EE
E u r o E c o n o m i c a
Issue 2(37)/2018 *ISSN: 1582-8859*

Tourism and Climate Change: Stakeholder Perceptions of At Risk Tourism Segments in South Africa

Wayde R. Pandy[1], Christian M. Rogerson[2]

Abstract: The aim is to investigate the perspectives of key South African tourism industry stakeholders surrounding the issue of climate change. Previous research has shown that while the tourism industry in many countries is aware of the significance and potential ramifications of climate change, it is not considered a pressing issue and not the least since the impact of the 2008 global economic crisis. In Africa, with the tourism sector potentially facing major threats from climate change, the need for further research is urgent especially with respect to stakeholder perceptions. The study analyzes the development of national policy towards climate change and tourism and the perceptions of 31 key stakeholders on the segments of the national tourism economy most at risk from climate change. The results show at national government level South Africa is seeking to enact tourism and climate based policies. This said, the degree to which such policies might be implementable must be questioned not only in relation to capacity issues at the scale of local government but by the depth of revealed commitment of stakeholders in terms of making meaningful adjustments to the challenges of climate change because of their perceptions of risk. In particular, the interviewees highlighted their awareness that climate change is responsible for threats to biodiversity as well as assets for coastal and marine tourism. Overall the stakeholders perceived differences in the impacts of climate change for different segments of the tourism economy. Of concern was that stakeholders gainsay the potential impacts of climate change for certain segments which international evidence suggests will most definitely be at risk.

Keywords: climate change; tourism; adaptation; risk perceptions; South Africa

JEL Classification: Z32

1. Introduction

The tourism industry is a contributor to as well as victim of climate change. (Becken, 2013) The sector is vulnerable to the impacts and implications of climate change largely because of the danger that climate change poses to many of the resources that various types of tourism critically rely upon. The manner whereby climate change impacts are manifest at the international, national, local, and individual scales, however, makes planning and pre-emptive action particularly difficult for tourism firms which continue to confront simultaneously many other business challenges. (Becken et al., 2015; Craig & Feng, 2018) Climate change is a reality with impacts and implications that range from affecting the distribution and availability of water, changing sea levels, significant temperature increases while also escalating the intensity and damage that storms and other atmospheric phenomenon are able to inflict on a more regular basis. (Birkmann, 2007; Moreno & Becken, 2009; Nacipucha et al., 2017; Schmunde et al., 2018; Schroter et al., 2005; Wongbusarakum & Loper, 2011) This said, the ramifications of climate change are complex and often unknowingly interwoven into the

[1] University of Johannesburg, South Africa, College of Business and Economics, School of Tourism and Hospitality, E-mail: wayde360@gmail.com.
[2] University of Johannesburg, South Africa, College of Business and Economics, School of Tourism and Hospitality, E-mail: crogerson@uj.ac.za.

fabric of almost every facet of our daily lives with unrecognised social, political, economic and environmental outcomes. (Adger et al., 2012, Rutty & Scott, 2015)

From the international experience it is argued that any real, efficient, or effective action taken towards addressing the significant threats posed to tourism by climate change requires two broad types of policy and action. (Becken, 2013; Kajan & Saarinen, 2013; Njoroge, 2015) First, are mitigation-based policies and actions, which essentially seek to reduce the long-term and most severe effects upon the tourism economy that are anticipated from climate change by cutting down on the amounts of anthropogenic pollutants released into the earth's atmosphere. (Anantram & Noronha, 2005; Hall et al., 2015; Scott, 2011) Second, are adaptation-based policies and actions which attempt to prepare individual communities and regions for some of the major hazards associated with climate change. Adaptation policies seek infrastructure development or policy enhancements and actions that might lessen the projected impacts of climate change particularly for those groups considered most vulnerable to the impacts and implications of climate change. (Hambira & Saarinen, 2015; Hess & Kelman, 2017; Wong et al., 2013; Wyss et al., 2014) This said, in other instances adaptation can involve taking advantage of certain opportunities presented by climate change.

In considering the long-term difficulties associated with international negotiations to limit greenhouse gas emissions to a safe level, Khan and Roberts (2013) argue that questions about adaptation to climate change have risen rapidly on the agenda of the United Nations Framework Convention on Climate Change negotiations since 2007. Correspondingly, there is a growing body of research which is investigating the manner in which key stakeholders at both national and international levels are involved and interacting with the tourism and climate change issue. (Becken et al., 2013; Dawson et al., 2016; Dincă et al., 2014; Gasbarro & Pinkse, 2016; Scott, 2011; Gössling et al., 2013; Hall, 2016; Helgenberger, 2011; Hess & Kelman, 2017; Klint et al., 2012; Su et al., 2013; Tapsuwan & Rongrongmuang, 2015) It is observed that the business and management field within tourism has been criticised for only limited engagement with climate change as a pressing issue in general, and of adaptation to the physical impacts of climate change in particular. (Linnenluecke et al., 2013) Arguably, any effective tourism and climate change based action requires the support of key stakeholders in the tourism industry. Nevertheless, recent international investigations disclose a significant disconnect between established climate policy environments and the perceptions and actions of certain key stakeholders. (Hambira et al., 2013; Ruhanen & Shakeela, 2013; Scott & Becken, 2010)

Sub-Saharan Africa is identified as one region of the global tourism economy that is anticipated to face moderately to strongly negative impacts of climate change upon the tourism sector and where there is an urgent need for further research on tourism and climate change. (Pandy, 2017; Sifilo & Henama, 2017) Several scholars highlight the vulnerability of the tourism industry in Africa to the impacts and implications of climate change as global environmental change can threaten to irreparably damage the foundations upon which tourism development in Africa is built. (Gössling & Hall, 2006; Gössling & Schumacher, 2010; Rogerson, 2012, 2016; World Bank, 2011) Climate change is raising critical issues of carbon emission reduction, and the establishment of low-carbon tourism destinations in Africa. (Giddy et al., 2017; Gössling, 2010; Hall, 2008; Saarinen et al., 2012; Sifilo & Henama, 2017; Ziervogel, 2016) Although substantial uncertainty exists surrounding the long-term implications of climate change for tourism flows, patterns and destinations, these have not been investigated in any depth in Africa. (Rogerson, 2016) Despite widespread concerns about global climate change, many knowledge gaps exist about the continent's tourism sector. (Pandy, 2017; Sifilo & Henama, 2017) Existing works that look at tourism operators consistently disclose a low level of

awareness of climate change and of its possible impacts as well as little evidence of long-term strategic planning to manage potential risks for tourism from climate change.

It is against this backdrop of industry inaction amidst the advance of global climate change that the aim in this paper is to investigate the perspectives of key South Africa tourism industry stakeholders surrounding the issue of climate change. Of particular concern is the extent to which climate change action is perceived as a pressing issue by key stakeholders in light of South African policy statements in relation to tourism and climate change. Specific attention is upon stakeholder perceptions of particular types of tourism which are viewed as most at risk from the impacts of climate change. The context for this study is broad international scholarship on tourism and climate change which is discussed in the next section.

2. Literature Review

Over the past decade questions relating to tourism and climate change have emerged as a critical issue both for tourism scholars and governments and with critical implications for tourism enterprises. (Kanazawa, Wilson & Holmberg, 2018) Arguably, there is at last an awakening interest in business and management studies about issues of firm and industry adaptation to climate change. (Nacipucha et al., 2017) This rising tempo of concern is due to the manner in which climate change is asserted to "disrupt tourism activities, undermine infrastructure, alter destination configurations and reduce tourist comfort". (Dube & Nhamo, 2018, p. 114) Indeed, climate change essentially affects the "environmental context in which tourism can be undertaken" (Steyn & Spencer, 2012, p. 3) as well as causing "significant regional economic impacts". (Schwirplies & Ziegler, 2017, p. 1278) Coastal and marine tourism assets are particularly at risk because of climate change. (Gössling, Hall & Scott, 2018) Rising sea levels and sea temperatures resulting in beach destruction and coral bleaching degrade the coastal tourism product in many parts of the world. (Moreno & Amelung, 2009) Nevertheless, the challenges of climate change and its damage or destruction of tourism attractions are most acutely experienced in tourism-dependent small islands. (Hampton & Jeyacheya, 2013)

In terms of the occurrence of extreme weather events (such as flooding) the recovery of the tourism industry can take several years, particularly in terms of destroyed roads or accommodation establishments. Furthermore, post-disaster recovery may be made all the more difficult as even in the event that recovery takes place quickly and efficiently, tourists may still perceive a particular destination as "a place to avoid". (Tucker et al., 2017, p. 2) Climate change related physical impacts, such as the increased intensity and duration of droughts in certain regions of the world, can influence long-term water scarcity and food availability which, in turn, can exert significant social, political and economic ramifications where conflict and instability damage potential tourist perceptions, and make tourism and tourism-related development no longer viable. (Hall et al., 2015) Such outcomes have "raised questions pertaining to the resilience of tourism within natural environments, its adaptive capacity, and the ways in which both tourism operators and guests have responded to shocks and disturbances". (Ooi et al., 2018, p. 194)

The imperative for policies and strategies to actively, aggressively and effectively mitigate those human activities contributing to climate change through the production of anthropogenic pollutants is vital for the long term combatting of the ramifications of climate change. (Scott et al., 2016) This said, Stern (2006, p. 6) contends that the extensive damage already inflicted on the earth and its atmosphere by decades of uncontrolled anthropogenic polluting means that "substantial climate change is already

inevitable, since mitigation will have only a minor effect on stocks of greenhouse gases currently in the atmosphere already". As a consequence this makes the pursuit of adaptation-based actions and policy responses to the challenges of climate change absolutely essential for the tourism sector. (Carter et al., 2015) More particularly, adaptation issues are increasingly significant on a local scale given the difficulties and debates that continue to occur within the realm of inclusive and comprehensive international action. (Moyle et al., 2018) Arguably, if tourism destinations are to remain economically, environmentally and socially sustainable, localities and their tourism businesses must pursue adaptive based actions and policies that seek to minimise potential risks. (Nacipuchaet al., 2017)

As pointed out by Hambira et al. (2013), adaptation measures can be technical (recycling, early warning systems), managerial (planning for water conservation), policy-linked (compliance with environmental regulations), educational (conservation education for staff or tourists) or behavioural (introduction of carbon offset programmes) in character. From a research and policy perspective, such adaptation centred actions present formidable challenges. (Hoogendoorn & Fitchett, 2018) First, as the impacts, severity and spread of climate change are not geographically uniform, the potential impacts and challenges facing tourism localities and destinations around the world may differ dramatically. (Pandy, 2017) This makes the application of specific widespread or universal tourism based single adaptation strategies or policies complex and from a practical perspective almost impossible. (Kajan, Tervo-Kankare & Saarinen, 2015) Second, it is also important to acknowledge different types of business, along with the relative size of tourism businesses, may have a significant impact on the types of actions and policies pursued, as well as the general effectiveness of such adaptation attempts. (Gasbarro & Pinkse, 2016) Large tourism enterprises, for example, may have a distinct advantage over small, medium and micro- enterprises in tourism because of better access to knowledge, financial capital, and technology to adapt to challenges posed by climate change at a particular location. (Pang et al., 2013) Nevertheless, in other instances, large businesses could be at a distinct disadvantage in terms of adaptation as compared to their small, medium and micro enterprise counterparts, because of constraints arising from heavy fixed infrastructural investments within a particular destination.

Globally, the tourism industry is thought to possess significant potential to address the challenges posed by climate change. This said, significant differences must be acknowledged between the capacity and challenges facing different nations, communities, and localities of the global North as compared to the global South. Arguably, Shakeela and Becken (2015) caution that the effectiveness of any adaptation related policy undertaken must be framed around or be inclusive of strategic partnerships. This is primarily because the many threats and challenges created or enhanced by climate change can only effectively be solved by collective action involving government at all levels with the cooperation of large and small businesses, and even the support and involvement of individual households. Critically, the effectiveness of any climate change based action demands the support of local tourism stakeholders. This said, Tiller and Schott (2013, p. 21) question the current gaps in stakeholders' knowledge that may work to form the crucial "links" between climate change awareness and ultimately of climate change action, stating that while "it is now widely accepted by scientists and governments that human activity contributes to climate change, there is a lack of understanding whether this realisation is now gaining greater attraction". Adger et al. (2005, p. 78) aver that the "success of an adaptation strategy or adaptation decision depends on how that action meets the objectives of adaptation, and how it affects the ability of others to meet their adaptation goals". This is primarily because different groups or various types of businesses dependent on their

needs and specific challenges attempt a wide array of differing adaptation based actions and strategies to suit individual needs. (Schwirplies & Ziegler, 2017) Leiserowitz (2006, p. 45) maintains that tourism stakeholders and their individual perceptions play a vital role in such collective based action, as general "risk perceptions can fundamentally compel or constrain political, economic and social action to address particular risks".

The tourism industry has been under critical scrutiny for its short-term profit orientation and lack of meaningful actions regarding climate change. (Gössling, 2010; Hall, 2006; Jenkins & Nicholls, 2010) Nevertheless, little actual empirical research examines tourism stakeholder perspectives concerning climate change. (Ruhanen & Shakeela, 2013) Extant international research discloses that while the tourism industry in many countries is aware of the significance and potential ramifications of climate change, it is not considered a pressing issue and not the least since the impact of the 2008 global economic crisis. (Ruhanen & Shakeela, 2013) Becken and Wilson (2013, p. 1) argue that while interest in "the interactions between climate, weather and tourism has increased markedly in the last decade in response to climate change concerns", there remains a great deal of research to be undertaken. Indeed, Dube and Nhamo (2018) contend that research attempting to improve knowledge and understanding of the potential impacts of climate change on tourism remains "pivotal".

In terms of African scholarship, Hoogendoorn and Fitchett (2018, p. 742) maintain that the "continent specifically has seen appreciably less research than other countries in the global South, despite arguably having the lowest adaptive capacity and projections of severe impacts of climate change to the tourism sector". This confirms the earlier observation made by Rogerson and Visser (2011, p. 256) of "substantial uncertainty surrounding the long-term implications of climate change for tourism flows, patterns and destinations" and that "these impacts have not been investigated in any depth in Africa" including South Africa. Likewise, Hambira and Saarinen (2015, p. 351) forward that "there are potential major gaps in information regarding climate change impacts, adaptation and policy responses". Indeed, Booyens and Rogerson (2016) maintain these issues are of continued concern in light of mounting international pressure to tackle climate change.

Overall climate change research is acknowledged by some scholars as "one of the most urgent issues in context of developing countries, where the impacts of climate change may be very severe in the relatively near future". (Saarinen et al., 2013, p. 244) This said, within extant tourism adaptation research about perceptions surrounding climate change, Vogel (2009, p. 82) stated there are "very few detailed surveys and assessments that focus on the perceptions, implications, opportunities and challenges". She continued to reflect that it was disconcerting few private sector players have "undertaken a serious "reflection" on adaptation and climate change and the implications of climate risk on overall business strategy and the risk management environment". (Vogel, 2009, p. 82) It is this particular knowledge gap surrounding the perceptions of tourism industry stakeholders that is investigated here in the context of climate change in South Africa. Special focus is upon the extent to which key stakeholders consider whether particular forms of tourism are more at risk from climate change impacts than others.

3. Methodology

The methodology used in this research includes an analysis of government policy documentation on tourism and climate change. In addition it includes stakeholder interviews. Overall, the study builds

upon and is a parallel investigation on tourism policy and perceptions which was undertaken in Australia by Ruhanen and Shakeela (2013).

The empirical research uses a qualitative methodology and applies a content analysis thematic framework approach involving in-depth, semi-structured interviews to analyse the perspectives of key South African tourism industry experts. The interview themes were similar to those undertaken in the Australia study. (Ruhanen & Shakala, 2013) Purposive sampling is used to identify the expert interviewees, which include representatives of national and provincial government, the private sector and organised tourism business. In total 31 interviews were completed. These included eight interviews conducted with national tourism stakeholders, including representatives of the National Department of Tourism, SANParks, and senior personnel of major private sector tourism enterprises such as Tsogo Sun. Beyond these national players the research also sought to capture the perceptions of key tourism stakeholders from South Africa's different provinces. A total of 23 interviews were undertaken with stakeholders who offered a provincial perspective on tourism and climate change. The rationale for undertaking these provincial stakeholder consultations was to include perspectives from different geographical regions of South Africa. Interviews were undertaken telephonically and generally lasted 30 minutes.

Table 1 shows the breakdown of interviews undertaken for this research.

Table 1. Structure of Survey Population of Key Stakeholders

Key Tourism Stakeholder	Total
National Scale	8
Provincial: Eastern Cape	2
Provincial: Free State	2
Provincial: Gauteng	4
Provincial: KwaZulu-Natal	3
Provincial: Limpopo	2
Provincial: Mpumalanga	2
Provincial: North West	2
Provincial: Northern Cape	2
Provincial: Western Cape	4

Source: Author Survey

4. Results

The research findings are discussed in terms of two sections of material. The first section interrogates the policy environment and of emerging South African government policy towards tourism and climate change. The second section presents the findings from the survey of 31 key tourism industry stakeholders about their perceptions regarding what are considered the most vulnerable aspects of South Africa's tourism industry as a result of the advance and threats of climate change.

4.1. Tourism and Climate Change in South African Policy

At the broadest level of policy discourse it should be recognized that South Africa has a relatively longstanding history of environmental focus. In 1996 the country formally recognized the importance of the environment and sustainable development in the post-apartheid Constitution. Since then the country has continued to commit itself to environmental based sustainability practices and climate change related mitigation undertakings by endorsing several international agreements. These include *inter alia* the United Nations Framework Convention on Climate Change (1992) (as well as the Kyoto Protocol of 1997), the Millennium Development Goals (2000), the Copenhagen Accord (2009), the

Cancun Agreement (2010), and the Paris Agreement (2015). In the context of climate change and tourism policy development, it should be noted the South African government has also openly recognized that climate change represents one of the greatest threats to sustainable development. (Department of Tourism, 2011a; 2011b) Moreover, policy-makers conceded if left unabated the potential threats associated with climate change have the potential to undo or undermine many of the positive advances made by South Africa in terms of expanding the country's tourism industry, and the subsequent jobs and economic growth that has come about as a result of the growth and development in the tourism sector. (Rogerson, 2016) Overall, it is made clear in government policy documents that "climate change matters to South African tourism" (National Department of Tourism, 2011a, p. 4). The pressing need to consider climate change impacts upon tourism stems from concerns about potential losses to biodiversity, which is central to the nature tourism industry and one of the core competitive strengths of South African tourism. (Reddy, 2011) In 2012, national government stated as follows: "Our geographic location away from most of our key markets, the heavy reliance we place on South Africa's environment in our positioning, and therefore in our visitor's expectations and experience, as well as the high proportion of fuel and energy costs in our product mix all mean that climate change is an issue of relevance for the sector". (Department of Tourism, 2011a, p. 74)

National government has acknowledged widely the need for policy and action in relation to tourism and climate change in South Africa. (Rogerson, 2016) The country is finalizing a national tourism and climate change response programme and action plan. The National Climate Change Response policy document highlights that South Africa is both a contributor to and potential victim of global climate change. (Department of Environmental Affairs, 2011) It is argued that the challenges presented by climate change cannot be the sole prerogative of one government department because effective integration of adaptation and mitigation measures demands the buy-in and prioritisation of climate change within many government departments and across all three spheres of government in South Africa. Furthermore, stakeholder engagement through the process of public participation is not only encouraged, but is in fact enshrined in South African legislation. (Department of Environmental Affairs, 2011) More specifically, the country's concerns surrounding the issue of climate change and tourism are expressed in the National Tourism Sector Strategy the guiding policy framework for tourism development in the country (Department of Tourism, 2011b), along with the National Tourism and Climate Change Action Plan. (Department of Tourism, 2012)

National policy documents envision and essentially set forth the goal of establishing a "Low Carbon and Climate Resilient Tourism Sector". Such a vision, however, is also crucially acknowledged to require an "ongoing", and "dynamic climate change policy environment" that prioritizes and is dependent upon five key outcomes. First, it involves an improved understanding of the vulnerabilities of tourism to the physical impacts of climate change in order to build resilience and adaptive capacity. The second requirement is a reduction in tourism based greenhouse gas emissions. The third depends on a fully informed tourism industry which will be brought about by consistent and effective industry outreach and communications. The fourth pertains to the crucial need to have a consistent, inclusive and cooperative approach to policy and framework implementation. Finally, the fifth outcome sees the country maintain an effective positioning within the county's key markets. (Department of Tourism, 2011a; 2011b)

4.2. Key Stakeholder Perceptions Surrounding at Risk Sectors for Climate Change

In reviewing the climate change perceptions of 31 key tourism industry stakeholders, it is important to note that the interviews focused specifically on the topic of climate change and the degree to which

climate change based action was perceived by key tourism stakeholders as a priority. The findings are aggregated as for ethical reasons no individual respondent can be identified.

At the outset, in considering the perceptions of the national tourism stakeholders interviewed, it is noted that all respondents acknowledged that climate change appeared to present a potential challenge for the tourism industry in South Africa. However, the perceptions surrounding the degree to which climate change might be considered to impact on the country's tourism did vary. Some respondents perceive climate change to present a significant or large challenge going forward, while others considered climate change to present a challenge that had the potential to be easily managed due to the types of tourism or tourism segments involved. Our respondents argued that certain tourism segments are less dependent on key resources that climate change might influence.

The issue of which tourism segments in South Africa are perceived most at risk was explored in greater detail. All interviewees were asked to reflect on sectors most at risk and given a list of different tourism segments active in South Africa and asked to provide their perceived impact of climate change on such segments. More specifically six segments of the national tourism economy were discussed. These were selected so as to capture the mainstream components of both the international and domestic tourism economy as well as a number of niche and emerging segments of the South African tourism landscape.[1] The six segments represent forms of tourism which occur across nine of South Africa's provinces and include forms of tourism which are primarily coastal and others which are non-coastal in their geographical focus. The six segments were: (1) nature tourism which is an anchor of the international tourism economy of the country, (2) cultural and heritage which is a new focus for tourism promotion in South Africa mainly to international markets, (3) beach tourism which is the largest component of domestic leisure tourism, (4) business tourism which in terms of the formal economy is dominated by domestic travellers; and two new niches in the national tourism sector namely golf tourism and cruise tourism both of which are attracting an increasing number of international leisure travellers to the country. Our 31 respondents were asked to reflect on potential climate change implications across a scale of "large impact", "small impact" or "no impact".

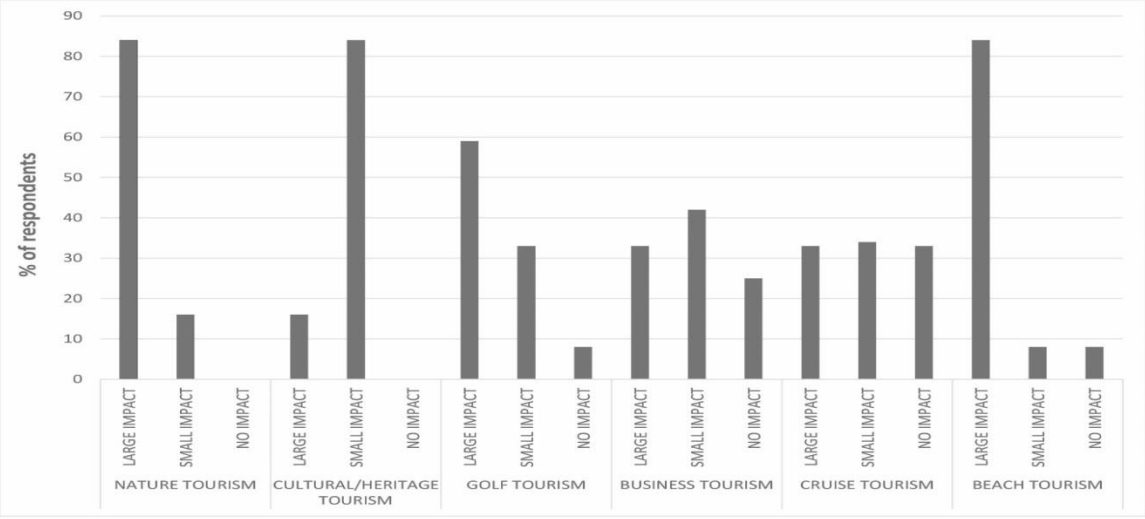

Figure 1. Climate change perceived impacts based on specific tourism segments

Source: Author Survey

[1] See (Rogerson, 2015a, 2017; Rogerson & Rogerson, 2017; Rogerson & Visser, 2004, 2007).

The aggregate results of the key stakeholders are presented in Fig. 1. Unpacking the stakeholder perceptions, as presented in Fig. 1, several findings emerge. Taken together the stakeholders clearly consider that climate change will have a differential set of impacts across different tourism sectors. In terms of the perceptions of the national tourism stakeholders interviewed, the specific tourism segments of nature tourism, and beach or coastal tourism are considered as the most at risk types of the tourism in South Africa. This was consistently stated by respondents as to the direct manner in which climate change has been projected to directly impact on the country's natural resources, of which nature tourism in particular has been noted to be built on and rely. The majority of respondents perceived that increases in temperature combined with increased extremes in precipitation such as drought or flooding events would have a direct link on the country's biomes, and the animals and vegetation that are significant in attracting nature tourists. This said, it should be added that whilst strong agreement existed across all respondents about the potential impacts of climate change on nature tourism, there was variation in opinions surrounding the extent to which the country's plant life and animals might be able to adapt. In particular, it was observed that those stakeholders involved in tourism that had an environmental or ecological background appeared more optimistic concerning the degree to which South Africa's natural environments might adapt. By contrast, the majority of those interviewed who lacked an environmental or ecological background struggled with the concepts of adaptation and adaptive capacity.

In considering the significant degree to which beach or coastal tourism was perceived by respondents to be at risk to the impacts of climate change, the general consensus that appeared was that changes in coastal patterns such as storm surges, beach erosion, and increasing sea-levels would, in all likelihood, impact negatively upon the prospects both for traditional "sea, sun and sand" beach related tourism activities and more broadly for the development of coastal and marine tourism as a whole. Within the national tourism interviews around beach or coastal tourism, one particular case of coastal flooding along the main stretch of Port Elizabeth's beaches in 2013 was highlighted. In this case the extreme weather incident significantly damaged large sections of the city's main beach promenade which became unusable as a result of sewerage lines ruptured and key structural sections of infrastructure being damaged. One respondent feared that changes in coastal climate could lead to greater loss of life, in terms of increased drowning risk. In this regard it was noted that in the age of social media, such an incident could critically impact on certain coastal locations that rely heavily on beach related activities. Finally, as regards most at risk segments the cohort of 31 stakeholders pointed also to perceived impacts of climate change and dangers for the sports tourism segment of golf tourism. In particular, major concern was expressed that with likely reduced rainfall patterns in Southern Africa consequent upon climate change, whether sufficient water supplies be available to support the vast thirst for water of golf courses daily in order for them to function as tourism products. However, it was suggested by some respondents that golf courses situated in coastal areas might be better positioned to deal with water restrictions to the extent that they were financially stable as well as in close proximity to access potential salt water desalination facilities.

By contrast to the above sectors identified as most at risk, the interviewed stakeholders perceived other segments of South Africa's tourism economy as at a low risk or minimal impact in terms of the ramifications of climate change. As shown on Figure 1 the segment of cultural or heritage tourism was isolated as one of those which were perceived as least exposed to the impacts of climate change. In sharp contrast to perceptions about nature tourism, beach tourism or golf tourism, perceptions expressed surrounding this particular tourism segment revealed the majority of participants consider cultural or heritage tourism as likely to be impacted by climate change only to a minimal extent.

These results from key stakeholders are disturbing in light of an expanding corpus of international research which suggests that climate change can pose a set of very real threats to heritage and cultural tourism products. (Hall, 2016; Hall et al., 2016) Indeed, Hall (2016) considers that based upon UNWTO data that as much as half of greenhouse gas emissions attributed to tourism could be ascribed to heritage-related tourism. South African stakeholders perceived the impacts of climate change as limited in terms of the country's monuments and facilities associated with cultural or heritage tourism.

Noteworthy also is the finding that stakeholders did not perceive any threats from climate change to the business tourism economy of South Africa which is geographically highly concentrated on the country's major metropolitan cities in particular Johannesburg, Pretoria, Cape Town and Durban. (Rogerson, 2015b; Rogerson & Rogerson, 2014; 2017) The segment of business tourism was rated as less at risk than cultural or heritage tourism This perception was underpinned by the fact that business tourism is conducted mainly in areas of South Africa with relatively strong or well developed infrastructure, and the perception that business tourism did not link directly to the natural environment. Although climate change threats to cities were conceded, the key stakeholders considered that with respect to exposure to extreme events (such as increased heat or flooding) they felt that infrastructure in urban areas should be most able to cope with such events. This said, given the increasing international literature which points to the potentially major impacts of climate change on cities as a consequence of global warming[1], the optimistic assessment by South African tourism stakeholders as to the resilience of business tourism might be viewed as somewhat uninformed. Arguably, South Africa's cities – in parallel with cities in other parts of the world – will be exposed to the impacts of greenhouse gas induced radiative forcing and localised effects from urbanisation, such as the urban heat island. (McCarthy et al., 2010) Currently, however, South African tourism stakeholders seemingly (and perhaps misguidedly) perceive little threats from such future impacts.

Finally, in terms of the six specific segments of tourism that respondents were asked to address, cruise tourism generated the most divergent set of reactions. Some of the stakeholders perceived climate change as presenting a potentially major impact on cruise tourism and associated this with the threats to beach or coastal tourism which was generally perceived as a high at risk sector. By contrast, others considered climate change to present only a small potential impact on cruise tourism. They reasoned that any increased storm surges or changes in sea-water levels that might impact on the cruise industry could be overcome by simply investing in stronger or more capable infrastructure. Overall, because of its relatively small size in the current South African tourism economy, respondents often expressed only limited knowledge of the workings of cruise tourism. This said, at least one respondent indicated that the negative environmental damages and poor spend for host destinations associated with cruise tourism meant that its demise – perhaps with climate change impacts – might be 'a blessing in disguise'. Such an opinion is supported by a body of research findings on the multiple negative impacts for host destinations of cruise tourism as reported by Klein (2011, 2017).

5. Conclusion

For many tourism-dependent economies, South Africa included, climate change is a new and somewhat daunting issue. Arguably, if tourism destinations are to remain economically, environmentally and socially sustainable, tourism destinations and tourism businesses must pursue

[1] See (Rosenzweig et al., 2011).

adaptive based actions and policies that seek to minimise potential risks from climate change. (Jones, 2008) The first step to realizing adaptation measures is to understand the risks posed to businesses and destinations of climate change. In comparing tourism and climate policy in South Africa with the general perceptions of key tourism industry stakeholders the results appear to reflect a conflicting mix of opinions and perceptions. National government level South Africa is seeking to develop and establishing sound tourism and climate based policies. This said, the extent to which such policies might be implementable must be questioned not only in relation to capacity issues at the scale of local government but also by the depth of commitment of private sector stakeholders in terms of making meaningful adjustments to the challenges of climate change.

The findings were presented of research on the perceptions by key South African tourism stakeholders of potential impacts of climate change. Overwhelmingly the key industry stakeholders revealed that they did perceive climate change as posing a major long-term challenge to the tourism sector. More particularly, the interviewees highlighted their awareness that climate change is responsible for threats to biodiversity as well as assets for coastal and marine tourism. Overall, however, the stakeholders perceived differences in the impacts of climate change for different segments of the tourism economy. Of concern was that stakeholders gainsay the potential impacts of climate change for certain segments which international evidence suggests will most definitely be at risk. Cultural, heritage tourism and business tourism in future will be exposed to negative impacts of climate change in South Africa. Arguably, a failure to recognise these impacts – due to lack of knowledge or poor awareness – will impact the types of adaptation measures that might be implemented by tourism stakeholders. In final analysis, the results of this investigation point to a recommendation for the need for further research to investigate the risk perceptions of climate change around particular segments of South African tourism and go beyond existing research which speaks mainly to risks and threats to the tourism sector as a whole. The future success of adaptation-based policies must be contingent upon and informed by an improved awareness by key stakeholders of the real risks of climate change for all sectors of the tourism economy.

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