MacFadyen, Hui, Verburg & Van
				Interview 7	it is very important and does definitely affect		
				Interview 2	the bigger thing is safari out here, so to be able to produce a safari product which consists of guided walks as well as game drives. We really, are again, at the mercy of the wildlife and how the wildlife is reacting to the environment.		
				Interview 2	Towards the climate, absolutely, absolutely, absolutely, we are very we are in a very delicate place and it is very sensitive to how life around here is. You know, if temperatures keep increasing, it will be the worst.		
				Interview 6	our day to day activities Hwange are very weather		

						dependent because we're outdoors all the time.		Teeffelen, 2019
					Interview 8	the times for the scheduling is a bit difficult now. And the times for those activities is now shortened because of the, you know, the high temperatures.		
Category	Vulnerability							
	Master Code	Description	Subcodes	Abbreviation	Example of quotes used for coding		Total assigned Segments	
	V: SENSITIVITY	The degree to which the system is exposed to a driver of change.		V – S	Interview 1	Our issue is not only local rainfall, but it's the water that comes down with the river from higher up. The local rainfall is can be a major pain when it's particularly heavy and ongoing because we transfer our guests in an open game drive vehicle, it does have a roof on it, which helps between the main bank on the other side of the island and the Zambezi National Park Gate, and those roads are shocking when there's heavy rain.	12	Adger,2006; Scheyvens & Momsen, 2008; Proag, 2014; Dube & Nhamo, 2018, 2019, 2020; Dube, Mearns, Mini & Chapungu, 2018;
					Interview 3	You know, if there's any change in the weather or in the climate patterns, it impacts heavily on the day to day activities of the tourism or safari industry, because say, for example, there is drought, I'm sure you've heard already the drought that has been here a couple of years back where, you know. Tourist would go on game drive in Hwange national park one it is dry everywhere.		MacFadyen, Hui, Verburg & Van Teeffelen, 2019; Mushawemh uka,

						Elephants dying to the extent that, you know, you just look left to right, front back, everywhere you just find the elephant carcasses. If you get waterfalls and the that caught up with the animal is will the animal species dying, zebras, giraffes and all that. So, which was not a good sight even for the tourists.		Rogerson & Saarinen 2018; Sutherland, Ndlovu & Pérez-Rodríguez 2018; Gallopín, 2006; Hartman, 2018
					Interview 2	I think being a safari operator, we are always at the mercy of our environment.		
Category	Socio-ecological System							
	Master Code	Description	Subcodes	Abbreviation	Example of quotes used for coding		Total assigned Segments	
	SES: INTERACTION	The connection and interference of the ecological system with the human component.		SES – Int	Interview 5	with more and more drought and people being pushed into more and more the human wildlife conflicts that we experience as a lot of there is a lot more reporting of human conflict. I cannot say that that is specifically just down to drought. And I cannot say specifically it is just down to human encroachment. But certainly, it is both of those things so that the more difficult it is to grow food stuffs and the more people that we have spilling into more and more marginal areas, that	9	

						certainly is increasingly the human wildlife conflict.			
					Interview 7	the main challenges that that face our our staff and ourselves, actually, um, living in a town which is which has wildlife moving in and out of it. And if wildlife becomes stressed for whatever reason, and in this case, if it's due to climate change, that they are under pressure to find food under pressure to find water, that those animals are then stressed and then, um, staff who live on the fringes of wild areas are put under challenges as well and the other challenges as direct challenges			
					Interview 4	I guess that that is an effect, you know, the wildlife itself will try and get water in the camps. And that is where you have got to be very careful.			
Category	Political influences								
	Master Code	Description	Subcodes	Abbreviation	Example of quotes used for coding	Total assigned Segments			
	PE: SUPPORT	The factors that encourage the building of a resilient system.		PE – S	Interview 3 recently we also appreciate we hear the government saying that it has reduced duty on solar products. But we wish it to be even scrapped off now because generally those solar products are expensive even to buy a from abroad and then coming into the country and paying duty again it then	3	Fletcher, 2018; Sturmborg, 2021; Turner et al., 2003;		

						even increases the price furthermore.		Doğantan & Kozak, 2019
					Interview 5	overall, the policy and the and the legal paperwork, the acts and the statutory instruments that have been in place for many years have enabled us at grassroots level to be able to deal with many of the things. I mean, for example, in an in a time when you have got big drought coming in and you get elevated poaching, we do have the ability to go in and police and stop that. So that is always good. So, I do think that our policies and that are in place, the existing ones, do enable us to cope with it quite nicely at this moment in time.		
					Interview 7	But yes, there are certain things like if you bring in solar and solar equipment that you've imported, there's no duty on that. And that is a very good policy that's been implemented. The cost of solar equipment in the country is coming down as well. Beyond that, I can't comment too much further.		
PE: HINDRANCE	The factors that hinder the building of a resilient system.			PE – H	Interview 1	[...]The payroll has to change all the time because the labor laws change all the time in terms of minimum wages and this currency you can pay in this currency or that currency.	17	
					Interview 2	I do know it is restrictive, more than than productive.		

					Interview 6	it's seriously challenges us in not only our decision making process, but also the fundamental issues of growing a business or developing a business, because in tourism, so much has as seen as what the politics are in a country before people visit there. And Zimbabwe is a dictatorship. It has been for the last 40 years and it's not done itself any favors		
					Interview 8	So those things make whatever your decision is or whatever you your project is that you have going on a bit of a challenge because you don't have the all right resources because of, you know, the political influence. And some people would also want to, you know, to be in charge of, you know, the funding so that at least, you know, the corruption and stuff like that happens. So, yeah, in the political sphere, it does have an influence, as in the sense of corruption agency.		
					Interview 5	a lot of big businesses, huge businesses, [company name], for example, they were in Zimbabwe, they pulled out and they look at I think they they look at, you know, who might be on sanctions lists and might not be able to do business		

						because of world sanction lists and political opinion.	
					Interview 2	operators will be limited to the amount of square meters they can have to be building irrigation systems or whatever else. We you really have people that are trying to do things on a larger scale of dealing with climate change, you know, hindrances into greenhouses, how they being built, things like that. They they try to divide and limit what can be done as opposed to encourage and promote what should be done, if that makes sense.	
	PE: INFLUENCE	The political influence, legislations, policies which affect the business operation.		PE – I	Interview 5	that is a very difficult question to answer, really, in a in a short space of time. But yes, certainly politics in Zimbabwe does play a shooting overall because of how difficult it is to do business in Zimbabwe	
					Interview 3	You'll find that most of the support was not the government rather it would be from outside of the country from non-government organizations, from outside Zimbabwe, and they can be problem if you get the support from outside Zimbabwe then somehow you do be paid to be kind of opposition because you are getting your support from	6

						outside the country, and it became a big problem for any organisations eh non-governmental organisations within Zimbabwe who get funding from outside Zimbabwe.		
					Interview 6	The country's political situation, uh. Not only influences us, but it's seriously challenges us		
Category	Economic influences							
	Master Code	Description	Subcodes	Abbreviation	Example of quotes used for coding		Total assigned Segments	
	EE: ASSISTANCE	The economic factors supporting the business operations, such as funding of strategies to overcome the impacts of climate change.		EE – A	Interview 2	we are lucky enough to have shareholders who believe in the work that we are trying to do. So, the injection of capital into worthy, innovative causes will always be supported no matter what the cost is because of the bigger picture	2	Doğantan & Kozak, 2019; Turner, et al. 2003; Fletcher, 2018
	EE: IMPACT	The effect of the country's economic situation on the business operations.		EE – Im	Interview 1	from the economic perspective, it's very hard to get cash in in Zimbabwe and cash is king. You you need cash in Zimbabwe. So that that is that is a difficulty.	14	
					Interview 7	the economic situation, of course, of course, affects us. And at the moment we have sort of a dual currency system. And it's tricky, you know, because in tourism we had we were lucky in that we receive US dollars for many payments. But the government does is mandated through the system that some of that		

						money is converted into the Zimbabwe dollar currency. And that currency is quite weak, and you can't do too much with it especially paying external payments is very tricky, so that does affect us		
					Interview 2	we are unfortunately always going to be at the mercy of our economy and our government, and I think the biggest impact that it has is in pretty much ensuring the the credibility of our financial and accounting practices.		
					Interview 4	Yeah, it is quite tough, actually, to be honest with you, as you know, we have a two tier currency sort of system, which if you do not live here, it is quite difficult to understand even for those who do live here. And so, it is you know, the economies run on pretty much US dollars and Rands really behind the scenes, but we have this thing called an Artigas. And the biggest problem is that. So just in brief, you have the bank rate, which is at 82, and you have the street rate, which is anywhere between 100 and 150 to one, and all the stores run all their businesses off that rate. So, you have it economically. It is very challenging to run a business. You get a two percent. We taxed a lot, and		

					Interview 6	it is very difficult. It is difficult... Yeah, there is a massive red tape in any shape and form, whether it's with our banks or whether it's with getting licenses to operate. Yeah, there there's you got to jump through all sorts of hoops. I can't even sit and write them all down, but as an industry, we are the most severely taxed. We have to pay for many, many licenses and stuff. So just to operate and it's really difficult to start a new business if that's the you know, it's six thousand dollars in licensing before you even start as a start-up. I think it's really difficult to to begin a company right now if you don't have the backing and funding to do that. We have massive interest rates, high, high, high interest rates.		
Category	Persistence							
	Master Code	Description	Subcodes	Abbreviation	Example of quotes used for coding	Total assigned Segments		
	P: VARIETY & REDUNDANCY	The general diversity of the business operations, such as range of activities offered or means of income. The presence of additional elements which are not needed to function but are there in case of failure in other elements. - Related general diversity of the	P: VARIETY Related P: VARIETY Unrelated P: VARIETY & REDUNDANCY Lack P: VARIETY & REDUNDANCY Need for	P – V&R_re	Interview 1 we sort of split them into three different attractions. The one is, game activities, so we do guided walks in the Zambezi National Park, as well as game drives in the Zambezi National Parks, and then we've got water activities which include canoeing, sundowner cruises, river cruises, fishing, and then we've got	4	Hartman, 2018; Folke et al., 2010	

		<p>business operations, such as range of activities offered or means of income.</p> <ul style="list-style-type: none"> - Unrelated general diversity of the business operations, such as range of activities offered or means of income. - Lack of general diversity of the business operations, such as range of activities offered or means of income and the presence of additional elements which are not needed to function but are there in case of failure in other elements. - The change in perspective and need for diversity and presence of additional activities and functions within the business. 			<p>the the trip to the falls. So, for for every three-day booking, I think, or longer you get a complimentary trip into town to go to the falls and so on. And we've also adapted the way we do things. So, we we sometimes have guests, or we give guests the option of arriving by jetboat instead of a vehicle driving through the park so they might arrive by boat during a trip up the river to get to us and then leave on land with the game drive. So, we've got more than one arrow in our quiver in terms of our marketing strategy and the activities that we offer, the attractions.</p>		
				Interview 5	<p>with a pandemic like what we have had, we have now had to adjust that business model somewhat because our borders are being closed and very few people coming in with airplanes based on our land borders or locked up. So, we have to look very carefully internally. And it has been kind of amazing how all of our businesses that have opened or have remained open during this covid lockdown have been very, very well supported by local tourism or in country tourism.</p>		
			P – V&R_unr	Interview 9	<p>I'll be working on a project to try and get hemp. That's medicinal cannabis legalized</p>	2	

					Interview 7	And over the last year, we've you know, we've got more into media, which supports our tourism business.		
				P – V&R_la	Interview 5	No, not at the moment,	7	
					Interview 4	No, not at this stage, sadly. I wish we had a little, you know, I wish we had so yeah, we are very much a tourism enterprise.		
					Interview 2	So, it is a bit challenge to answer the bigger thing being that our revenue streams are solely reliant on bed nights, the rooms we are selling or the product we are selling. We have an all-inclusive product which includes food, accommodation and your game drive activities, and that's the biggest stream of our income.		
				P – V&R_nf	Interview 4	It is certainly something I must admit that we are going to be looking at from now on. We are, in fact, looking at different projects [...]	1	
	P: ROBUSTNESS	Enduring change over a period of time (short term and long-term robustness).		P – R	Interview 1	I find the Zimbabweans are an amazing bunch. They obviously suffered so much hardship in their lives that absolutely nothing gets them down. So, they just bounce back and make a plan and make another plan.	9	Davoudi, Brooks & Mehmood, 2013
					Interview 9	No, no, it it concerns us it doesn't scare us. And I think if I think if those of us who		

						live in Africa have can take are very flexible, we take everything with a pinch of salt. We find a solution.		
					Interview 2	I think when you have been in this line of work long enough, you you learn to adapt, and you learn to react quick enough.		
					Interview 2	Absolutely. And I think that is what has kept this operation and many others like it alive for so long. It is they are not mistakes that can knock you out entirely, the mistakes that can set you back. But once you have learned, you have adapted, you have adjusted, you move forward, and you wait for the next challenge to show up.		
					Interview 6	Responding to change you have to you have to live on your feet. You have to keep being dynamic and changing you know, the way you work, the way you do business in Zimbabwe.		
					Interview 7	fortunately, we are quite a small, resilient community and everybody adapts pretty quickly and helps each other out. Um. And this town does help its own. You know, it's it's we might compete on a business front, but we all work together.		

Category	Adaptability (including preparedness)						Total assigned Segments	
	Master Code	Description	Subcodes	Abbreviation	Example of quotes used for coding			
A: FLEXIBILITY	The presence of networks as routes towards resilience. Aligned with connectivity.		A – F	Interview 3	The thing is operator in Victoria Falls we all fall under the Zimbabwe's tourism authority. So, Zimbabwe tourism authorities is the government department dealing with tourism issues, but [unrecognisable] Information, so anything we do, is as a team, as operators you know, with the Zimbabwe tourism authority so we share the information on ehh e-mail and even on WhatsApp, there is a WhatsApp group if anything, is happening like this.		12	Davoudi, Brooks & Mehmood, 2013
				Interview 9	And if we can help, we'll do it. And if we can't do it, we'll find a way of helping them if they should they need it. So, we get very much involved.			
				Interview 7	Fortunately, Zimbabwe is is a country that is flexible, and we are able to adapt. And we do have a strong tourism industry and we do have clear lines that we can communicate to authorities and and trying to make things work wherever possible.			
				Interview 4	Yeah very much, you know, especially when you are dealing with people that have done it for 20, 30 years, more so, you know, rather just ask them if they			

						have got they have got the experience and they will help you.		
	A: RESOURCE-FULNESS	The quality to cope with changes, ability to find adequate solutions.		A – R	Interview 5	I think I think we are in a place where we can adapt and we can change at in quite a quick turnaround, quite a quick space, quite a short space of time	24	Valeix et al., 2010
					Interview 1	being in Zimbabwe, any proper technical assistance is far away and takes a long time to get to you. So, you you end up doing a lot of your your own stuff with a bit of string and chewing gum. You know [laughter]		
					Interview 9	If the government isn't able to do something, we find the solution ourselves. Get on with it. We we problem solve; we tend not to complain.		
					Interview 7	being a small operation is quite easy for us. Um, you know, we were able to adjust. We are where we're small, which makes us flexible and adaptable. We're not big and cumbersome. We don't have a large workforce. And so, it's quite easy for us to to pivot and and adapt.		
					Interview 4	I think adaption is the name of the game. So, you know, people adapt quickly.		
					Interview 6	you have to you have to be quick on your feet and to be dynamic in order to to adapt and to change. Yeah, that brings on implementing new		

						strategies, so you have to be pretty good at it looking forward, but not always looking forward at the negative, trying to find the positives and trying to make that work for you as opposed to sitting in one place, you know, you know, you got to keep moving, whether it's sideways for a while, backwards for another bit further, another few steps, and then before you can go forward again		
	A: GOVERNANCE	The involvement of stakeholders in decision-making and strategy formulation.		A – G	Interview 5	the structures and the and the support network that we have in Zim from a tourism perspective are very good and very strong. And they are very well, well supported. And we we probably have too many business meetings, to be quite honest. There is a lot of time that is wasted at different meetings, but at least those meetings can be had. And it is not a void. It is it is a place, an open forum where we can discuss issues and we can take them forward. So that is all very very good. So, yes, we have got to we have got a huge network and a huge support base in Zimbabwe. And, you know, anything that happens on the ground is kind of funny. You know, anything that happens on the ground gets up to the	15	McDevitt, 2009

						minister very, very quickly. So we can we can we can change direction and policy if required.		
					Interview 1	Outside of the company, we we have very little input. In fact, the entire industry has has very little input. A government seems to be a bit of a law unto itself [...]		
					Interview 2	I think that has kind of diminished whilst there is always an interest in hearing what people have to say, it is nothing that will ever get listened to or something that will just take too long to deliberate. And that is one area and aspect of what our governance has just been brought down by the inability to make effective decisions, inability to make inclusive decisions of involving people and stakeholders that need to be involved.		
					Interview 4	No, we do not. So, what we do is if we have an issue, we deal through the organizations being the [name of organisation], which is the Operators Association. But again, that can be complicated, too. But hey we certainly do make make sure, you know, we put forward our concerns and then we go from there, to be honest with you		
	A: CONNECTIVITY			A – C	Interview 5	the structures and the and the support network that we have in Zim from a tourism	30	

		The established links within the systems, networks and alliances, trust.				perspective are very good and very strong. And they are very well, well supported.[...]		Hartman, 2018
					Interview 7	we do all the time through our business in particular as a tour operator, we need to deal with suppliers across the spectrum. We deal with activities providers. We deal with transfer providers both on the ground and the air. We deal with them lodges and accommodation, hotels and resorts and so on. And we have to build a very strong rapport with them. Otherwise, we won't be able to to work together. So, we support each other. They provide us with better terms and conditions and rates the more business we give them. And they provide us with assistance. And in the same way we do, we do that back to them.		
					Interview 2	there's constant communication there are WhatsApp groups, we have got the Hwange tourism WhatsApp group that is in there and it is packed with a whole bunch of individuals all up in the local areas. There are annual general meetings that take place at the main camp within amongst the other camps. There's great social networking that happens out here amongst different		

						stakeholders and safari operators because this understanding of the needs of each other to survive and the need of each other to be playing an active role in conserving the greater national parks. So, all our stakeholders are brought together under certain bodies, under certain authorities of the national parks, whether it is your pro guides associations, whether it is your safari camp operators associations or tourist operations, your conservation operations, it is very inclusive of everyone who is within the vicinity of the national parks. So, WhatsApp groups, Skype groups, forums, general meetings, that sort of thing.		
					Interview 4	Yeah, so we are very lucky. So, within Hwange, I work with a lot of the other operators in terms of if something that needs to be done, whether it is on the other side of Hwange or our side, we all work together.		
					Interview 6	We believe in collaboration with other safari operators.		
A: LEARNING & REFLEXIVITY	The capacity to reflect and learn from past outcomes to anticipate future changes. - The lack of capacity to reflect and learn from past outcomes	A: LEARNING & REFLEXIVITY Lack	A – L&R	Interview 2	last year we had a struggle in that we came across a dry season and all the waterholes were drying up because of all the immense elephant pressure. And we were late to get to the waterholes to actively pump	22	Hartman, 2018	

		to anticipate future changes.				the waterholes with generators. So, we ended up all of last year playing Catch-Up to try and fill enough water for the animals to enjoy. Having gone through that experience. We know now this year that we have to prepare. Our generators have to be serviced early. We have to continue assessing the waterholes early enough. And that way you are a foot to head. So, in each encounter, we know it is going to happen, but we are prepared enough to face it and to brace the staff and people around to have a positive attitude because, again, they have adapted to it. We know what to expect. It is just a case of doing the right thing at the right time.	
					Interview 6	we whenever we can educate them and talk to them about what's going on in the villages, what's going on in the national parks and how things are impacting us. So, we we update them all the time and we counsel them on how we can be different and how we can change and make a change.	
					Interview 5	I think we we probably day to may be a bit small, but maybe it is more monthly, I am sure that we got some good visions about what the future may hold on. But certainly, I do not think that	

						we have got to. I personally do not feel, and I think probably I am just speaking for myself here look like in five years' time, I think that is that is a little bit further ahead for us than we are capable right now.		
				A – L&R_la	Interview 5	No, my area that I am looking after. No, we do not we have not focused in on any of that and even on a larger platform. Within the tourism sector of Zimbabwe, I do not think that there has been much debate, discussion, open forum to climate change. I have not really looked at because as a nation, I think that we we basically in in a mode of survival, a survival mode, rather than being in a place where we can actually debate what what is happening around us.	6	
					Interview 3	there's no way I would say safely say as an organisation we are prepared, because I know that somehow, you know, we are governed by these state rules. So, it gets to start from the top I think because it seems us on the ground we are struggling to get past the government has to come on board as well		
					Interview 4	Yeah, yeah, yeah, straight up and honest, we are probably not equipped or, you know, we are we are not		

						prepared, nor do we have any understanding of what it could be. So, no, no, it is such a survival thing going on now, you know. You know, I always say, you know, when when you are prosperous and all that sort of stuff, you really can worry about, you know, five, ten years.		
	A: MONITORING	Critical for the formulation of adaptation strategies, as with a great level of data gathered the ability to mitigate negative impacts increases		A – M	Interview 1	We do get the hydrological reports and we base our thinking and our planning around that, yeah.	14	Hartman, 2018
					Interview 3	we are now trying to do it ourselves online. If we predict if we see that there's predictions that there is going to be drought is going to be flooding, that's when we make preparations for that because the operators here have also being affected by the droughts.		
					Interview 4	The only thing we actually have access to is our rain gauge, so to be honest with you, we just watch our rain gauge and that is all that is the only information we sadly get. We would love to get more information, but we do not get anything, no.		
					Interview 2	I would say it is a it's a bit of both, it's a very big part of both cause and effect in that, you know, we we can't foresee when a fridge is going to pack up, but we can plan and expect		

						for it when it then does happen. We know what course of action to take the bigger picture, being specific to us. Our lease is specific to us actively pumping water on concession. So that is the bigger picture. We will be here to be able to constantly provide water for the animals. So that is the bigger picture. And then cause and effect is then reacting to the different things that happen. A borehole pump dies, a solar panel does not begin to work. Those are things that we cannot foresee, but we know possible to happen. So, it is literally just a bit of both and we react accordingly. We know why we are here. We know what we want to achieve, what we want to do and can expect that these things happen because it is only it is only nature. And we have learnt that from the past experiences. But we can only react as and when things happen.		
Category	Influential Factors (additional)							
	Master Code	Description	Subcodes	Abbreviation	Example of quotes used for coding	Total assigned Segments		
	IN: MEDIA	Influences of the Media on the climate change discussion		IN – M	Interview 7 the negative effects do come as a result of sometimes incorrect or false reporting. Interview 4 We we we do not actually overthink it too much, to be honest with you, that the	2		

						press is such a, you know, a devious thing. [...]		
	IN: PANDEMIC	Influential factors of the current pandemic which have an effect on the data gathering process and validity of the data gathered.		IN – P	Interview 5	Obviously now there no guests in the park. So, funds and finances from guests does not help us in the chatter about elephants and what might happen with these elephants. Has as wary about putting funds into existing projects and programs for protection, so therefore funds start drying up.	9	
				Interview 1	Yeah, given given the pandemic, I would say not in the not in the near future, because our financial situation is not strong enough to make those sorts of adaptations.			
				Interview 4	But it is right now, it is very much survival. Very much survival.			
				Interview 1	It is more of a minor issue right now because right now the pandemic is our biggest issue. Bookings are really, really, really scarce ... so right now I mean.			
Category	Cultural environment							
	Master Code	Description	Subcodes	Abbreviation	Example of quotes used for coding		Total assigned Segments	
	CU: SPHERE	Influences of the cultural sphere on the adaptive capacity of individuals.		CU – S	Interview 6	education is one big thing, because the elders, the elders are aware the mindset is as best. And even if you are educating kids at school, the elders still go by what they want to do. And there they have the last word, really. So, it's it's a	3	

						whole shift and paradigm and a whole mindset to to move on on the educational side of the elders before anything is really going to be changed.			
					Interview 1	that's a difficulty in terms of the sort of cultural history we we have found that it's it's not a great idea to employ ehhh What do they call themselves now? Shona's and Ndebele's you go to, you go to pick one or the other for your staff because it causes ructions and issues amongst your staff if you have. Like in that area, I think most of the people are Ndebele, but if you bring in one or two or three Shona's. They're going to be a minority and there's going to be conflict.			
Category	Recommendations								
	Master Code	Description	Subcodes	Abbreviation	Example of quotes used for coding		Total assigned Segments		
	RCOM	The recommendations and wishes participants mentioned which influence the future capacity of resilience.		RCOM	Interview 5	in terms of mitigation for that, it is one of education. We have to educate our people. And I mean, I think Africa overall, not just Zambezi National Park with Zimbabwe	2		
					Interview 1	But I think that in part because of the the climate change and so on, I think they may need to adapt their marketing practices a little bit. And I also think that. They they need to remove the focus from that heavy			

						<p>water period when the falls are full and place some on the beauty of the actual rock structures and so on, when when it's hardly flowing at all because you actually get a better perspective when the falls are low than when they're high, when they're high, the water is magnificent, the steam, the spray is incredible, etc. But when they're low, you you get to experience the magnitude of it. You can actually see how wide and how big it is. And I feel that there should be marketing the two seasons differently and that that should be an attraction for the for the dry season and the Birding as well as the the animals. Birding is amazing around there on the island. It's in incredible. It is an absolutes birders paradise think they should still market the falls, but they should also be marketing other aspects that are also very attractive.</p>		
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Table 4 Coding Matrix