Tourism industry reaction to climate change in Kgalagadi South District, Botswana

Jarkko Saarinen a b , Wame L Hambira c , Julius Atlhopheng c & Haretsebe Manwa d

a Department of Geography, University of Oulu, Finland
b School of Tourism and Hospitality, Faculty of Management, University of Johannesburg, South Africa
c Department of Environmental Science, University of Botswana, Botswana
d Faculty of Human and Social Sciences, North West University, Mmabatho, South Africa

Available online: 11 May 2012

To cite this article: Jarkko Saarinen, Wame L Hambira, Julius Atlhopheng & Haretsebe Manwa (2012): Tourism industry reaction to climate change in Kgalagadi South District, Botswana, Development Southern Africa, 29:2, 273-285

To link to this article: http://dx.doi.org/10.1080/0376835X.2012.675697
demand, or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.
Tourism industry reaction to climate change in Kgalagadi South District, Botswana

Jarkko Saarinen, Wame L Hambira, Julius Atlhopheng & Haretsebe Manwa

Climate change and adaptation have become major issues in contemporary tourism development and policy discussions, especially in southern Africa where the tourism industry is largely based on the natural environment and wildlife. Previous studies on tourism and climate change have mainly focused on the global north and snow-based winter tourism activities. This study aimed to fill the gap by examining tourism operators’ perceptions of climate change in Kgalagadi South District, southwest Botswana, and looking at their adaptation strategies, if any. It was found that these operators were aware of the general impacts of climate change but most saw no impacts on the tourism industry and none recognised any impacts on their own operations. Most did, however, envisage challenges to future business growth and Botswana’s tourism competitiveness. The perception that climate change did not currently have any impacts may explain why there were almost no adaptation strategies in place.

Keywords: climate change; climate change adaptation; tourism industry; Botswana

1. Introduction

Climate and weather, always important for tourism, have recently become one of the ‘hottest’ issues in tourism development discussions, policy and research (see UNWTO, 2003). The industry used to take climate for granted as an unchanging and reliable resource but lately has come to realise the possibility of severe changes (Scott et al., 2005; Tervo, 2008). Outdoor tourism activities such as wildlife safaris, backpacking and water sports, are directly dependent on climate and weather and would thus be affected, negatively or positively, by climate change. Travelling modes, tourist destination patterns and images, the length of seasons and the dates they begin and end, tourists’ preferences, products and so on would all be affected (see Wall et al., 1986; Wall, 1998; Lise & Tol, 2002; Becken, 2005; Buzinde et al., 2010). Naturally, some regions and activities are more sensitive to climate change than others and it is probable that southern Africa’s already arid regions and nature-based tourism activities are highly vulnerable (see Preston-Whyte & Watson, 2005; Eriksen & Watson, 2009). According to Hulme (1996), the scenario for 2050 indicates a possible increase in temperature by 2°C in parts of Namibia, Botswana, western Zimbabwe and Zambia and about 1.5°C along the coastal margins of southern Africa. Preston-Whyte & Watson (2005) further posit that in this scenario, although rainfall would increase during the wet season, it would be offset by a decrease in the remaining months of the...
year, resulting in increased aridity in most of the region. Hulme et al. (2001) mention the possibility of a general warming across the continent ranging from 0.2°C to 0.5°C (low and high scenario) per decade by year 2100 and especially increased dryness across central, southern and southwest Africa (see also Vogel, 2005, 2009).

In Botswana the possible impact of climate change on tourism has received minimal attention, and with rare exceptions the same applies to southern Africa in general (see Preston-Whyte & Watson, 2005). This is somewhat surprising as tourism is regarded as one of the key economies in the region. According to Preston-White & Watson (2005), if global and regional predictions are correct, southern Africa stands to lose pristine tourism attractions such as Botswana’s Okavango and Chobe hydrological systems as a result of increased heat and the consequent aridification. This would compromise Botswana’s tourism industry, currently in second position in the country’s economy after the mining sector, and whose future role has been strongly highlighted. Policy sees tourism as a means to diversify the economy and distribute net benefits to communities in the peripheral parts of the country (UNWTO, 2008), which lack resources for development and have high poverty ratios (see CSO & UNDP, 2008). The new Botswana tourism policy therefore aims to involve large numbers of the people of Botswana in the tourism industry (UNWTO, 2008). Its vision for 2020 is that Botswana will be globally renowned as the most authentic and exciting wilderness tourism destination in the world. The plan is to promote the natural environment and its quality in the future as the country’s main attraction (Saarinen, 2009), but this may be jeopardised by the tourism industry’s vulnerability to climate change.

The Intergovernmental Panel on Climate Change (IPCC) estimated in its fourth report (IPCC, 2007) that average temperatures are likely to rise globally by about 3°C by the end of the century. In Botswana, and southern Africa generally, such warming would cause shifting rainfall patterns, health hazards, droughts, decreasing biodiversity and wildlife extinctions, general declines in ecosystem services (see Hulme 1996; Van Jaarsveld et al., 2005; Hulme et al., 2001; Bates et al., 2008; Allen et al., 2010) and mobilisation of the currently stable sand dunes (Thomas et al., 2005). These possible negative effects would interfere with the regional tourism industry’s efforts to provide more employment and business opportunities for Batswana. If Botswana’s tourism industry is to achieve its potential, its key actors will need to be aware of possible changes and their effects and plan adaptation strategies.

This paper is based on interviews with tourism operators in Tshabong area, Kgalagadi South District, southwest Botswana, to assess their perceptions of change and their adaptation strategies, if any. Through activities, investment and innovation, tourism operators play a crucial role in adaptation strategies, and their practices and plans are partly guided by their awareness of, knowledge about and attitudes to possible climate change. The study analysed seven tourism operators’ awareness and perceptions of climate change and how they had adapted, or were aiming to adapt, to possible changes in the Kgalagadi dryland. The study did not aim to evaluate the effectiveness of possible adaptation strategies or assess how they might mitigate climate change; it aimed only to provide background information and tools for further analysis of tourism and climate change, adaptation strategies and policy development.

2. The relationship between tourism and climate change

Climate affects tourism, and conversely tourism affects climate, by increasing water consumption and greenhouse gas emission (see Gössling, 2002). Thus the
relationship between tourism and climate change is complex and involves many uncertainties.

In talking about tourism and climate change, we need to remind ourselves of the meanings of ‘climate’ and ‘weather’: the former means long-term conditions while the latter means a short-term event. Matzarakis (2001) states that when planning travel it is climate that visitors take into account, but at the actual destination weather becomes more important, affecting their overall perception of the destination. However, because of the complexity of the relationship, the exact impacts of climate change on tourism are hard to define (Hall & Higham, 2005; Gössling & Hall, 2006). What is agreed, however, is that the relationship is strong because climate and weather are major elements that set limits to and regulate tourism (Wall & Badke, 1994; Abegg et al., 1998). This is especially the case for nature-based tourism (Scott et al., 2005) and all kinds of tourism that depend heavily on the quality of natural capital and the environment (Saarinen & Tervo, 2006).

Global climate change may affect regional tourism directly or indirectly (see König, 1998; Maddison, 2001; Hamilton et al., 2005), and the effects may be positive or negative. The direct impacts, as a result of changes to the natural and built environment, would be on specific tourism activities and the possibility of organising them and attracting visitors to participate in them. The indirect impacts would be on the structures and patterns of tourism and related human systems, as a result of restructuring of the origin–routes–destination system and the pricing levels. The impacts and their intensity could vary for different regions depending on the type of tourism, the innovative capacity of business, the resources, and the scale of climate change (see Abegg et al., 1998). This spatial variability makes it difficult to predict the exact effects of climate change, and also to apply the results of studies from one region to another, especially if they differ markedly (e.g. between northern and southern regions). In addition, as Smith (1990) emphasises, within a destination region the different types of tourism operation may be exposed to different kinds of changes: there may be complex relations between ‘winners and losers’ which make it hard to plan and manage adaptation strategies for the region’s tourism industry as a whole (Saarinen & Tervo, 2006).

Climate change could affect the tourism industry by altering a destination’s basic attractiveness, such as its wildlife and their habitats, its water level, its vegetation, and so on (Wall, 1998; Martin, 2005; Scott et al., 2005). It could also affect the length, timing and quality of the tourist seasons, which are heavily dependent on climatic factors. Tourism is by nature a place-dependent industry, so the vulnerability of tourism activities to climate change will vary according to the location and its type of activity (Wall & Badke, 1994). However, the level of vulnerability will also depend on the capacity of tourism businesses to adapt and innovate. These are issues which have received scant attention from researchers (Aall & Hoyer, 2005; Hall, 2006). The tourism sector’s adaptive capacity depends largely on entrepreneurs’ and managers’ knowledge about and perceptions of climate change, which will affect their views on adaptation and the kind of adaptation strategy they would envisage (Dewar, 2005; Saarinen & Tervo, 2006).

3. Environment, climate and tourism in the Kgalagadi South District

The Tshabong area has been recorded as having an average annual rainfall of 285 mm over a 56-year period, with a standard deviation of 130 mm, and a range of between
100 and 710 mm (Zhou et al., 2005). Batisani & Yarnal (2010) used rainfall data for a 31-year period (1975–2005) and found an annual mean rainfall of 312.1 mm, with a standard deviation of 137.4 mm. Thus the rainfall in the region is highly variable (about 45%), but this is typical of semi-arid areas, which have isolated extreme events and frequent droughts. Batisani and Yarnal used the trend in annual rainfall to determine whether it is tending towards positive or negative values. They found that the monthly average rainfall was declining in Tshabong, with decreases of 1.9 mm for February, (the second part of the rainy season, January to March) and 2.19 mm for August (the early spring rains), and that the number of rainy days was decreasing by 2.2 days per annum, which is statistically significant.

It is crucial for the tourism industry to understand today’s rainfall variability if it is to adapt to climate change (Batisani & Yarnal, 2010). From a marketing point of view, the drier trend could be an opportunity to position the Tshabong area more firmly as a ‘desert tourism’ destination aimed at specific international tourist segments – the harsh weather and stark landscape of the Kalahari Desert are add-on attractions for ecotourists. For tourism management, sustainability, communities, livelihoods and adaptation, however, the decreasing rainfall may be more problematic (see UNEP & TOI, 2006).

Currently tourism in Botswana is skewed to the north of the country around the Chobe and Ngamiland Districts (Mbaiwa, 2005; UNWTO, 2008) and the tourism potential of the Kgalagadi has not been fully explored or given enough attention. The Kgalagadi District offers ample opportunities for tourism development off the beaten track (see Moswete et al., 2009), and Tshabong and its surrounds have tourism potential. This is a unique wilderness area comprising dunes covered with low vegetation, red unvegetated dunes, grasslands, scrub bush, woodlands and white pans. The wildlife is abundant, including springbok, wildebeest, red hartebeest, eland and gemsbok. The area is also rich in cultural history and traditions, especially those of the Basarwa (San) people (Johnson, 1996). One of the main attractions is the Kgalagadi Transfrontier Park, which is made up of South Africa’s Kalahari Gemsbok National Park and Botswana’s Gemsbok National Park – a ‘peace park’ between two countries. Transfrontier parks are established firstly to conserve and sustain the ecology of an area by removing barriers, i.e. fences, to allow free movement of wildlife (Swatuk, 2005; Ramutsindela, 2009). The Kgalagadi Transfrontier Park’s attractions are black-maned Kalahari lions, cheetahs, leopards, hyenas, wildebeest, springbok, eland and red hartebeest and numerous bird species, all of which make the park ideal for non-consumptive tourism. The second objective of transfrontier parks is to promote alliances in managing natural and cultural resources for socially and economically responsible tourism (Duffy, 2001). Shroyer et al. (2001) note that there is hardly any human habitation on the Botswana side of the Park, which reduces the possibility of conflict with the wildlife and makes this side attractive as a pristine ecotourism area.

The location and development of the Transfrontier Park has tended to reduce Tshabong to a transit village and overshadowed the village’s own development as a tourist destination, but this transit status could be used to harness the tourism potential of the village by diversifying the tourism product. Significant improvement has been made to tourism-supporting infrastructure such as roads, airstrips, telecommunications, electricity and border posts (at Bray, Makopong, McCarthy’s Rust, Middelpits and Bokspits). Alternative tourism products that can be introduced to take advantage of tourists’ journeys en route to the Park are organised photographic and hunting safaris,
self-drive safaris, birding, off-road 4x4 routes, dirigibles, walking trails, camel safaris and races, cultural activities, historical sites and folklore, among others (Johnson, 1996). The Botswana Tourism organisation is assisting in the formation of a trust and training local people to run the camel ride project. Safaris and off-road driving are offered but the operators are based mainly in South Africa (see Johnson, 1996). Some communities close by such as Khawa have been approached by Botswana-based operators and at the time of writing there was a joint venture between the local development trust and a private hunting safari operator.

4. Perceived impacts and strategies for adapting to climate change

4.1 Methods and data

This study was based on material gathered from thematic interviews with managers in tourism businesses or tourism service providing organisations. The interviews were conducted in August 2009 in Tshabong and nearby areas in the Kgalagadi District in southwest Botswana, close to the South African border (see Figure 1). Tshabong and its surroundings represent the arid Kgalagadi environment with its sparse population patterns. Although Tshabong is technically a village it is the growing administrative centre of the District and serves mainly as a transit area to Kgalagadi Transfrontier Park. There are, however, plans to develop and further utilise its own tourism potential (see the Kgalagadi District Tourism Development Plan; Johnson, 1996), but that potential is still closely tied to its location next to the Kgalagadi Transfrontier Park and the South African border.

![Figure 1: Map showing Tshabong and surrounding areas](image)

*Source:* Goitsemodimo Koorutwe, Chief Cartographer, Department of Environmental Science, University of Botswana.
As there are only a few tourism operations in the Tshabong, all available and operating businesses at the time of the study were contacted and one person from each business was interviewed. Where a business had more than one operation of a similar kind in the region, such as guest houses, and the same person was managing the units, only one interview was conducted. The study covered seven of the eight known tourism businesses in the area (four accommodation facilities, two campsites and one development trust offering guiding and hunting safari services). Their basic characteristics are shown in Table 1. The data were divided into Tshabong Village and the surrounding areas (Khawa and Werda), as there were some differences in the basic profile of the businesses operating from inside or outside the village which might have affected perceptions of climate change impacts and adaptation strategies. The two businesses based in the village were fairly large (one had 14 full-time personnel and the other had 10). The businesses outside the village depended mostly on international demand, while the customers of the businesses in the village were mostly domestic visitors, such as employees from government organisations, parastatals and private businesses, holding workshops and so on in the village establishments.

The approximately hour-long interviews covered background information about the respondents and their businesses, their knowledge about climate change and its effects in general and especially on their own operations, and what kind of adaptation strategies they envisaged if climate changes should have a serious effect on their business. The methods used were qualitative and descriptive. The aim was to discover similarities and differences in awareness, perceptions and adaptation strategies and discover common themes running through the transcribed data. Data from a small selection of brief interviews and descriptive qualitative analysis do not of course allow for generalisation, but general statements that were abstracted from the data did suggest that the opinions and issues presented might be typical for tourism businesses in the region. A more quantitative approach would be required to test this rigorously.

### 4.2 Awareness and perceptions of climate change and its general impacts

All the interviewees but one had observed general changes in the environment over the past five years, and most of them linked at least some of the changes to the issue of changing climate (see Table 2). The observed changes in the environment were mostly related to weather and vegetation but also to human induced local impacts, such as overgrazing, deforestation and littering. Operators based outside the village were more inclined to mention human induced changes than those operating in the village.

| Table 1: Characteristics of seven interviewed tourism operators, Tshabong, southwest Botswana |
|---------------------------------------------------|-------|-------|------------------|-------------|-------|-------|
| Location                                          | Full-time personnel | Peak season | Main customers |
|                                                   | Location | <3 | 3 to 5 | >5 | Summer | Winter | All year | Domestic | Foreign | Both |
| Tshabong Village                                  |          | 4  | 2 0 2 | 2 0 2 | 3 0 1 |
| Tshabong wider area                               |          | 3 1 2 0 | 0 1 2 | 0 2 1 |
| Total                                             |          | 7 3 2 2 | 2 1 4 3 | 2 2 2 |
Most of the interviewees did believe that climate change was happening (see Table 2). Only two expressed doubts: one had no opinion, while the other was not convinced that the impacts she had perceived were the result of global climate change or some more localised ‘normal’ weather processes. Still, even the uncertain operator agreed that some of the changes in weather might well relate to global climate change. Most also mentioned ecological impacts such as droughts and some mentioned socio-cultural and economic impacts (e.g. an increase in illness and death and declining agricultural productivity).

4.3 Perceptions of the impact of climate change on tourism operations

In spite of noticing general environmental impacts, none of the interviewees thought climate change had affected their own operations and activities, and only two thought the tourism industry in general might have been affected (see Table 3). However, although they took a fairly positive view of the present situation, they saw the future implications differently, with most believing that climate change would have a negative effect on future business growth and Botswana’s competitiveness in tourism. The main future challenge they saw for their own growth was a decline in tourist numbers because of the expected extreme temperatures and a decrease in wildlife in the Transfrontier Park. They expected that this decline would also affect Botswana’s future competitiveness in global tourism markets. There were no clear differences in opinion between operators in the Tshabong village and those in the surrounding area. Regardless of location, most were not aware of any current impacts of climate change on their own operations or the industry in general. But both groups saw the future of their own tourism activities and the industry’s competitiveness in general as relatively vulnerable.

4.4 Strategies for adapting to climate change

Although the interviewees were aware of the possible risks to their business and activities in future, they did not have any specific adaptation strategies in place. Only one had invested in air-conditioners to deal with the already high temperatures, which this operator may have seen as resulting from the normal short-term climate variability in the region. Some other operators also had air-conditioners but did not link them to the issue of climate change and adaptation strategies, since the temperature is normally high in the Tshabong area in summer and low in winter, necessitating air-conditioning for customer comfort.

Despite not having adaptation strategies in place, all but one operator expressed views about how to adapt to the impacts of climate change if necessary. The strategies they mentioned were constructing swimming pools and shaded areas and planting trees, raising awareness in the community (to save water and manage waste properly), doing more research and collecting information about practical solutions, sinking boreholes to provide water for the wildlife, collaborating with other businesses, and offering more medical assistance in order to reduce the social impacts of climate change.

The government’s role was seen as crucial. All except one interviewee expected to receive financial and technical resources and support from the government to implement their adaptation strategies. Also seen as important were the development of telecommunication and public transport systems and support for regional tourism.
Table 2: Seven tourism operators’ perceptions of environmental and climate change in Tshabong, southwest Botswana

<table>
<thead>
<tr>
<th>Changes in environment</th>
<th>Opinion on whether climate is changing</th>
<th>General nature of impacts of climate change (all answers in the following categories)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Tshabong Village</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Tshabong wider area</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 3: Seven tourism operators’ perceptions of climate change and its impact on tourism industry, operator’s own services and activities and Botswana’s competitiveness in Tshabong, southwest Botswana

<table>
<thead>
<tr>
<th>Impacts on tourism industry</th>
<th>Impacts on operator’s activities</th>
<th>Perceived effects on future business growth in operations</th>
<th>Perceived effects on Botswana’s competitiveness in tourism</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Tshabong Village</td>
<td>1</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Tshabong wider area</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

*One respondent did not answer this question.
marketing. On the topic of marketing, one operator strongly emphasised a need to revise
the Botswana tourism policy so as to offer more support to ‘non-elitist’ forms of tourism
that are potentially more suitable to Tshabong and the Kgalagadi District than the current
‘low-volume, high value’ strategy that is particularly typical of the Okavango Delta,
Kasane and Chobe areas in the northern parts of the country. In general, the
interviewees stressed collaboration with the public sector as very important in the
industry’s adaptation process.

5. Discussion and conclusion
Although climate change has become a major issue in tourism development and
management discussions and is receiving increasing attention from governments,
tourism policymakers and institutions such as the United Nations World Tourism
Organisation (UNWTO, 2003), most research has so far focused on the northern
hemisphere and snow-based winter tourism activities and at the time of writing no
studies had been done of how tourism operators view possible climate change in
Botswana or how they are preparing for it. This pilot research therefore suggests
possible avenues for further research in Botswana and in southern Africa more generally.

The findings showed that the interviewed tourism operators seemed to be aware of
climate change. They identified several ecological, socio-cultural, economic and
regional weather pattern impacts in their environment, but focused mostly on physical
effects on the environment. On the whole they did not believe that climate change
was currently having any effects on their own businesses and the activities they offer.
This may be because their clientele were mostly government officials attending
workshops and other official duties. Only two of the seven thought the regional
tourism industry had been affected by climate change. The issue they saw as the main
challenge to their own growth and Botswana’s future competitiveness in global
tourism markets was the extreme temperatures that could diminish tourist flows in the
region. They saw their business and activities as relatively vulnerable in future and for
this reason most of them mentioned specific strategies for adapting to climate change
the need arise.

Only one operator had a specific adaptation strategy in place. It seems therefore that these
operators plan to adapt reactively to change as it occurs and when they perceive it to be
sufficiently serious. Although proactive approaches have been highlighted in various
policies, including those of the Tour Operators Initiative for Sustainable Tourism and
the United Nations Environment Programme (TOI, 2003, 2011; UNEP & TOI, 2006),
this kind of reactive adaptation strategy has also been identified in earlier studies
elsewhere (see Abegg et al., 1998; Aall & Hoyer, 2005; Vogel, 2009). Since climate
change related problems are not yet perceived as serious, it may be common practice
for tourism operators, mainly micro or small and medium size enterprises, not to plan
their operations and strategies more than three to five years in advance; in some cases
a year’s or next season’s foresight is used in business operation planning (Saarinen &
Tervo, 2006).

Another reason for the lack of adaptation strategies may be the perceived and actual
slowness of the climate change process. There are also many uncertainties involved in
the nature of the impacts; although the interviewees were able to mention some
effects of changing climate they did not recognise any impacts on their own
operations. Thus, it may be realistic not to rush to implement strategies if the impacts
and how they will actually affect the operations are not really known. This may also explain why the interviewed operators had high expectations of the governments’ financial and technical support and why they also highlighted the need for information about climate change, its impacts and how to adapt.

Berritella et al. (2006) argue that climate change will probably ‘not affect the amount of money spent but rather where it is spent’ (see also Gössling et al., 2008). Since current and also future tourism in Botswana is fundamentally based on nature, wilderness and wildlife viewing opportunities, the industry is highly vulnerable to global climate change and its regional and local outcomes. Therefore, in order to achieve sustainability and realise the potential of tourism in Botswana and create net benefits for the communities, as outlined in the new Botswana tourism policy (see UNWTO, 2008), there is an urgent need to plan adaptation strategies. In addition, the Global Codes of Ethics for Responsible Tourism (UNWTO, 2001) stresses the need to design and plan tourism infrastructure and activities in such a way as to protect the environment and save precious resources, especially energy and water (see TOI, 2003). These needs are also mentioned in the Botswana Ecotourism Certificate and the Best Practices Manual for Tourism (Botswana Tourism Board, 2008; Ecosystem Solutions for Africa, 2009). It is clear that more research is needed in order to provide tools for innovation, awareness and adaptation strategy development in Botswana which would lead to practical action and also serve the interests of broader southern African tourism development.

Acknowledgements

The authors acknowledge financial support from the Office of Research and Development, University of Botswana, the University of Oulu and the Academy of Finland, and wish to thank the tourism operators in Tshabong area, Chief David Seetelo Toto, Botswana Tourism Board’s office in Tshabong and the Ministry of Environment, Wildlife and Tourism for their warm support.

References


Vogel, C, 2005. ‘Seven fat years and seven lean years?’ Climate change and agriculture in Africa. IDS Bulletin 36(2), 30–5.


