

Nature-based tourism operators' perceptions and adaptation to climate change in Hwange National Park, Zimbabwe

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Abstract. Climate and weather are important resources for tourism. In particular, nature-based tourism activities and operations are largely dependent on and affected by environmental conditions and changes. Due to the significant socio-economic role of the nature-based tourism and the tourism industry, in general, in the region of southern Africa it is important to understand the dynamics between the industry and climate change. A key aspect of this understanding are perceptions and adaptation preparedness of tourism operators towards the estimated impact of climate change. There is a dearth of empirical studies on climate change perceptions and adaptation in nature-based tourism operations across southern Africa and specifically from Zimbabwe. This research gap is addressed in this article which provides an exploratory analysis of the nature of climate change adaptation practices occurring in southern Africa using evidence from Hwange National Park, Zimbabwe.

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1. Introduction

The relationship between tourism and climate change has been researched for a relatively long time (see Hall, 2008; Becken, 2013; Pang et al., 2013; Scott et al., 2013; Fang et al., 2018). It is widely realised that the ongoing and accelerating change will have serious consequences for the future prospects of tourism and its capacity to create positive visitor experiences and, thus, socio-economic contributions to local and regional development (Becken, Hay, 2007; Prideaux et al., 2013; Tervo-Kankare et al., 2018). In particular, different forms of nature-based tourism are largely dependent on and affected by environmental conditions (Gössling, Hall, 2006) and therefore highly vulnerable to any changes taking place within their operational environments and/or public images. In this respect, climate and weather are seen as highly important resources for nature-based tourism and the tourism industry, in general (de Freitas, 2005; Rutty, Scott, 2010).

In many countries of the Global South tourism plays a crucial developmental role, including Zimbabwe (Dube, Nhamo, 2018a). In general, the industry contributes to economic development and employment creation (Rogerson, 2006; Scheyvens, 2011) and it can be used for various developmental targets (Spenceley, Meyer, 2012; Saarinen, Rogerson, 2014; World Bank Group, 2017). Recently, the prospective developmental role of tourism has been highlighted in relation to United Nations Sustainable Development Goals (SDGs), which aim to achieve a better and more sustainable future for all by addressing the global challenges, such as poverty, inequality, climate, environmental degradation, prosperity, and peace and justice (see United Nations, 2015). The World Bank Group (2017), for example, launched their list of 20 reasons why tourism works for development in the Global South. These reasons are positioned within sustainable tourism framework and the SDGs, under the following objectives: sustainable economic growth; social in-

clusiveness, employment, and poverty reduction; resource efficiency, environmental protection, and climate; cultural values, diversity, and heritage; and, mutual understanding, peace, and security.

Based on the current and expected developmental contributions of the tourism industry in the Global South it is critically important to understand the dynamics between the industry and climate change. This involves a need to estimate the nature and scale of environmental changes in future, how different stakeholders perceive climate change impacts and their significance, and what adaptation (and mitigation) mechanisms are in place or considered among different stakeholders (Scott et al., 2012; Kaján, Saarinen, 2013; Pandey, 2017; Pandey, Rogerson, 2018). Existing research highlights the need to understand the level of climate change knowledge and perceptions among tourism operators and other stakeholders in order to establish suitable adaptation (and mitigation) strategies (see Saarinen, Tervo, 2006; Becken, 2013; Hambira et al., 2013; Tervo-Kankare et al., 2018). Studies have noted a relative lack of tourism and climate change research in the Global South (Saarinen et al., 2012; Hoogendoorn et al., 2016; Hoogendoorn, Fitchett, 2016, Pandey, 2017; Pandey, Rogerson, 2018, 2019). Arguably, this is the case in Zimbabwe where minimal research so far has been conducted concerning tourism and climate change (see Dube, Nhamo, 2018a, 2018b), most especially in relation to the tourism sector's views and adaptation mechanisms. Against the backdrop of the critical importance of tourism for economic development in Zimbabwe this paper focuses specifically on the awareness, perceptions and adaptation needs towards climate change impacts among tourism operators in Hwange National Park, Zimbabwe.

2. Tourism and Climate Change

The linkage between climate and nature-based tourism is very strong. Climate and weather conditions are elements that set limits and support nature-based tourism. Thus, they have great importance as factors in defining a region's tourism potential, attractiveness and tourism demand and supply (Saarinen, Tervo, 2006; Becken, Hay, 2007; Pang et al., 2013). Climate and weather are related processes, albeit their relationship is not static in any given context. In brief, climate represents a generalized account of long term period conditions while weather reflects a particular event (Martin, 2005).

For a relatively long time climate was considered as a stable and unchanging resource for the tourism industry (Scott et al., 2005), but especially during the past two decades the industry and tourism policy-makers have increasingly realised that 'this [climate change] changes everything', as noted by Naomi Klein (2014). The future impacts of global climate change on tourism activities differ according to the location of the region, its resources forming the basis for tourism activities and services and adaptive capacity (Andersson et al., 2006; Biggs et al., 2008; Kaján et al., 2014). Thus, there may be 'winners and losers' in the tourism and climate change nexus. Overall it is estimated that the Global South is more vulnerable and with lower adaptive capacity will suffer more as compared to the Global North (see Becken, Hay, 2007). Accordingly, climate change impacts will redistribute both climatic resources and tourism development opportunities between different tourism regions.

Climate change has resulted in the alteration of weather phenomena in the form of an increase in drought events, erratic and spasmodic rainfall and, in coastal areas and Small Island Developing States (SIDS), this has resulted in sea level rises (Gössling et al., 2018). These climatic alterations directly and indirectly affect the environment and the environment is prone to change (Kaján, Saarinen, 2013). These environmental changes occur in the form of local biodiversity loss, reduction in landscape aesthetics, decrease in wildlife, increased coastal erosion, saltwater infiltrating to groundwater resources, and damage to tourism and other infrastructure. These uncertain climatic conditions together with

factors such as security and water availability have an effect on tourism destination competitiveness. Furthermore, weather and climate exert a pivotal role in tourism planning. These two factors directly affect and shape the environmental setting within which tourism can occur. Therefore, adapting to climate change has become imperative for destination survival (Prideaux et al., 2010). Deviation in weather conditions and overall climatic conditions will result in a substantial alteration of tourist activities within an area (Ahmed, Hefny, 2007).

Extant literature on climate change and tourism demonstrates that there is enormous significance of climate to tourism since climate affects seasonality of tourism destinations and activities as well as the overall satisfaction and safety of tourists (Pang et al., 2013; Dillimono, Dickinson, 2015). In a bid as to seek favourable tourist destinations, current popular tourist destination may be losing popularity (Rosselló, Waqas, 2015). For example, countries that possess moderate climates such as those found in northern Europe might profit more from temperature increase, while other countries and regions, such as Mediterranean area, that have warm climates might experience declines in tourist arrivals (Gössling et al., 2006). The capacity of tourism destinations to adapt (or mitigate) the impacts of climate change are hampered by antagonistic concerns between planning for the consequences of climate change and developing the tourism sector itself (Ahmed, Hefny, 2007).

Weather and climate are phenomena that cannot be transported and neither can they be stored in any form. However, they play a pivotal role in tourist location, timing of tourism activities, tourism season, work and academic calendars, the nature of tourist activities, financial risks, as well as the choice of destinations (Saarinen et al., 2012). Thus, it is obvious that the tourism industry is being significantly altered both directly and indirectly by climate change. Gössling et al. (2006) have argued that climate change's effect on the tourism sector will vary significantly based on the type of tourism market and the geographic region of a tourist destination (see also Saarinen, Tervo, 2006). Coastal areas in Africa, for example, are faced with threats of high temperatures, sporadic rainfall and sea level rise (Hoogendoorn et al, 2016). Flood threats, however, are observed also in interior areas as demon-

strated by Southon and Van der Merwe's (2018) work on tourism accommodation in Limpopo. Southern Africa is a core region of the global tourism economy that is experiencing the ramifications of climate change (Pandy, Rogerson, 2017; Rogerson, 2016; Sifilo, Henama, 2017).

3. Climate Change Perceptions and Adaptations

The focus on tourism operators' perceptions, preferences and decision-making has been noted as important in creating an understanding of how the tourism industry could aim to adapt to climate change impacts (Becken, 2013; Hambira et al., 2013). The business focus is crucial also due to the current modes of neoliberal governance, emphasising the key role of markets (i.e. producers and customers) to deal with their consequences to the environment (Tervo-Kankare et al., 2018; see Jessop, 2002). In this respect, decision-making and responsibilities in adaptation (and mitigation) have been increasingly devolved to markets and private-sector operators (see Nalau et al., 2015). There is a deepening emphasis that adaptation "should be decentralised to the lowest level of governance" (Marshall, 2008: 80). Thus, this kind of governance perspective highlights the imperative to understand how businesses operate and perceive the potential, or existing, impacts of climate change and related needs for adaptation.

Adaptation refers to actions aiming to reduce the negative effects (and to benefit from the positive effects) of climate change (Smit, Wandel, 2006). In general, the concept focuses on how a unit, or a system, aims to adapt/adapts to change through transforming its operations (Kelly, Adger, 2000). In tourism studies the need for adaptation has been extensively studied (see Wall et al., 1986; Scott et al., 2012; Kaján, Saarinen, 2013), with a focus on the adaptation perceptions, attitudes and implementation plans by tourism operators (see Hall, 2006; Brouder, Lundmark, 2011; Tervo-Kankare et al., 2018). From a tourism destination perspective adaptation and related actions should contribute to climate resilient development which increases the

destination's climate and weather related stress tolerance and the ability to reorganize, 'bounce back' or continue operations in changing environments (Lew, 2014). Thus, adaptation plays a key aspect in resilience thinking (see Espiner et al., 2017) and can enhance destination governance strategies in a transition towards sustainability in tourism development (Saarinen, Gill, 2019). Therefore, adapting to climate change has become an imperative for the survival of destinations (Prideaux et al., 2010; Prideaux, 2013).

The tourism sector is increasingly aware of climate change, and is most likely already incorporating climate change into its planning. However, the views of tourism stakeholders, including tourists, about climate change often are limited. Kaján and Saarinen (2013) argue that there is an alarming number of tourism businesses that are disregarding climate change as a current threat regardless of the amount of evidence available, including the recent report by the Intergovernmental Panel on Climate Change (IPCC). Projections suggest that, by 2050, the tourism sector will be experiencing significant climate change impacts, and the economic impacts of climate change are likely to be hard-hitting for developing countries due to their lower adaptive capacity. In this respect, the region of Southern Africa is projected to experience intense climate change effects and with potentially devastating consequences including for the tourism economy (Rogerson, 2016; Pandy, Rogerson, 2018).

4. Methods and Research Location

The objective in the empirical research was to assess the impacts of extreme weather and climate change on tourism businesses and their visitors in Hwange National Park, Zimbabwe. The study used semi-structured interviews with managers of accommodation establishments.

The databases of Zimbabwe Tourism Authority and Ministry of Tourism were the starting point for the study in terms of providing names of accommodation operators. Initial interviews were sourced using this database and then snowball sampling subsequently was applied to access further appropriate respondents for interview. In total twenty-one

accommodation establishment managers were questioned and each face-to-face interview averaged 30 minutes to one hour in length. The semi-structured interview format was followed in order to allow for flexibility and the introduction of new ideas or areas of interest. Before an interview was undertaken all respondents were presented with a content letter indicating the purpose of the study. The second qualitative methodology applied was a focus group which was facilitated by one of the research team and undertaken with five long-serving conservationists and park rangers. Use of the focus group enabled the collection of information through a partially structured process yet allowed respondents to express themselves freely and provided a rich vein of empirical data. Additional interviews were sought with the Zimbabwean Government Tourism Authorities, however, contacted officials were either unable or unwilling to participate in this investigation. Content thematic analysis of interviews was undertaken.

The study area is Hwange National Park (Hwange) in western Zimbabwe and situated 100km south of Victoria Falls. It is the largest national park in Zimbabwe and covers an area of 14 650 sq.km. (Fig. 1).

Hwange encompasses a wide variety of vegetation zones, where the game and birdlife varies considerably. Towards the north of the park, it is a contiguous area mainly devoted to wildlife, which stretches to the Zambezi National Park and the Zambian border. Towards the south of the park is covered with Kalahari Desert sand hence that area is regarded as the sandveld. This area is very arid and comprises largely of flat sand sheets which are overlaid by the acacia, terminalia woodlands and patches of open grasslands (Valeix et al., 2007). Extreme changes in temperature, rainfall and wind are of major concern. Additional concerns for Hwange, despite it being located in a semi-arid area, include the fact that, it has few intermittent natural water sources. To supplement water in the park, the management now tops up water holes with artificial pumps all year round (Valeix et al., 2007).

Hwange National Park has a dry savannah biome which is characterized by two highly distinct seasons, which are the wet and dry seasons. During the dry season, in April through October, most plants and vegetation shrivel and in some cases die down (Valeix et al., 2007). The riverine systems are intermittent and dry up for the greater part of the

year, only to re-emerge soon after rains. The wet season lasts for about 4 to 5 months and is usually from December to March, when the area receives 300mm to 600mm of rainfall per annum (Valeix et al., 2007). During the rainy season the Hwange area experiences extreme high temperatures averaging of 32oC and heat waves are characterised by temperature of above 38oC (Dunlop et al., 1997).

The Park is home to large herds of elephants and buffalo as well as a small population of black rhinos. Other fauna include giraffe, kudu, sable, waterbuck and gemsbok as well as predators such as lion, leopard, spotted hyena, cheetah and wild dog. Hwange has three tourism peaks throughout the year. The most significant are December-January and Easter which are popular periods for local and international travellers. At these times the average occupancy of the accommodation establishments is over 90%. The third peak is over the dry winter season (June-August) when the temperatures are cooler and the game congregate at the various water holes. Occupancy levels throughout the year fluctuate between on average 40% to 70%. Hwange's close proximity to Victoria Falls is a major advantage. Zimbabwe's iconic attraction of Victoria Falls lures over 2 million visitors annually and many of them add a safari to Hwange onto their itinerary. In terms of source markets, the majority of visitors are from Germany, Italy, France, United States and United Kingdom. A small number of arrivals originate from the surrounding countries of South Africa and Botswana. Local domestic tourism is minimal. The small elite minority of wealthy Zimbabweans prefer to travel overseas. This said, the majority of Zimbabweans are poor and unable to afford to go on holiday due to the economic crisis that has afflicted the country over the past decade.

In total there are presently 25 lodges and camps inside and immediately adjacent to Hwange. Figure 2 shows the location of the 21 camps that were interviewed for this study. Three of the lodges are original farmhouses dating back to the 1930s when Hwange was established by consolidating three large farms into the game park. A number of the lodges adjacent to the park were houses on farms but later renovated to accommodate the increasing number of tourists visiting the area overall, tourism provides a more viable business option than crop production or cattle farming in such a water-stressed

area that has the additional problems of crops being grazed by elephants and cattle frequently killed by lion, wild dogs and leopards. Accommodation offerings range from tented camps to chalets to up-market lodges. Most establishments offer daily game drives or bush walks by trained wildlife guides.

5. Results and discussion

This section of material outlines the results concerning responses of the accommodation managers to questions related to extreme weather events, the impact that these have on their businesses and their adaptive responses as well as knowledge and perceptions of climate change. In addition, the findings are included from the focus group of conservationists and park rangers.

The results disclosed that all accommodation managers consider that extreme weather events are becoming more frequent and affecting their tourism businesses. In addition, the respondents concur that extreme weather events have compelled them to make changes to their business operations. It was emphasized that the increased occurrence of heat waves is detrimental to nature-based businesses as these meant that game drives either were down-scaled or cancelled. One safari lodge owner stated that *“the heat waves that occurred this year resulted in us putting a halt to all game drives for about two weeks. During this time we lost a lot of income”*. The owner of an upmarket lodge declared that as a result of weather extremes *“We are finding ourselves increasingly paying more and more for maintenance of our properties”*. All respondents agreed that the predominantly northern hemisphere tourists find the extreme heat particularly difficult to cope with.



Fig 1. Location of Hwange National Park in Zimbabwe
Source: Authors

At Hwange summers are not only blighted with heat waves but increasingly also with severe storms which bring flash flooding and damage both to property and access infrastructure. One respondent remarked that the flash floods caused torrents of mud to fill the lodge swimming pool with extensive as well as costly damage to guestrooms. Flood-damaged roads disrupt and sometimes cut off supplies as well as tourists trying to reach the lodges. One lodge manager said that *“We incurred a devastating loss during the heavy rains. We were anticipating a number of guests and we had already procured sufficient supplies for them. Because of the rains, the tourists could not reach our establishment hence they had to seek alternative accommodation, resulting in us losing substantial revenue”*. Lodge managers stressed that as Hwange is a water scarce area with little rain most years, the increasing frequency of excessive downpours *“causes a lot of destruction to the bridges and roads,”* with one respondent noting that *“the bridges have been washed away twice in a period of eight years”*.

Asked about the impacts of floods and heat waves on their businesses the most common response was that insufficient remedial action is taken to withstand the next extreme weather event. In particular repairs to infrastructure such as bridges and roads which are unable to withstand subsequent extreme weather events. As one camp manager said *“There has been major bridge destruction in the past 8 years due to floods. The more worrying thing is that the repairs being done to the bridges are not withstanding the severity of the floods hence such destruction is likely to occur again”*. Furthermore, heat waves are of concern to a number of lodge managers as they worried about the energy required to power air conditioning during these events as the heat was not conducive for game drives and guests had to make comfortable. All respondents expressed the view that the greatest impact of extreme weather was the fall in guest numbers and the loss of business. It was observed by one respondent that *“as the weather continuously shifts, the tourist’s reservation patterns are altered in response to extreme weather”*. Some establishments had already noticed a change in visitor patterns. One lodge manager averred that *“Hunting is an activity that is being affected by the extreme weather. As the temperatures increase this results in animals changing their behaviour patterns*

making it more difficult to locate a specific animal for hunting. This frustrates the clients and they lose interest”. This assertion was backed up by the findings of the focus group convened with conservationists who stressed that the extreme weather conditions experienced over the past years had a detrimental impact on Hwange’s plants and animals. They gave the example of the very hot summer of 2016 when the rains were three months late and stated: *“The heat waves that struck Hwange in December and January were so devastating, temperatures went above 40°C that a number of animals died of heat strokes, especially birds. In 2011 the heatwave resulted in the death of 77 elephants.”*

The extreme heat results also in the lack of forage as plants wilt and die so the migrating animals are moving to neighbouring communal lands in search of pasture resulting in conflict as the animals destroy the crops and farmers kill the animals. It was observed also by our respondents that poaching has also increased due to crop failure caused by the droughts. The conservationists and rangers argued that tourist numbers generally have decreased in part due to the chronic political instability in Zimbabwe but also to the impacts of extreme weather. With changes in weather patterns and changing animal behaviour tracking specific animals has become increasingly difficult which has resulted in a decrease of the visitation by high-paying hunters. With strict hunting laws the difficulty of tracking animals together with the uncomfortable heat has put off many hunters from returning to Hwange. Overall, the broad impacts of weather events on Hwange tourism are well captured by the view of one safari lodge manager who explained that *“There is an increasing number of tourists, especially regular tourists who have expressed that they will no longer visit the Hwange in summer as the conditions have become unbearable”*. Another lodge manager reiterated the fact that *“except for the December peak where there is still a large number of tourists the other summer months are seeing reductions in tourist numbers”*

Extreme weather events have uneven impacts for different forms of accommodation that are available at Hwange. Arguably, the tented camps and more basic lodges were those most impacted by extreme weather events. One upmarket lodge manager stated *“during the periods of harsh winds, heat waves*

and flooding conditions, the establishments that offered tented camping accommodation have proved to be uncomfortable to the tourists hence the tourists will resort to using more solid structures like the ones we have here". The upmarket lodges agreed that (ironically) the heat waves "brought good business to them because in times of storms and floods the tented camps are not safe and more business comes to them". The short-term benefit was confirmed by another respondent who stated that "our establishment has been negatively affected by extreme weather events and has resulted in us relocating our guests to other lodges that are built up for safety resulting in a loss of revenue for us". Notwithstanding the type of accommodation all managers agreed that, in the near future, tourists would be less attract-

ed to Hwange as the weather events negatively affect the environment and the biodiversity which is the core attraction for visitors. The negative impacts that the extreme weather has on the visitors' comfort levels results in loss of income and decreased investment in the area leading to a deterioration of the entire reserve. One accommodation manager reflected on the period between 2004 and 2009 when the Zimbabwean economy collapsed due to hyperinflation and almost all of Hwange accommodation establishments closed, stating that "I anticipate such a situation happening again in Hwange if the area fails to attract tourists and the area will be removed from tourism maps."

Adaptation – conscious or unconscious - was observed at all interviewed accommodation establish-

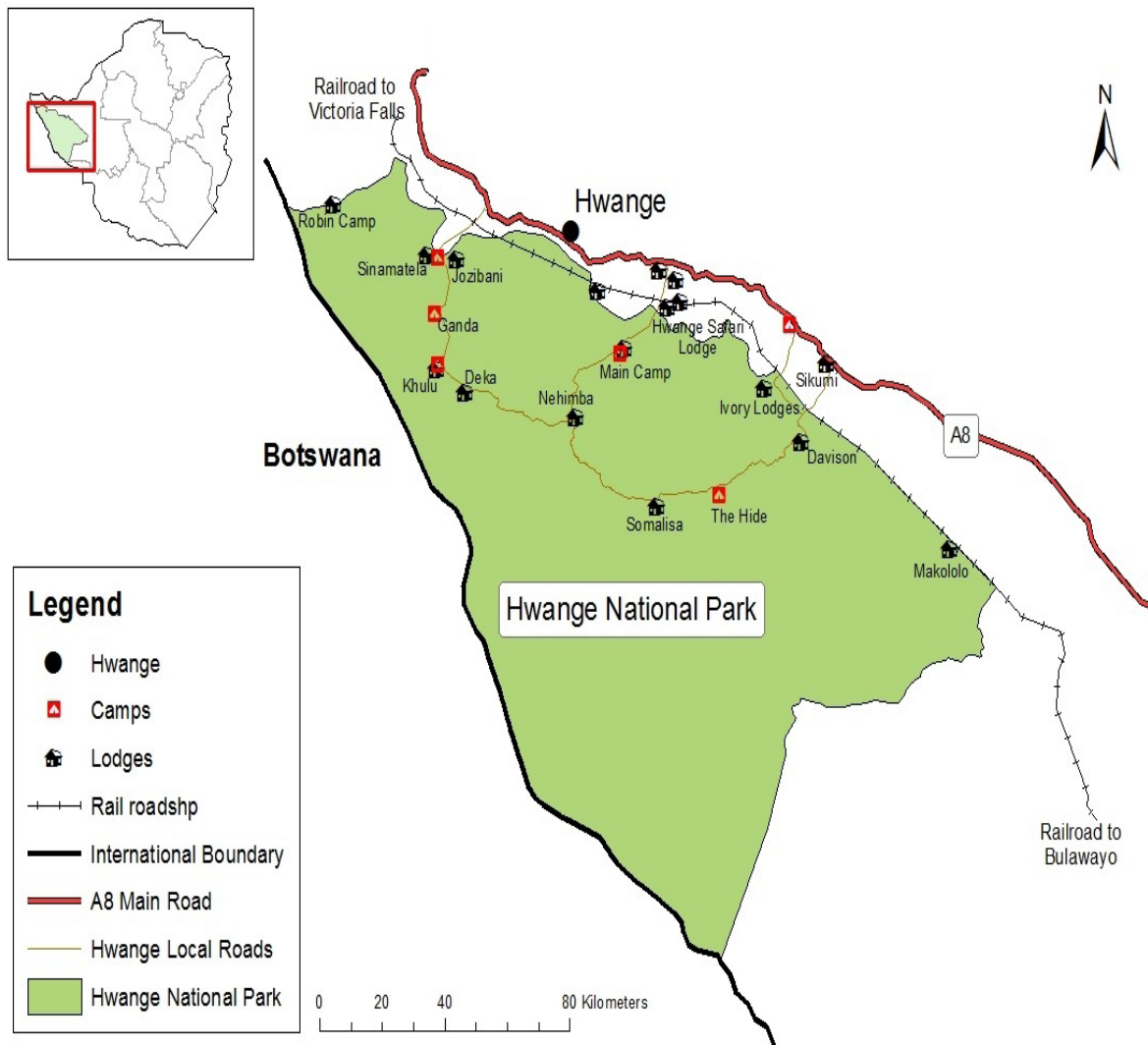


Fig 2. Location of interviewed tourist accommodation establishments
Source: Authors

ments which are implementing measures to address changing weather patterns. These measures included energy conservation, water conservation and environmental conservation practices. In terms of energy conservation most establishments are using energy saving light bulbs and new additions or renovations included designs to allow in more natural light during the day. The lack of a consistent electrical supply is a problem for all Hwange accommodation establishments and because of frequent power outages most lodges have installed solar water heaters and costly diesel fuelled generators. One lodge owner commented that *“the Zimbabwe Electricity Transmission and Distribution Company (ZET-DC) had completely failed to supply this area with constant electricity, which would have been cheaper than our own electricity production. This means that we have to consume less electricity to cut on energy costs”*. Several lodges have installed larger and sophisticated photovoltaic solar modules which have the capacity to power their entire establishment. In addition, most lodge kitchens have converted their cookers from electricity to Liquid Petroleum (LP) gas to guarantee timely meals and guest comfort. One manager elaborated that: *“We now use LP gas for all of our cooking as the use of LP gas is reliable and also we use it for off-site cooking when we offer meals during game drives. The problem only arose when the gas suppliers failed to reach our establishment due to the bridge that had collapsed, but we always strive to keep sufficient stock in case of such events and also to limit the number of trips that the supplier has to make”*.

Arguably, water has always been a scarce commodity in Hwange due to its semi-arid environment and seasonally dry dams. Except for those lodges located close to Hwange town that can access municipal water all other lodges use borehole water. Borehole water requires pipe fittings and collection tanks as well as diesel generators to pump the water. This situation was described by one lodge manager as follows: *“The water issue is something that we all battle with here in Hwange as all of the water that we use in our establishment is ground water. We use both electric and diesel powered water pumps and this water is collected in collection tanks, usually placed at an elevated position on the property”*. Of necessity, all establishments manage water careful-

ly as leakages or excessive use results in direct costs to their businesses.

In an attempt to create a more comfortable environment for the visitors during the uncomfortably hot months, air conditioning systems are installed into most of the guest rooms and lounge/dining areas. As prolonged periods in the outdoors are no longer possible for most guests, inside facilities for the camps and lodges have been enhanced in order to facilitate a more varied and enjoyable guest experience. One lodge manager explained as follows: *“We constantly have to improve indoor facilities at our establishment to make sure that tourists are comfortable during their stay here and during the heat waves tourist resort to staying indoors hence we have things like cable TV, WIFI, board games and DVD players for an improved indoor experience”*.

The IPCC (2014) predicts that globally extreme weather events will become more acute unless climate change actions are implemented. Accordingly, the Hwange camp and lodge managers were questioned as to their understanding of the term ‘climate change’, whether it would impact their businesses, who they thought should take responsibility for these issues and what role the tourism sector could play. It was revealed that most interviewees had heard of the term climate change either through the press or tourism workshops. Of the total of 21 respondents 18 considered that climate change was a cause for concern whilst three were unconcerned and expressed an indifferent attitude towards it. Operating a natural based tourism business in contemporary Zimbabwe is a complex and stressful affair as articulated by one of our interviewees: *“Running a lodge, you are constantly faced with a lot of things to deal with on a daily basis. In this business there are many sleepless nights, hence worrying about climate change is the least of our worries at the moment”*. Another sceptical manager expressed the opinion that *“climate change will only be felt more than 100 years from now and climate change activists are making a big fuss out of it while exaggerating impacts”*. These comments aside, the vast majority of our respondents (18 of 21) agreed that the effects of climate change upon Hwange were serious and being felt with immediate effect. One camp manager observed that *“the extreme temperature and the reduction in rainfall in this area probably means that we are experiencing climate change. I have been work-*

ing in Hwange for the past 15 years and things like droughts keep getting worse”.

Questioned as to who should take responsibility for climate change issues in the area the viewpoint of accommodation managers was that it was shared and that a number of stakeholders should bear responsibility. These include the national government, the international community, the tourism sector, local authorities, Hwange tourism companies as well as NGOs. Of this array of stakeholders it was considered by interviewees that the national government of Zimbabwe was most responsible for investing more resources to combat the impacts of climate change. The responses by the tourism industry of being reliant on and waiting for government interventions and leadership on responding to climate change aligns with findings in other parts of the world (see Prideaux et al., 2013). Arguably, however, the implementation of structural changes and policies by national government that might mitigate the effects of climate change and assist in propelling more sustainable ways of operating tourism enterprises was not what the respondents were referring to. Rather it was a call for the imperative need for a quicker government response to repair the short and long-term damages caused by extreme weather. Little or no consideration was given to long term solutions such as amending sustainable tourism business models or national environmental policies. Indeed, the most typical response from accommodation managers was that *“the government should perform infrastructural maintenance and repairs in a timely manner, as infrastructure such as roads and bridges are in dire need of attention”*. Sub-standard infrastructure, bush fires, water shortages and unreliable electricity supply were viewed by most managers as the major issues that they face. Whereas as indicated above energy and water saving measures have been introduced at lodges such as photovoltaic solar power, water heaters, the use of LP gas and boreholes these were prompted by the imperative for business survival.

6. Conclusion

As the region of southern Africa is projected to experience accelerating impacts of climate change,

research on its consequences and responses by tourism stakeholders is of critical significance (Hambira et al., 2013; Pandey, Rogerson, 2018). This is especially so with respect to the segment of nature-based tourism which is a core tourism product for several countries in southern African and in particular for Zimbabwe. This paper represents one of the first attempts to explore nature-based tourism operators' perceptions and adaptation to climate change in Zimbabwe. Based on the results it is evident that the majority of the tourism operators of this study are well aware of the effects of climate change in the region and for their own operations. Nevertheless, there are also some critical or unconcerned views expressed towards climate change and its estimated impacts in future. For them the projected changes in 30, 50 or 80 years periods, for example, are probably too distant in future to consider in their business operations that often focus and depend on the next coming season or 2-3 years operational plans and management needs (Tervo-Kankare et al., 2018). Similar unconcerned views with a relatively short-term planning horizon have been observed in earlier studies conducted on perceptions and adaptations to climate change in the Global South and North (see Hambira et al., 2013; Kaján et al., 2014; Pandey, Rogerson, 2019).

Many interviewed operators had adaptation measures in place. Some of the adaptive techniques represent an anti-mitigation for climate change, such as the instalment of air conditioning systems. However, these are considered crucial for customer comfort (see also Saarinen et al., 2012), especially for northern hemisphere tourists. Other adaptive measures included energy saving, water conservation and environmental protection practices. As such, these measures partially combine adaptation needs with mitigation. Energy and water saving or solar water heaters, for example, are typical mitigation techniques but in the context of Hwange and Zimbabwe, in general, they are probably more adaptation-related, in practice, and driven by wider socio-ecological and economic issues. Due to unreliable electrical supply, a use of energy saving light bulbs and solar heaters is a rational cost saving practice as otherwise the businesses may often need to utilise costly diesel fuelled generators for energy production. The same applies for saving water as due to water supply shortages the businesses need to pump the wa-

ter from boreholes by using generators. This kind of integrated mitigation and adaptation strategy is quite typical for nature-based tourism businesses in southern Africa (see Saarinen et al., 2013; Hambira et al., 2013), which calls for context-sensitive analysis and understanding the socio-economic conditions in which the tourism businesses operate. This contextual understanding would be highly crucial for a development of climate change and tourism policy that could respond to and prevent the short and long-term damages caused by changing climate, which need was strongly emphasised by the operators, and create long-term structural solutions for integrated adaptation and mitigation. These solutions and structural changes could guide the Zimbabwean (nature-based) tourism industry to a more sustainable development path in future, a trajectory which seemingly is beyond the tourist operators' perspectives under the current socio-economic difficulties in Zimbabwe.

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