



Applying sustainable tourism indicators to measure the sustainability performance of two tourism lodges in the Namib Desert

Melissa S.P. Baker*
University of South Africa
Bakermisp@unisa.ac.za

and

Professor Kevin Mearns
Department of Environmental Sciences
University of South Africa
mearnkf@unisa.ac.za

Corresponding author*

Abstract

The tourism industry is one of the fastest growing industries worldwide, and its preeminent role as a fundamental contributor to the economic sector cannot be disputed. However, the tourism industry is not as harmless as previously thought, and its presence and growth has resulted in an increase in negative environmental impacts. The success of tourism rests on the quality of the natural environment where it has been developed. The worldwide drive toward sustainable development and the growth in environmental awareness, has placed pressure on tourism ventures to measure and mitigate their environmental impacts. Theory suggests that sustainable tourism indicators (STIs) form an inexpensive, operationally effective tool, available to assist tourism ventures to accurately measure their sustainable performance. This article explores the feasibility of STI's to accurately assess the sustainability performance of tourism ventures. The study was conducted on two luxury safari camps situated within one of the most delicate ecosystems in the world; the Namib Desert. This article draws on a reflection of the experiences gained from applying STI's. If STIs could be successfully applied in a highly sensitive desert environment, it signifies that STIs could be useful in assessing the sustainability performance in other tourism ventures.

Keywords: Sustainable tourism indicators, responsible tourism, benchmark standards, Namibia.

Introduction

Since the end of World War II the tourism industry has experienced unprecedented growth. It is estimated that the tourism industry employs more than 130 million people worldwide and makes capital investments in excess of US\$400 billion annually. According to the United Nations World Tourism Organization (UNWTO, 2017a) the number of international tourist arrivals shows a substantial growth from a mere 25.3 million arrivals in 1950 to 1 235 million in 2016. This shows the incredible rate of tourism growth. Economically speaking, the tourism industry has been credited as a key role-player in economic recovery around the world; attributed to its ability to create employment, generate investment and earn foreign exchange. It is estimated that international tourist receipts have grown from US\$2.1 billion in 1950 to US\$ 1 260 billion in 2015 (UNWTO, 2016). The UNWTO (2015) divulged the resilience of the industry, stating that despite increasing geopolitical conflicts, sluggish global economic growth, and the daunting Ebola outbreak; international tourism continued to show an



impressive growth of 4.4%, in 2014. This growth continued in 2016 resulting in seven successive years of sustained growth (UNWTO, 2017a); despite continued threats to safety and security through unrest and terrorist attacks. "Tourism has established itself as a network of mutually supportive economic, social and cultural systems that hold significant potential to achieve a broad range of development goals" (Rogerson & Visser, 2011:1). It is evident that the unique ability of tourism to achieve sustainable development goals is amongst one of the primary reasons that the industry has grown in popularity amongst government policy makers.

However, the exponential growth of the industry, its increasing role and the sheer diversity of the global tourism industry has subsequently led to increased negative environmental impacts. The UNWTO (2004) asserts that numerous organisations within the tourism industry were ignorant, and did not pay sufficient attention to the impacts of tourism. This resulted in the manifestation of various negative impacts, which often cause irreversible damage to both natural and socio-cultural resources.

Tourism as an industry and all its sub-sectors rely directly on the well-being of the natural environment. This due to the nature of the tourism industry and the range of products it offers, it is often situated within close proximity to very delicate ecosystems. It has been found that the establishment of tourism ventures in such environments exposes the environment to multiple negative impacts, such as increased volumes of people; solid, and liquid waste; and the depletion of water sources. Hall and Page (1999) stress that tourism's success or failure is conditional and ultimately dependent on an environment that is attractive, healthy and pleasant. Should the natural environment and its resources be damaged or destroyed, the very resource that attracted the tourists is destroyed and the tourism venture as a whole (economically, socially and environmentally) is compromised and is at risk of collapse.

"...tourism sustainability depends on the ability to create economic benefits which are widespread among local operators and assuring, at the same time, the valorisation and conservation of the local social, cultural and environmental heritage. This means that tourism activities have to be developed respecting the ecologic carrying capacity of the area where they take place, producing an increase in "strategic values" related to social and economic perspective..." (Castellani, 2010).

At present the world is experiencing a strong shift in mind set; where the protection of the natural environment and the sustainable use of limited natural resources has become the highest priority among many governments, international organizations and industries. The UNWTO Secretary-General stated that "in parallel with the growth of the sector, there is also increased responsibility to advance towards greater sustainability, equity" (2017b). The worldwide drive toward sustainable development and the growth in environmental awareness has placed pressure on tourism ventures, to measure and mitigate their environmental impacts. At present, many tourists are beginning to demand information regarding their impacts on the environment. There is a fervent focus by the UNWTO to amend policies, change business practices and tourist behaviour in an effort to ensure a more sustainable tourism sector. The UNWTO have reinforced the drive towards sustainable development through initiatives such as the '2017 International Year of Sustainable Tourism for Development'; which places intense focus on improving industry performance within the following five areas, inclusive and sustainable economic growth; social inclusiveness, employment and poverty reduction; resources efficiency, environmental protection and climate change; cultural values, diversity and heritage; and mutual understanding, peace and security (UNWTO, 2017a). The aim is to promote progress towards achieving the 2030 sustainable development goals.



The rapid growth of the tourism industry and the subsequent increase in its environmental impacts, together with the lack of knowledge about the degree of these impacts, suggests a need to determine the extent of such impacts, in order to mitigate them effectively. As pressure is exerted on tourism ventures to become sustainable, the need to address these impacts becomes evident. This paper makes a pragmatic contribution to the tourism industry, because if tourism can be managed effectively, within a highly sensitive desert environment; the results can be used to help other tourism ventures situated in different geographical regions to improve their sustainable performance. This study aims to make a contribution to the academic body of knowledge, through the application of STIs, to measure, operationalize the sustainability performance of tourism ventures.

The Brundtland Report entitled 'Our Common Future' spearheaded the emergence of the ideology of sustainable development (WCED, 1987). During the 1990s, the issue of sustainability became an idea and platform that started to guide the economic and political structures of the whole tourism sector and its development. The growth of sustainable development caused a global shift in thinking, and was one of the primary driving forces of the shift within the tourism industry, towards seeking new, more sustainable forms of tourism. Today, there is evidence of mass tourism ventures beginning to improve their sustainable performance by implementing sustainable management of destination resources and impacts.

In terms of a destination or a ventures sustainable performance, sustainable tourism indicators (STIs) have been suggested as being able to assist tourism ventures to determine the current status of a venture, alert management of a potential growing problems, pinpoint root issues responsible for stress on the system, identify social, environmental and economic impacts caused by the venture, and measure how effective plans implemented to reduce impacts have been. STIs have the capability to operationalize sustainable development throughout the business lifecycle of tourism venture. It is upon the background of this argument that this study was undertaken.

The very first indicators were formulated as a tool, with the capability to measure economic performance, and present changes over time in a country's national economy. Between the 1950s, to the late 1980s, the success rate of businesses was primarily determined on the basis of their economic performance. Likewise, the tourism sector followed the same trend, measuring and documenting destination performance solely based on economic indicators, such as tourist receipts. However, it soon became evident that traditional indicators were an insufficient instrument, when trying to accurately determine a destinations real performance. This view emerged during the 1980s when the idea of sustainable development emerged for the first time.

According to the UNWTO (2004:13), "Indicators first became the subject for attention from the tourism sector, as a response to the global focus on sustainability stimulated by the Brundtland Commission (1987), and the 1992 Rio Earth Summit". The Rio Earth Summit was also responsible for the emergence of a new form of indicator; one that could not only monitor the traditional economic factors, but also incorporate environmental and social aspects that ultimately affected the economic aspects of the destination. The summit emphasized that other factors besides purely financial objectives were affecting a ventures overall performance and carried equal weight.

The Rio Earth Summit made the concept of sustainable development extremely popular, ultimately leading to the development of step-by-step action plans for governments, and organisations to use to achieve sustainable development, commonly known as Agenda 21. "In order to help put these points into practice, the summit established a mandate for the United Nations to establish a set of indicators of sustainable development that [would] help to monitor progress" (Bell & Morse, 2008:3). Indicators can be described as a canary in a mine, as they are used to alert and warn others about areas of concern, in order for action to be



taken in time (WTO, 1993; Tsauro *et al.*, 2006). "Indicators have been identified as desirable instruments and/or measuring rods to assess, and monitor the progress towards sustainable development" (Tsauro, *et al.* 2006:641). The United Nations World Tourism Organization provides a comprehensive definition of indicators, which clearly defines indicators as:

"Measures of the existence or severity of current issues; signals of upcoming situations or problems; measures of risk and potential need for action, and means to identify and measure the results of our actions. Indicators are information sets which are formally selected to be used on a regular basis, to measure changes that are of importance for tourism development and management. They can measure: a) changes in tourism's own structures and internal factors, b) changes in external factors which affect tourism and c) the impacts caused by tourism. Both qualitative and quantitative information can be used for sustainable tourism indicators" (UNWTO, 2004:8).

In 2004, the UNWTO published a guidebook which presented a new approach to indicator development. In place of core and ecosystems-specific indicators, a set of baseline issues and related indicators are suggested. This is the approach that was used to guide this study.

Many tourism managers have set out to transform their organisations into sustainable tourism ventures. Sustainable tourism indicators are very proficient instruments, which can achieve sustainable development goals. In support of this, the United Nations World Tourism Organisation (2004:7) states that "indicators are proposed as key building blocks for sustainable tourism and as tools which respond to the issues most important to managers of tourism destinations". According to Bell and Morse (1999:23), "indicators have been seen by many as the core element in operationalising sustainability". Park and Yoon (2011:403) further state, that there are a growing number of approaches towards implementing indicators to monitor progress in terms of the sustainable development of tourism.

According to the UNWTO (2004), a good indicator must address key issues within a destination, should be practical to implement, and should be able to be used as a benchmark for future comparisons, both within the destination and with other destinations. In light of the fact that this study aimed to assess the sustainability of the two camps, it was essential for the indicators to address environmental, economic and socio-cultural issues. The UNWTO (2004) developed a list of baseline issues and their corresponding baseline indicators, which are suitable to apply in any destination. These indicators formed a key point of departure (see Table 1), as they address a variety of environmental, social and economic issues that will be present in the majority of destinations. In order to create a better structure and more order, the issues and associated indicators were rearranged into environmental, social and economic indicators.

Table 1. Baseline issues and indicators for assessing the sustainable development of tourism

Baseline issue	Baseline indicator[s]
Energy management [Environmental]	Per capita consumption of energy from all sources (Overall and per capita/[person] per day)
	Energy-saving measures
	Percentage of energy consumption from renewable resources
Water availability and conservation [Environmental]	Water use (total water volume consumed and litres per capita/[person] per day)



	Water conservation measures (water saving, percentage reduced, recaptured or recycled)
Drinking water quality [Environmental]	Water treated according to international potable standards
Sewage treatment [Environmental]	Sewage treatment systems
Solid waste management [Environmental]	Waste volume produced by the destination (tonnes per annum) (by month)
Local satisfaction with tourism [Social]	Level of local satisfaction with tourism (<i>Adapted to assess local staff members</i>)
Effects of tourism on communities [Social]	Percentage who believe that tourism has helped to establish new services or infrastructure (<i>Adapted to assess local staff members</i>)
Sustaining tourist satisfaction [Economic]	Level of tourist satisfaction
	Perception of value for money
	Percentage of return visitors
Tourism seasonality [Economic]	Tourist arrivals per month (throughout the year, mean and peaks)
	Occupancy rates for accommodation by month
	Percentage of tourist industry jobs which are permanent or full-time (compared to temporary/seasonal jobs)
Economic benefits of tourism [Economic]	Number of local people employed (and ratio of men to women) in tourism
	Revenue generated & spent in the area

(Adapted from UNWTO, 2004:244-245)

The baseline issues and indicators however, left important gaps related to the three tiers of sustainability, namely environmental, economic and social issues. Furthermore, the baseline indicators did not provide for the effective investigation into specific aspects related to destinations, such as those in desert areas. Both Little Kulala and Kulala Wilderness Camps are situated within a sensitive desert environment. In order to address these gaps a number of site specific indicators were also identified. However, as a result of space restrictions this paper will focus only on the baseline indicators and the site-specific indicators will not be dealt with in this manuscript.

The strongest feature of indicators is their ability to adjust to the individual needs of the destination in question, and provide managers with answers to improve their operation. The outcome is a customised assessment designed specifically for the said destination. Indicators acknowledge the interconnectedness of tourism, and reflect the destination's unique environmental, social and economic characteristics. Indicators are intended to be designed in line with the goals and objectives of individual destinations, and this is a distinguishing feature that makes them so useful. Indicators highlight those things most important to the destination, while also establishing performance measures to guide the destinations progress (UNWTO,



2004). "Ideally indicators play a part in the entire project cycle; as part of a process of continuous improvement" (UNWTO, 2004:13). Indicators are designed to be implemented on a recurring basis in order to monitor progress, shortfalls and upcoming issues. Many tourist destinations have neglected to consider the long-term sustainability of their organisations. Torres-Delgado and Saarinen, (2014) state that the concept of sustainable tourism is futile without indicators, and other monitoring tools, that can effectively capture, and express the impacts of tourism, while also being able to depict if the impacts are acceptable or not.

Reasons for the selection of the Namibian study sites

Namibia boasts a unique array of tourism offerings that are unlike any other in the world. Namibia is home to the world's oldest desert, the Namib Desert; Africa's largest conservation area. The WTTC (2006:9) argues that "Namibia's protected areas are without a doubt the country's most important tourism offerings and the income generated by tourism in the parks is vital for the ongoing conservation of the area and provides livelihoods for those communities which surround them". Desert areas are highly sensitive, and demand effective management in order to prevent environmental degradation. Both study sites are situated within a private nature reserve, on the border of the Namib Desert, and have a private entrance to the Namib-Naukluft National Park. This makes them the closest tourism ventures to the world-renowned attractions such as, Sossusvlei and the world's highest sand dunes (Big Daddy, Big Mamma & Dune 45); one of Namibia's most spectacular sites (Wilderness Safaris Agents Manual, 2011). The study sites are situated within the driest country in Southern Africa; and experience low erratic rainfall, on average around 100 mm per annum (Jacobson, Jacobson & Seely, 1995). The geographical importance of the study area is evident in that the sites border the Namib-Naukluft National Park (in the Namib Desert) and are close to the world-renowned Sossusvlei. There is an urgent need for the presence of sustainable tourism in these areas, in order to facilitate and ensure the continued protection of the sensitive desert areas of Namibia, especially in light of growing environmental impacts associated with climate change.

Methodology

This paper discusses the application of STIs implemented in to two luxury safari camps, Little Kulala Camp (LKC) and Kulala Wilderness Camp (KWC); to assess their sustainable performance. This study was exploratory and descriptive in nature, based on empirical research and incorporating a case study research design. The study sort to assess the social, environmental, and economic factors associated with each camp. As the nature of the various types of data relating to these factors was located in different forms, a mixed methods approach was followed, enabling triangulation.

The study combined a variety of data collection methods from the qualitative and quantitative methodological paradigms. In particular, interviews, questionnaire surveys, participant observation and water quality analysis were used in this study. Qualitative data was collected by means of staff and manager interviews. Quantitative data was collected via a visitor survey questionnaire. Other quantitative data used included water samples, the collection of secondary data, such as water and energy use from each camp. In order to present data and findings in a systematic way, this study implemented a cross-case analysis (Yin, 2009). This was used to compare the results of the two cases. The cross-case analysis aimed at identifying the similarities and differences between the results obtained from LKC and KWCs.

The sampling method selected for this study was non-probability, accidental or haphazard sampling. This study aimed to include two distinct population groups. The first were the visitors or tourists visiting, while the second comprised the staff members, who worked at LKC and KWC. There was no predetermined target number for the sample size of tourists, as the data collection process took place within the camps' low or shoulder season. It was not possible to



preselect a target sample size, as it was not known how many tourists were present at each camp. In addition, the camps are small-scale tourist ventures, which can only accommodate a small number of tourists at a time. Prior to data collection, the total number of employees at each camp was unknown, as well as how work shifts operated, and as such an initial sample target was set of interviewing 70% of the staff at each camp. During data collection, it was discovered that all staff operated according to eight week cycles, six weeks on and two weeks off. The exact number of staff on duty at each camp at any one time is three quarters of the staff. Therefore, the following formula was used to determine the number of staff on duty at both camps.

(Total number of staff / 4 X 3= average number of staff on duty at any one time)

LKC employed 39 staff members, at the time of the study 29 staff members were working of which 22 (76% response rate) staff members participated in the survey. While KWC employed 27 staff members, 22 staff members were present and a total of 18 (82% response rate) staff members participated in the study.

Indicator selection

Appropriate STIs had to be selected to facilitate the effective assessment of the sustainability of LKC and KWC in Namibia. To be able to conduct a cross-case analysis of the two camps, the same set of indicators was tested at each camp. Therefore, a generic set of STI that were suitable for implementation in both camps were selected for this study. Overall, the indicators that were chosen aimed to provide information on key issues in relation to the destination. In addition, these indicators aimed to be informative, in order to provide information that can support better decision making and assist in informing plans for action with regard to the destination.

To effectively measure certain indicators relating to energy use by the camps, measurements were either required as per capita consumption of energy from all sources overall or per capita per day. Where the total or per capita consumption of energy for the tourism venture had to be determined, data was collected from all the different sources of energy used by the venture, this data then had to be converted to kilowatt hours (kWh). Within Southern Africa (kWh) constitutes the general unit of measure for energy use. To convert the various energy sources not measured in kWh to kWh, (see Table 2) was used to guide the conversion all energy data into kWh.

Table 2. Conversion factors

Energy source	Conversion factor
Diesel (in litres)	10.67
Petrol (in litres)	9.5
Liquid petroleum Gas (LPG) (in kg)	13.69
Solar power (W) x 8.5 hours	.001

(Adapted from EPA, 2008: 2)

Drinking water quality of each study site was determined through water sampling and analysis. The physical characteristics such as pH, electrical conductivity and total dissolved solids (TDS) of water were assessed on site by means of a mobile test meter. This study set out to determine the quality of drinking water at LKC and KWC. During the onsite data collection process, a water sample was taken from the guest rooms' taps at each camp for water analysis purposes. The purpose was to determine the physical and chemical characteristics of the



water. These water samples were tested by a reputable and accredited laboratory. As water sample tests are expensive, only the macro-determinants, as prescribed by SABS (2006), were tested for. The macro-determinants include ammonia, chloride, calcium, fluoride, magnesium, nitrate and nitrite, potassium, sodium, sulphate and zinc. The results of the water sample analysis were evaluated against the drinking water quality standards set by the South African National Standard, 241.

Background to the study sites

The two case study sites selected are part of the Wilderness Safaris group of lodges. Wilderness Safaris was founded in 1983 by a group of individuals who realised the potential in underdeveloped, remote, pristine wilderness areas within Southern Africa. This realisation came with the growing threat of the loss of pristine natural areas for present and future generations due to alternative developments such as mining, cattle farming, timber harvesting and irrigation schemes. The Wilderness Safaris Agents Manual (2011:1) states that "Wilderness Safaris is a conservation organisation and ecotourism company dedicated to responsible tourism in Southern Africa". Since inception the company has increased its operations and now operates in remote wilderness areas that range from tropical and savannah regions to stark desert environments. The primary reason for selecting these two specific camps is because they are situated in a highly sensitive desert environment, on the border of the world's oldest desert. Secondly, no such study has previously been conducted on these camps by an outside party. This study aims to provide Wilderness Safaris with an external verification of the sustainable performance of these two camps. Both camps are situated within the Kulala Wilderness Reserve in Southern Namibia.

Little Kulala Camp (LKC) was the first study site selected. It is a luxury premier camp situated within the 37 000 hectare Kulala Wilderness Reserve, a private reserve owned by Wilderness Safaris, and is located on the border of the Namib Naukluft National Park. The camp employs 39 staff members and consists of 11 thatched Kulalas (huts), which can accommodate up to 24 guests per night. Each Kulala has an open-plan bedroom, luxurious bathroom, and veranda, which consists of a private plunge pool, deck area and outdoor shower. Other areas not accessible by tourists but attached to the main entertainment area include the staff office, kitchen, workshop area, laundry area and parking lot. Located a fair distance from the main camp is the staff village, which is composed of the staff quarters, camp generators and a waste-holding site.

Kulala Wilderness Camp (KWC) was the second study site selected and is situated against the slope of a mountain in the Kulala Wilderness Reserve. The camp employs 27 staff members. It is classified as an adventure camp, being more rustic in nature and has smaller rooms than LKC. In line with Wilderness Adventures standards, guests' rooms are constructed mostly from canvas and thatch, and are raised above the ground on decks. The camp is designed to blend into the rocky terrain. KWC consists of the 10 guest Kulalas and can accommodate up to 22 guests per night. The main entertainment area includes the dining area, bar, library, pool area and sun deck. Other areas not accessible to tourists include the kitchen, office, workshop, laundry room, storage rooms, guide and manager rooms, generators, parking area and the staff village similar to LKC.

Results

Despite the growing evidence of various negative environmental and social impacts resulting from tourism activities, there has been little effective measurement of the level and extent of these impacts on the environment and an accurate representation of the magnitude of these impacts are therefore unknown. Findings from the onsite application of the baseline indicators and site specific indicators within the two study sites will be discussed sequentially in line with the three pillars of sustainability, namely, environmental, social and economic sustainability.

Environmental sustainability performance based on baseline indicators

There is no grid electricity available and both camps are self-reliant, generating their own power by means of diesel-powered generators. Diesel was the highest source of energy consumption in both camps. Diesel used by LKC to power their generators is more than double that of KWC. This is attributed to LKC's use of air conditioners in guest rooms, which forces the camp to run one of their two generators 24 hours a day. KWC does not use air conditioning, which means that the camp can turn off the generator for a few hours each day and run on electricity that has been stored in batteries. Diesel used for game drive vehicles was the second highest source of energy, as this is the main form of transport to and from attractions in the area (Guests may not use their own cars). LKC's diesel usage for these vehicles is also more than KWC. Liquid Petroleum Gas was the third highest source of energy for both LKC and KWC and is used to power refrigerators, stoves and ice makers. On average LKC uses 1 231 951 (million) kWh's of energy per year, while KWC used an average of 510 756 kWh's of energy per year (see Figure 1). Despite LKC's higher energy use, the camp is striving to lower its carbon footprint through the use of solar geysers in the camp's guest rooms. Wood was not included, as it is difficult to quantify.

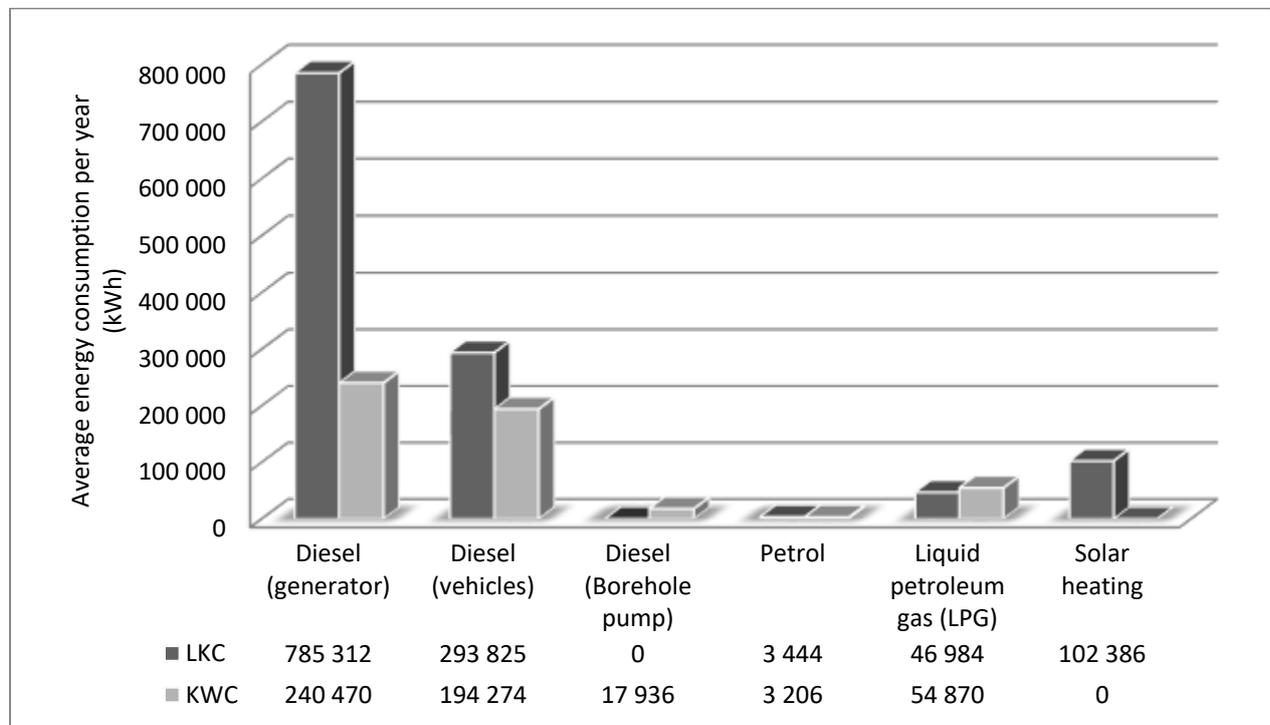


Figure 1. Average energy consumption per camp per year from all sources (kWh).

The average per capita consumption of energy per guest per day is 360 kWh in LKC and 179 kWh per guest per day in KWC (see Figure 2), these figures are exceptionally high. Results were compared to an international benchmark presented by the International Tourism Partnership (ITP, 2008) and found to be unrealistic. The benchmark is based on European international benchmarking standards for hotels, and presents a matter of concern in terms of the study sites. It was discovered that per capita consumption from guests was not a true representation of the ventures energy use. A distinguishing feature of many tourism ventures situated throughout Southern Africa, especially within rural areas, is that staff members work and live (during their work shifts which are often a number of weeks) at the tourism venture. In the case of this study it was found that staff work according to a work cycle, where they work for six weeks, followed by two weeks off, at which time they return to their home town. According to the area manager, at any one time, three quarters of the staff are working at the camp, while a quarter are on leave. Therefore, energy use figures do not just account for guest

use, but include staff usage as well; this finding is in line with Mearns (2011) findings. Thus, in order to provide a more accurate representation of LKC's per capita energy consumption, this indicator was also calculated on a per person per day basis, that included both guests and staff.

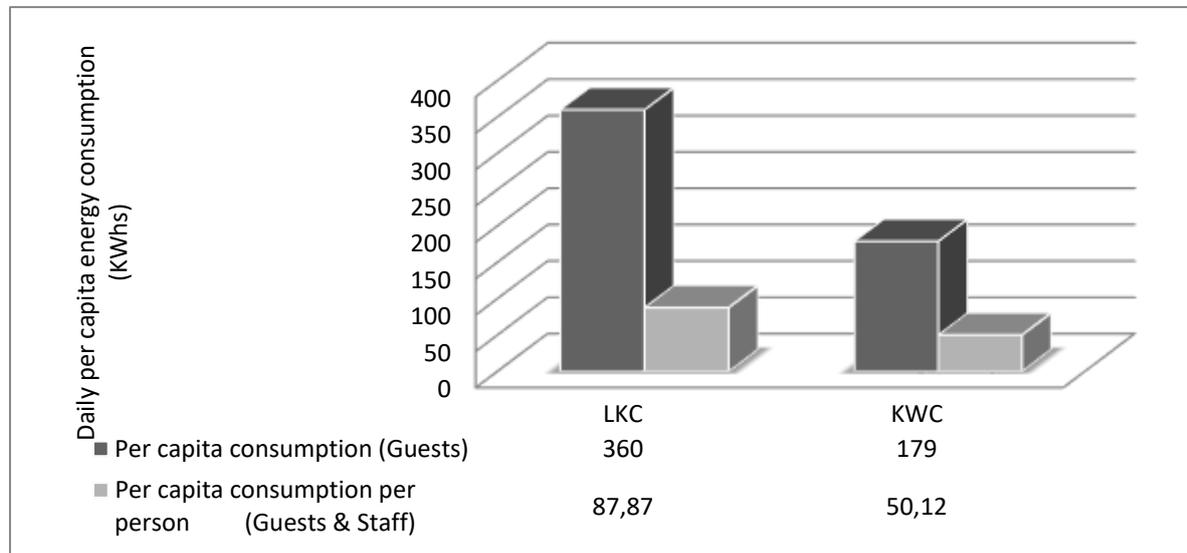


Figure 2. Daily per capita energy consumption (in kWh) per guest per day and per person per day in comparison to the ITP benchmarking standard (2008).

Based on these figures, both camps' per capita energy use is still extremely high. There is an urgent need to develop a new benchmark for tourism ventures suitable to conditions in Southern Africa and other developing countries (Mearns, 2011). This new benchmark should be specifically adapted to effectively assess energy use in new or emerging forms of tourism ventures, where there are not only tourists accounting for the venture's energy use.

Both LKC and KWC have implemented various energy-saving measures such as energy-saving light bulbs. LKC has installed solar geysers in all the guest rooms, which has contributed to saving a significant amount of energy. Although KWC does not have any solar power, an effective energy-saving measure used by the camp is to conserve energy through the use of batteries to store electricity generated by the generator when it is running. This measure has proved effective, as the camp's energy use figures are notably lower than those of LKC, which is similar in size. The percentage of energy consumption from renewable energy sources could only be calculated for LKC solar geysers. Solar geysers made up 8.3% of the LKC's total energy use on average per year. The percentage of energy consumed from wood by both LKC and KWC was not quantifiable. Both camps could improve their sustainable performance through the application of various renewable energy sources, such as photovoltaic solar panels and solar geysers for both guest and staff accommodation. An alternative source to diesel as a main source of energy should be considered to lower the ventures energy use.

In terms of the total volume of water consumed per camp, estimated borehole water figures obtained from the camps managers were added to the volume of bottled water consumed by each camp. Estimated figures of borehole water used had to be used as the managers stated that the water meters had calcified and broke. It was not seen as economical to replace them at the time. LKC uses an average of 4 986 072.3 (million) litres of water per year, while KWC uses an average of 1 489 988 (million) litres of water per year. As was the case with the study found by Gossling *et al.* (2012) that stated that there is a lack of statistical data in relation to water use, this study found the same results as no records of the exact water use have been kept in the case of the two study sites.

Over the duration of the study LKC per capita water consumption was much higher in comparison to KWC. Both camps use reverse osmosis to purify guest drinking water. The reverse osmosis process produces vast amounts of waste water. Depending on how clean the water is that goes into the system, between four and eight litres of waste water is produced for every litre of clean water (Wilderness Safari's Environmental Minimum Standards, 2011). This to some extent accounts for the high daily water consumption. However, this does not explain why LKC's water use is far higher than KWC. One possible reason for LKC's higher water use may be related to the larger number of staff working at the camp at any one time. Secondly, LKC has private plunge pools at each guest room, as well as one big pool at the main camp, while KWC only has one main pool. With the high rate of evaporation associated with desert climates, this may also contribute to the camp's high water consumption.

In terms of the international standard both camps' per capita consumption of water per guest per day is much higher than the ITP benchmark. Again, the amount is unrealistic in terms of guest consumption of water per day and this is related to staff members who also contribute to water consumption. This indicator was also recalculated to give a clearer representation of water use at each camp by adding the average number of staff per day to the average number of guests per day per year. In comparison to the international standard based on this calculation, LKC still has a relatively high water consumption rate per person per day, while KWC has an excellent water consumption rate. These findings support the findings of Mearns (2011) which suggest that there is a need for the development of new baseline standard for Southern Africa and developing countries.

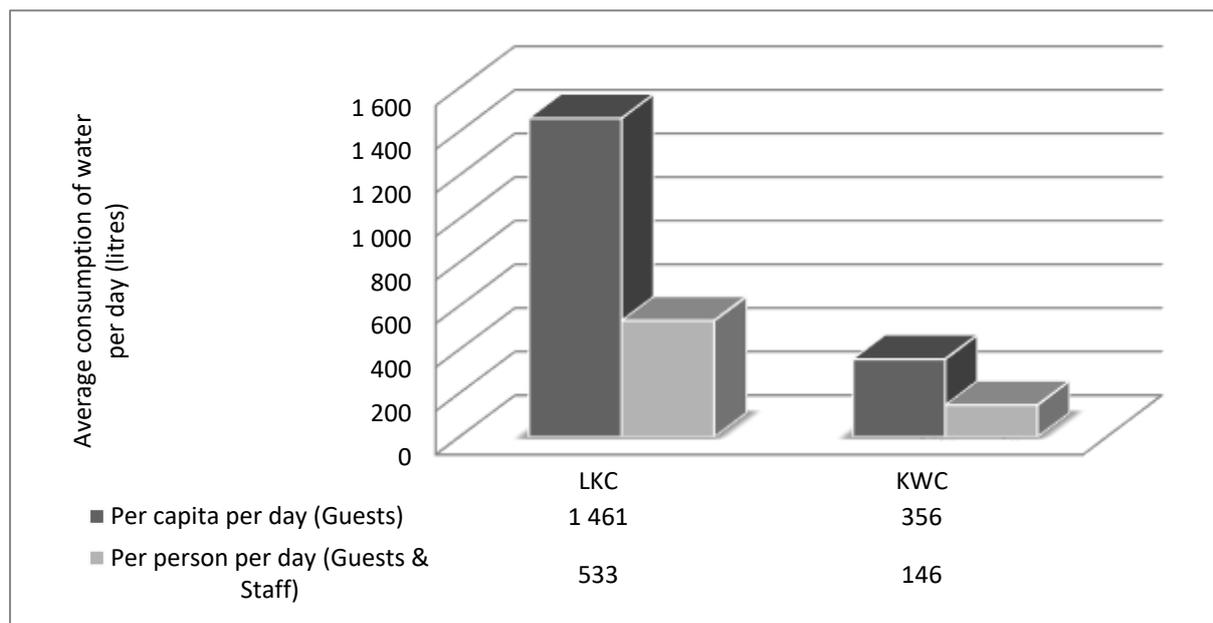


Figure 3. Daily per capita water consumption (in litres) per guest per day and per person per day in comparison to the ITP benchmarking standard (2008).

Both camps have active guest environmental awareness programmes in relation to the area's water scarcity. LKC and KWC have adopted measures to reduce water consumption through policies such as the bucket and towel policy. On arrival guests are informed of the bucket policy, which consists of a bucket which is placed in guest showers. Guests are encouraged to place this bucket under the shower when they turn it on. The bucket is used to catch water while the shower warms up. Guests leave this water in the bucket, as room service staff will make use of this water to clean the room. The towel policy states that due to water scarcity, towels are not washed every day. Guests are requested, if they do not mind, to reuse the towel, that they hang them up, if they insist on having it washed they place it in a basket



provided. In this way tourists are involved in water conservation measures in innovative ways. All guest bathrooms have water-saving notices on display. In addition, LKC has dual flush toilets in the guest rooms and main camp area. However, this can be improved, as some of the staff and guide rooms do not have dual flush toilets. KWC does not have dual flush toilets in the camp, and this is therefore an area for improvement. At LKC, staff have been made aware of the situation of water scarcity, and have been instructed to take only five minute showers, in order to save water. It was not possible to determine the percentage of water saved from these initiatives.

The quality of drinking water is an essential factor in terms of guest satisfaction but more importantly guest and staff wellbeing. To ensure that water is suitable for human consumption and does not pose a health risk to tourists and staff, the camps' water must adhere to accepted water quality standards. During the onsite data collection, it was observed at both camps that there was a significant build-up of scaling on all the camps water infrastructure, such as water reservoirs, water pipes, taps and shower heads in guest and staff rooms, ice makers, washing machines and air conditioners.

Water quality analysis was conducted at an accredited certified laboratory; results were compared to the South African National Standard (241) for drinking water quality in terms of the physical and macro-chemical determinants. It was found that LKC's ground water had high levels of the following physical and macro determinants, namely Electrical Conductivity (EC), Total Dissolved Solids (TDS) Chloride, Fluoride and Sodium, while high levels of fluoride were found at KWC. Contrary to the manager's comment that the level of calcium in the water was high, the calcium levels at LKC and KWC were within acceptable limits. Therefore, calcium was not responsible for the mineral deposits on the borehole pumps, piping and water reservoirs. It was found that LKC chloride and sodium fell within Class II drinking water and had a maximum consumption period of seven years. Fluoride also fell within class II water at both LKC and KWC and has a maximum consumption period of one year. It is advised that staff consume water that has been treated, due to the high level of fluoride in the ground water. Chloride increases the corrosive nature of water by increasing the electrical conductivity of the water, and in metal pipes chloride forms soluble salts as it reacts with the metal ions (WHO, 2003). Another result of corrosion is that it reduces the energy efficiency of appliances (washing machines, geysers, kettles) and results in higher costs, as appliances need (and subsequently draw) more energy to function effectively. The camps water quality can therefore be a contributing factor to the high amounts of diesel currently required to for the camps to operate. This would require a more in depth analysis to determine the exact extent of this. It is evident that the electrical conductivity, total dissolved solids and chloride may be responsible for the mineral deposits, scaling and corrosion that damaged the camps water metres and led to the corrosion of various other types of plumbing infrastructure.

Effective sustainable water treatment systems need to be investigated and implemented in both camps, in order to improve the sustainability of their water quality. It is recommended that the camps conduct an in-depth water quality analysis of their borehole water to determine the exact root causes of the scaling. It is believed that the underlying geology of the area directly affects the mineral composition of the water being pumped from LKC and KWC's boreholes. The geology of the area may have contributed to the corrosive properties and is responsible for the serious problem of lime scale build-up currently being experienced at both camps. It is recommended that the camps install a water treatment system at the source where the water is extracted at the borehole. Raw borehole water must be treated before the water is transported through the camps water pipes. It is believed that such an action would result in significant financial savings for both camps in terms of improved energy efficiency of the camps electronic equipment that use water. Significant financial savings would also occur by the camp not having to continually replace broken water pipes, shower heads and other water infrastructure as the issue with the build-up of scaling would be solved. Water would not need to pass through reverse osmosis and this would result in drastic amounts of water being saved.



It would also significantly improve the guest experience. During guest interviews' a few guests stated that they were frustrated by the showers as they had a very low pressure. The current water quality is affecting the visitor experience. This low pressure is directly attributed to the lime scale build up in the camps water pipes.

Based on the findings from the application of these sustainable tourism indicators, it is recommended that the camps urgently assess their water quality and rectify the water quality. The interrelated nature of environmental and economic factors is demonstrated here in that, such an action would improve both camps economic performance in that it would lower diesel use (which would lower costs), lower the costs for maintenance of infrastructure associated with water, and improving guest experience, which could affect whether guests recommend the destination to other people or if they return for another visit. It is essential for the camps to accurately record their water consumption figures as the camps are situated within a desert environment, where water is a highly scarce resource.

Both LKC and KWC make use of septic tanks with a French drain soak away system, which is used to dissipate water. In LKC, the septic tank at the main camp is working effectively, as there is no smell associated with the soak away. However, the septic tank at the staff village needed maintenance, as it was leaking leachate into the surrounding environment. It is unclear whether this system was too small or is just in need of repair. The leachate was extremely close to the staff village and posed a health risk to staff and wild animals which may drink from this water. The effectiveness of the current septic tank system must be monitored closely. At KWC, the soak away was not working as effectively as it should be. It was clear that the UV-rays are not eliminating all the pathogens. The water being released into the surrounding environment shows evidence of pathogenic growth and that animals had access to drink this water. It may be beneficial for the camps to pursue additional methods of purifying the water before it is released back into the environment. Some options include the creation of an artificial wetland and/or bio-digester.

In order to establish the total volume of waste being produced, as well as the method of waste disposal being used by each camp. It was found that currently neither of the two camps record the amount of waste being produced and so the volume of waste being produced was unknown. In order to determine each camp's sustainable performance with regard to solid waste, it is vital that each camp records the amount of waste being produced. This data can be compared each year in order to determine exactly where the camp can improve its sustainable performance. Again, the staff numbers must be added to guest numbers to ensure an accurate measurement.

Both camps have developed a sustainable waste management system however; some issues presented themselves during the direct observation of these systems. It was evident that some waste was not properly separated at LKC and KWC. This issue stems from the source of waste, because waste which is brought out of the kitchen bins, guest rooms and bar is only separated once all waste has been collected in the bins at the back of the camps. It may be beneficial to have separate bins inside the kitchen and bar, which is where waste originates, and this would further engage all staff in recycling, including the waiters, chefs and barmen. Furthermore, demarcated recycling bins could be designed for inside guest rooms, in order to encourage guests to separate their own waste. This will engage guests in the camps' efforts to improve their sustainable performance and make them aware of the camps' environmental efforts. Both camps send waste to a recycling plant in Windhoek and should therefore not have an incinerator. The temporary waste holding site at KWC is in a good condition, as it is set on an impermeable base and properly closed off. Waste holding cages at LKC staff village and KWC's Happy Valley must be improved, as they are not situated on an impermeable surface and have a number of openings by which animals and birds can get in.



Both LKC and KWC have an organic pit. However, the issues of mixed waste sometimes result in inorganic waste being dumped in the organic pits. It is possible that the proper separation of waste at the source as suggested could reduce the chances of inorganic waste being dumped into the organic pit. The waste management plan discussed by the managers is sustainable - however, there is need for improvement. All waste from LKC and KWC which is stored at Happy Valley is said to be recycled, which is a sustainable method of waste management. Both camps must make an effort to carefully monitor and manage their waste disposal methods on a regular basis.

Both camps have an impressive performance in terms of hazardous chemicals used. Environmentally friendly chemicals are used for cleaning, laundry, and guests are encouraged to use shower gel and shampoo provided by the camp; which are environmentally friendly. Bar soap, that has been handmade by a Namibian community-based HIV project are also used, and thereby contribute to social upliftment in the country. Both camps sanitation system is made up of septic tanks and French drains, the use of environmentally friendly chemicals, significantly reduces the introduction of harmful chemicals into the surrounding natural environment. Waste reduction strategies have been initiated by both camps. In an attempt to reduce the amount of waste from bottled water, guests are given a reusable water bottle on arrival, and encouraged to refill their bottle with water treated by reverse osmosis. However, direct observation revealed that because of the high temperatures, even if guests refill their bottles, water heats up fast, and the guest rather opt for bottled water. Furthermore, the bulky size of the bottles resulted in guests leaving these bottles in their rooms and not using them again. The camps could consider the viability of the reverse osmosis machine in relation to providing drinking water for guest. As majority of the guests prefer drinking bottled water. This could drastically reduce the volume of water being used by both camps. However, the cost for bottled water may increase. Water quality must be assessed further to determine if it is safe for staff consumption.

Social sustainability performance based on baseline indicators

Sustainability cannot be achieved without considering social issues associated with the surrounding local community. A change in the level of local satisfaction with tourism is an early warning indicator for managers of potential local hostility towards tourists. In terms of the study sites there are no local communities living in or around the camps. However, the company has an initiative to hire staff from all over Namibia. The level of local satisfaction with tourism was adapted and assessed by interviewing staff members that worked at each camp. At both LKC and KWC, the current level of local satisfaction with tourism was very high, as all respondents interviewed thought that tourism is good for the community. Upon further analysis 59% of the staff respondents at LKC and 44% of the staff interviewed at KWC stated that tourism is good for the community because it creates jobs. For both LKC and KWC, the most popular benefits mentioned by staff were related to meeting foreign tourists and learning about their country, culture and languages, as well as the opportunity for staff to enhance their skills in the industry. The staff interviewed at KWC also indicated that tourism creates the opportunity to learn about the natural environment, as well as how to use natural resources sustainably and protect wild animals. The majority of the staff interviewed acknowledged the importance of the financial benefits of tourism. However, this was not the only aspect on which staff focused. At both camps, staff comments suggest that personal growth and development resulting from tourism were key personal benefits experienced and sought after by staff members. Staff expressed the desire to grow personally in terms of knowledge and skills. Staff showed the desire to fulfil personal needs through acquiring skills to improve themselves and gaining knowledge about other (foreign) people. The staff kept emphasising that they enjoyed working with the guests and achieved satisfaction from interacting with the guests and learning about foreign cultures and languages. They also seemed to appreciate the experience that they were obtaining from the training offered by Wilderness Safaris, and this relates to their personal desires to learn and become skilled in different areas.



Eighty six percent of the staff at LKC stated that they wanted more tourism in the area, while 100% of the staff at KWC wanted more tourism in the area. At LKC, job creation, the pride of sharing their culture with guests, the opportunity to learn about other cultures, and nature conservation were among the main reasons why staff wanted more tourism in the area. For KWC, job creation, the desire to share Namibia's natural attractions with tourists and the opportunity to learn more through tourism were among the main reasons why they wanted more tourism in the area. There were only a few concerns regarding tourism amongst some of LKC's staff in relation to the environment. The main reasons centred on the need to protect the environment and not over-exploit Namibia's natural resources. Such comments from these staff members indicate that they are growing in environmental awareness. Tourism is responsible for a change in the way locals view their natural resources and the environment. It has taught locals the importance of looking after the environment.

The majority of the staff at both camps felt that tourism has changed the behaviour of local staff. Although the question was posed in a negative sense, staff at both camps revealed that the change has been mostly positive. Most of the staff stated that no one used to want to learn English, but as a result of tourism and meeting different people, locals now want to speak English more. Locals also have a desire to learn other foreign languages, which they did not want to do before tourism. Other changes mentioned include education of locals through tourism, through the learning of new skills and environmental education.

Tourism has, however, resulted in some negative impacts such as influencing some people's beliefs or preventing them from spending enough time on pursuing their beliefs, as they work six week shifts and don't get to go to church. Locals' wanting to wear modern clothing, was seen as another negative effect of tourism. together with a change in the food that locals are eating. Wilderness Safaris has made jobs available to people from all over Namibia. The staff feel that tourism is contributing to decreasing crime, as it provides a lot of young people with jobs, which means that there is no need for them to get involved in crime. The behavioural changes resulting from tourism have mostly been positive. Tourism is responsible for creating a desire in locals to get educated. The most noteworthy impact is the desire of staff to learn English and other foreign languages. The staff at both camps were happy to host tourists visiting the camp and were enthusiastic about interacting with them.

In terms of the percentage of staff who believe that tourism has helped to establish new services or infrastructure the following was found. The manager of both camps and the majority of the staff at LKC (73%), as well as 28% of the staff at KWC, stated that there is now a clinic in Sesriem, founded and established by a foreign tourist, whose wife died in the area because there was no hospital nearby and it took too long to get her to a hospital. After the incident, her husband sponsored the building of a clinic in Sesriem, which is close to both LKC and KWC. The majority of the staff at KWC thought that tourism had not helped to establish new services, as staff live far away from the lodge they have not personally benefited from new infrastructure. The area around both camps is mostly rural farmlands, which means that there is not much infrastructure.

Economic sustainability performance based on baseline indicators

"Tourist satisfaction is central to whether tourists return, recommend the destination to others or conversely advise others to stay away" (UNWTO, 2004:86). This makes it a leading indicator in determining the long-term sustainability of the tourism venture and its economic viability. In line with the standard set by the UNWTO (2004) visitor satisfaction was rated in relation to the visitor experience, accessibility to the destination, the state of the environment, level of service received and safety.



Visitor experience at LKC and KWC was very high ('excellent') for all aspects, with the exception of respondents at LKC rated the experience with wildlife as good, while guests at KWC rated it lower as average. The climate existing in the region affects the wildlife found in the area. Neither of the camps market themselves as destinations that focus on providing guests with wildlife experiences, but rather as destinations that offer guests access to natural attractions in the surrounding area. A high number of respondents (81, 5%) from LKC would recommend the camp to their friends, while 62.5 % of the respondents at KWC would recommend the camp to their friends. All the respondents at LKC and 75% of respondents at KWC felt the camp offered a good variety of experiences.

In terms of accessibility, tourists visiting KWC found travel to be more challenging than those visiting LKC. This was because most of the visitors at KWC were self-drive tourists, while visitors staying at LKC flew into the camp via charter flights. These charter flights make the camps more accessible, as Namibia is vastly underdeveloped and is characterised by dirt roads and vast open spaces between towns. According to the tourists visiting LKC, the environmental performance of the camp was excellent in terms of a clean environment in the camp and around the natural sites. Overall, tourists staying at KWC rated the environmental performance as good. Visitor perception of service was assessed in terms of the quality of food, accommodation and the service received from staff. Visitors rated the service provided at LKC as excellent, while at KWC, the service was rated as good. Visitor perception of safety at LKC was also excellent, while at KWC, was rated as good.

Overall, tourist satisfaction at LKC was very high ('excellent'), while at KWC, tourist satisfaction was high ('good'), and therefore has some room for improvement.

Visitors at LKC and KWC indicated that the value for money was neither good nor bad, but average. This may be an emerging area of concern for management and should be further investigated and addressed. This indicator is essential in order to assess the economic sustainability of both camps, as this issue has the ability to affect the long-term sustainability of the two camps. If tourists feel that they have not received value for money in relation to their experience, this can have numerous negative repercussions for the camps, which may include visitors deciding not to return for another visit or not recommending the camp to their family and friends. There may be a correlation between the lack of return visitors and visitors' perception of value for money in terms of the product offered by LKC and KWC. The water quality issues related to guest satisfaction may be another aspect to further investigate. This indicator provides a clear picture of whether or not returning visitors were satisfied with their previous experience. The indicator aimed to determine if current visitors enjoyed their stay, whether or not they would return in the future, and if so, what their length of stay would be. The percentage of visitors who had previously visited LKC was very low, while none of the visitors to KWC had previously visited the camp. Visitors gave mixed opinions regarding the possibility of them returning to LKC for a future visit. At LKC 37.5% of the visitors indicated that they would not like to return to the camp again, while 37.5% indicated that they would like to return in future, and 25% were undecided about returning to LKC in the future. The majority, 50% of the visitors to KWC indicated that they would not return to visit the camp again in the future. 25% of the visitors indicated that they would like to return at a future date, while 25% were undecided.

In terms of return visitors, LKC is currently performing better than KWC. Of those at LKC that said they would return only 50% said they would participate in certain activities and excursions offered by the camp again. The Dune Corridor was the most popular repeat activity, followed by quad biking. At KWC, all the tourists interviewed indicated that there was no activity offered by KWC that they would like to do again. The length of time for which visitors would stay at LKC on their next visit ranged from two to five days, while visitors at KWC indicated that they would stay for three days if they returned. There is some concern in terms of repeat visits, as it seems that the current product offering is not attractive enough to draw tourists back again



for another visit. Visitors seemed to be extremely happy with Wilderness Safaris and would travel again with the company, even though it would be to other camps throughout Southern Africa. Both camps have a short peak season between July and August, which corresponds with the European summer and South African school holiday period. The low seasons at both camps are experienced during the Southern African summer months, namely between December to February. This is also when the camps experience the hottest months of the year. On average LKC receives 3431 visitors per year, while KWC receives an average of 2912 visitors per year. The results for KWC show a decline in overnight visitors in KWC over January 2010- April 2012. The average monthly bed occupancy rates for LKC and KWC were extremely low. LKC has an average occupancy rate of 39% per year, while KWC has an average monthly occupancy rate of 36.5%.

Each camp had peak periods, where occupancy rates improved over certain months. These figures, however, were not consistent, as the average occupancy rate for each year remained low. These figures are extremely low and very concerning, as the level of the camps' utilisation was low. This indicator shows that there is an emerging issue that must be urgently addressed by the camps' management, as both camps occupancy rate is not economically sustainable. Both LKC and KWC must determine the reason for the low occupancy rates and adopt appropriate measures to improve their occupancy rates. As the camps' primary target market is foreign European tourists, the economic downturn may have contributed to the low occupancy rates. The camps should also consider pursuing new foreign markets. They could also consider South African tourists as an alternative market, in order to help improve the camps' occupancy rates during the South African summer holiday season. Ninety one percent of the jobs are permanent; while 100% of the jobs at KWC are permanent positions (see Table 3). At both camps, only males are employed and trained as guides; it is unclear why only males are employed as guides. This is not sustainable in terms of gender equality and sustainability goals. Both camps should consider training female guides, as the majority of the female staff interviewed expressed a desire to become a guide. A large number of both male and female staff members interviewed at both camps stated that they would like to be a guide. It is possible that this desire is related to the higher salaries earned by guides. If this is the case, this could contribute to job dissatisfaction and management should strive to resolve this issue. This could be a possible emerging issue.

Staff members at both camps are employed in a variety of positions that range from maintenance, housekeeping and waiters through to chefs, guides and managers. In terms of the percentage of jobs which are permanent, and the percentage of staff that are locally employed, both camps are sustainable. In terms of the ratio of men to women LKC is currently performing well, while KWC can improve.

Table 3. Percentage of permanent jobs per camp and the number of local people employed (and the ratio of men to women)

	LKC	KWC
Percentage of jobs permanent	91%	100%
% of staff that is female	59%	41%
% of staff that is male	41%	59%
% locally employed from Namibia	97.4%; 2.6% (from South Africa)	100%

In terms of the indicator of revenue generated and spent in the area it was found that this indicator could not be assessed, as this information is confidential.



Lessons from the onsite application of STI's

Over the onsite data collection period at the two camps, a number of lessons were learnt through the application of STI's. It was established that STIs form a progressive unconventional assessment tool, which provides management with a raw uncensored view of their venture's performance. The study found that the strength of STIs lies in their capability to navigate interrelated issues, and illuminate the nexus pathways and the extent of interplay between environmental, economic or social factors, that result in various impacts. In a transitory amount of time, the source of issues, and the extent of interplay between different factors of the venture that may be enabling or contributing factors, to an issue responsible for an impact; are quickly made visible to management. In this process information is easy for management to comprehend, and little analysis needed. This makes indicators exceptionally user friendly and highly effective to assess destination performance.

The onsite application of indicators is subject to the influence of a number of factors associated with the unique makeup of the tourism venture. These factors are important for the researchers to anticipate, as they will directly affect how an indicator can be implemented, and if the indicator is able to accurately assess a particular aspect of the venture's sustainable performance or not. These factors only become visible once the researchers are on the ground, and immersed within the venture's routine operations. The accuracy of the findings from the application of indicators is only as accurate as the data provided. During the study the indicator used to assess the volume of water used is a good example. As water meters had broken and there was no record of the ventures exact water usage, some of the data required had to be interpolated from specialist sources. Managers had to provide estimated water use figures, based on an estimation of how quickly the water tanks are emptied in a week. This lack of data reduces the accuracy of the indicator. However, even this lack of data was helpful to assist management, as this indicator was then used to inform management of data that's important to have and monitor. The study made management aware how crucial water consumption figures are, and the importance of recording of this data. As such, STI's possess another unique characteristic, in that they can metamorphose to address the ventures needs at the time of assessment. Should data be missing STI's transform into a teaching tool, making management aware of what data is important to record.

STIs eradicate all assumptions and highlight the real situation. Managers believed that the water meters broke, due to the high level of calcium in the destinations ground water. STIs clarified that calcium was not the cause of scaling in plumbing infrastructure, but that a high level of total dissolved solids, electrical conductivity and chloride were the source of scaling. The unique ecosystem where the venture is situated plays a crucial role, and will affect the functionality of the venture and its level of success. In terms of the study, both camps water quality is directly affected by the underlying volcanic geology, which influences the mineral properties of the ground water sources. During the study the indicators were able to identify a root issue; like water quality. This was responsible for a number of negative impacts being experienced in the camp; including significant infrastructural damage resulting in financial costs (economic); and negative effects on the quality of the tourism product; as low water pressure directly affected the visitor experience (economic); and the potential negative effects to staff from prolonged consumption groundwater with a high level of fluoride (environmental and social). This environmental issue (water quality) subsequently impacts the economic and social aspects associated with these ventures.

Indicators identify not only existing issues, but also potential emerging issues with pinpoint accuracy. STIs identify areas where remediation and refurbishment are needed before significant damage is caused to infrastructure, this can save money and even result in improving visitor experience.



The social and environmental aspect of STI's has a strong focus on the local community. Although this aspect is essential, the study found that staff members who work for the venture do not feature strongly within a number of indicators suggested by the UNWTO. This is concerning as a venture's staff members are an essential pillar of a venture. As an example, drinking water quality is aimed at tourist health, however, in terms of the study due to the short duration that guests spend at the venture (2-5 days) the water was safe to drink untreated. However, the water was not suitable for staff to drink untreated, due to the maximum consumption period advised by the SANS 241 drinking water quality standards, associated with the high level of fluoride in the ground water (maximum consumption period is one year). It is crucial to include staff in an assessment of a ventures sustainable performance, as staff members are a foundational component upon which a ventures success rests. Therefore, STI's should also be developed to assess staff perceptions, level of satisfaction of working for the venture and their experience. Every aspect addressed by STI's will be directly affected by how staff performs, whether environmental, social or economic issues are being address. If staff members do not follow recycling strategies (environmental), if they are not friendly and helpful to guests (economic), or if they are hostile towards tourism (social); when assessed, the venture's sustainable performance will be poor.

The study found that the camps are very good at implementing sustainable measures in guest areas and in most service areas. However, implementation of these same measures is not consistent throughout the camps, such as in the staff villages. This significantly affected the destinations sustainable performance. It was primarily in this area that caused a significant drop in sustainable performance, when indicators were implemented. As normal light bulbs were found, leaking taps no dual flush toilets and leaking sewage systems.

Furthermore, the study found that indicators, suggested by the UNWTO, were not suitable for the Southern African context. This is due to the nature and context of tourist ventures within developing countries or emerging markets. The contextual setting in emerging market countries, where tourism is being developed is characteristically different from the context in which tourism has been developed in the developed countries. Within the contextual setting of Southern African, many tourism ventures can be distinguished from those in developed countries, on the basis that staff members also live onsite within the tourism venture. This essentially means that these staff members also contribute to destination resource use, alongside guests.

International benchmarks are designed to determine resources based solely on guest consumption, which is not compatible to the Southern African context. Findings will not be a true representation, as staff members also contribute to resource use. Indicators assessing the volume of water used, energy use, volume of waste produced and CO² emissions had to be adapted to included staff members in order to provide a more accurate measure of destination resource use; when compared to the international benchmark. To date there are no tourism benchmarks available within Southern Africa. It is advised that new benchmarks be adapted to the Southern African context, which makes provision for ventures whose staff stay onsite and also contribute to resource use.

Another significant feature of indicators found during the study, is that they help to reduce future impacts and assist in future planning, merely by virtue of their application, for example they assist management in looking at establishing new activities. Indicators are better suited for application on an annual basis. Indicators will only be as effective as the level of openness with which management and staff perceive indicators. The buy in from management on site is critical for the successful assessment of a venture. Often indicators are imposed on a venture from top management to measure destination performance, in order to check if the venture's sustainable performance meets reporting benchmarks.



Management and staff on the ground can easily perceive STI's as a threat, and a mechanism forced upon them, as a way to expose their shortcomings and weaknesses. This directly affects managements' desire to assist with the implementation of the study and giving the researchers access to information. During the study a certain level of resistance was experienced at one of the camps when implementing the indicators. If management is open to implement indicators, they will provoke, dare and challenge the venture to grow in such a way that it will assist in operationalising sustainable development in the venture. It is recommended that incentives or awards be associated with the application of indicators, as a means to change the perception of staff towards such an assessment. Tourism ventures need to be proactive in terms of their impacts instead of reactive.

Conclusion

The study found that STI's are an accurate and cost effective tool for measuring sustainable performance within the two study sites. STI's have the capability to extract meaning from large amounts of data and accurately project the status of a destination's sustainable performance, in a comprehensive manner that is useful for management. Both camps have areas where sustainable measures were operating effectively to improve their ventures sustainable performance. LKC's environmental sustainable performance in terms of the use of renewable energy through solar geysers was evident, and accounted for supplying 8.3% of the camps energy requirements. KWC's use of batteries has allowed the camp to use less than half of the amount of energy as LKC, thus KWC significantly outperformed LKC in terms of environmental sustainable performance.

Sustainable policies in both camps, such as the biodegradable chemical policy, guest inclusion in water saving strategies, and the camps solid waste management strategy, are currently successful, although there is room to improve. Both camps were currently performing well in terms of social sustainability performance, particularly in relation to staff members' satisfaction with tourism in the region. However, despite these impressive initiatives, STIs also identified areas of concern which need to be addressed by camp management. Manning (1999:179) argues that "indicators must be designed to respond to known risks, to the key assets of a destination, focussing on warning of damage to the ecosystem, community and to the product." STIs were able to accurately identify key areas in both ventures, which if left, have the potential to cause significant damage to the natural ecosystem, staff and to the product.

The study found that there is a need to develop benchmark standards for tourism ventures within developing countries, where staff and tourists account for resource use. Currently benchmarking systems have been created in developed countries, based on the nature of conditions found within the first world. These were found to be unsuitable to gauge an accurate representation of the sustainable performance of tourism ventures within developing countries, due to the vast contrast in conditions under which tourism ventures operate within developing countries.

References

- Bell, S. & Morse, S. (1999). *Sustainability indicator: measuring the immeasurable?* (2nd ed.). London: Earthscan.
- Bell, S. & Morse, S. (2008). *Sustainability indicators: measuring the immeasurable?* (2nd ed.). London: Earthscan.
- Castellani, V. (2010). Development of methodologies and indicators to assess sustainability in tourism and agriculture, University of Milano - Bicocca PhD Thesis, XXII cycle.



Gossling, S., Peeters, P., Hall, M., Ceron, J.P., Dubois, G., Lehmann, L. & Scott, D. (2012). Tourism and water use: Supply, demand, and security, an international review. *Tourism Management*, 33, 1-15.

Hall, C.M. & Page, S.J. (1999). *The geography of tourism and recreation; environment, place and space*. New York: Routledge.

ITP (International Tourism Partnership). (2008). *Environmental management for hotels: The industry guide to sustainable operation* (3rd ed.). London: ITP.

Jacobson, P.J., Jacobson, K.M. & Seely, M.K., (1995). *Ephemeral Rivers and Their Catchments: Sustaining People and Development in Western Namibia* (pp160). Windhoek: Desert Research Foundation of Namibia.

Manning, T. (1999). Indicators of tourism sustainability. *Tourism management*, 20, 179-181.

Mearns, K. (2011). Using sustainable tourism indicators to measure the sustainability of a community-based ecotourism venture: Malealea Lodge and Pony trek centre, Lesotho. *Tourism Review International*, 14, 1-14.

Park, D.B. & Yoon, Y.S. (2011). Developing sustainable rural tourism evaluation indicators. *International journal of tourism research*, 13, 401-415.

Rogerson, C.M. & Visser, G. (2011). Current themes in tourism and development in Southern Africa. *Tourism Review International*, 15, 1-3.

South African National Standard. (2006). *South African National Standard - drinking water (SANS 241:2006)*. Pretoria: South African Bureau of Standards Division.

Torres-Delgado, A. & Saarinen, J. (2014). Using indicators to assess sustainable tourism development: a review. *Tourism Geographies: An International Journal of Tourism Space, Place and Environment*, 16, 31-47, DOI: 10.1080/14616688.2013.867530

Tsaur, S.H., Lin, Y. & Lin, J. (2006). Evaluating ecotourism sustainability from the integrated perspective of resource, community and tourism. *Tourism Management*, 27, 640-653.

United Nations World Tourism Organisation (WTO). (2004). *Indicators of Sustainable Development for Tourism Destinations: A Guidebook*. Madrid, Spain: UNWTO.

United Nations World Tourism Organization (UNWTO) (2014). *Tourism highlights 2014 edition*. Madrid, Spain: UNWTO.

United Nations World Tourism Organization (2015), *UNWTO Annual report 2015*, UNWTO, Madrid, Spain: UNWTO.

United Nations World Tourism Organization (UNWTO) (2016). *UNWTO Tourism Highlights, 2016 edition, 2016*. Madrid, Spain: UNWTO. (Available from) http://www.dadosofatos.turismo.gov.br/images/pdf/estatisticas_indicadores/UNTWO_Tourism_Highlights_2016_Edition.pdf Accessed on (07/03/2017).

United Nations World Tourism Organization (UNWTO) (2017a). *World Tourism Barometer, Advance release, January 2017*. Madrid, Spain: Available from: http://cf.cdn.unwto.org/sites/all/files/pdf/unwto_barom17_01_january_excerpt_.pdf (Accessed on 06/03/2017).



United Nations World Tourism Organization (UNWTO) (2017b). The *World Tourism Organization begins the International Year of Sustainable Tourism for development, January 2017*. Madrid, Spain: Press release. Available from: <http://media.unwto.org/press-release/2017-01-20/world-tourism-organization-begins-international-year-sustainable-tourism-de> (Accessed on 07/03/2017).

World Commission of the Environment and Development (WCED). (1987). *Our common future: The Brundtland Report*. Oxford: Oxford University Press.

Wilderness Safaris Agents Manual. (2011). *Wilderness Safaris Agents Manual*.

World Health Organisation (WHO). (2003). *Chloride in drinking water: Background document for development WHO guidelines for drinking-water quality*. Geneva: Switzerland: WHO.

World Tourism Organisation (WTO). (1993). *Indicators for the sustainable management of tourism*. International working group on indicators of sustainable tourism. Canada: Industry science and technology.

World Travel and Tourism Council (WTTC). (2006). Namibia: *The impact of travel and tourism on jobs and the economy*. Retrieved 08 August 2015 from www.wttc.org

Yin, R.K. (2009). *Case study research: design and methods* (4th ed.). London: Sage.