Sustainable Tourism Awareness and Environmental Practices in Luxury Safari Lodges

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Declaration

I know the meaning of plagiarism and declare that all of the work in the dissertation, save for that which is properly acknowledged, is my own.

A.J. LOGAN **DATE**

Abstract

Sustainable tourism requires accommodation businesses to balance economic, environmental and social issues, taking into account the needs of current and future generations. However, despite the ever-increasing attention on sustainable tourism and the acknowledgement of the impacts of tourism on the environment, this form of tourism only represents a minor share of all tourism.

Ecotourism forms part of sustainable tourism and is one of the most common forms of commercially focused wildlife management on privately owned land. Luxury safari lodges are expected to provide a high level of hospitality, luxurious facilities and exquisite cuisine. Consequently, these lodges consume large quantities of resources and are reliant on the adequate supply of water and energy. Safari lodges are also reliant on the natural environment to attract guests. Therefore it is prudent of these businesses to conserve and protect water, energy and ecological resources to ensure the perpetuity of the lodge. Furthermore, both the environment and society benefit from the conservation of these resources.

This study investigates the awareness of sustainable tourism and environmental practices in luxury safari lodges. Twenty-five luxury safari lodges in Limpopo and Mpumalanga provinces of South Africa were approached and a total of six safari lodges participated in an email-based questionnaire and one took part in semi-structured interviews. The research reveals that luxury safari lodges are aware of sustainable tourism and its importance. In addition, they involved in a number of environmental activities in order to achieve sustainability. The environment is emphasized as central to sustainable tourism, stemming from the fact that these lodges rely on the natural environment to attract guests. Balancing financial commitments to sustainability was found to have an impact on certain aspects of the luxury safari lodges attitudes and actions.

The research indicated two key directions to pursue to sustain environmental activities in the luxury safari lodge industry. Firstly, education and awareness of staff and guests is acknowledged as central to supporting and achieving sustainability in luxury safari

lodges. Secondly, lodges affiliated with voluntary initiatives such as FTT and Greenleaf are audited regularly to ensure a specific standard has been achieved, thus maintaining sustainable best practices in the lodges.

The research concluded that the motivation for achieving sustainable tourism within luxury safari lodges can be seen as driven by: the need to preserve the natural environment, the opportunity to reduce operating costs (increase profitability) and the growing demand for environmentally friendly safari lodges.

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List of Abbreviations and Symbols

AFR	Africa
APNR	Association of Private Nature Reserves
Big Five	refers to elephant, lion, leopard, buffalo and rhino
CH_4	Methane
CO_2	Carbon dioxide
ECA	Eastern Central Asia
EAP	East Asia and Pacific Region
FTT	Fair Trade Tourism
GHG	Greenhouse gas(es)
GLES	Green Leaf Eco Standard
IPCC	Intergovernmental Panel on Climate Change
KNP	Kruger National Park
KPNR	Klaserie Private Nature Reserve
LAC	Latin American and the Caribbean
LED	Light emitting diode
MENA	Middle East and North Africa
MJ	Megajoule
MSW	Municipal Solid Waste
OECD	Organisation for Economic Co-operation and Development
OWNR	Olifants West Nature Reserve
PNR	Private Nature Reserve(s)
SA	South Africa
SAR	South Asia
SSA	Sub-Saharan Africa
SWM	Solid waste management
TA	Timbavati Association
TPNR	Timbavati Private Nature Reserve
UNFCCC	United Nations Framework Convention on Climate Change
USA	United States of America
WWF	World Wide Fund for Nature

Chapter One: Introduction

The concept of sustainable tourism has emerged over the last few decades as the negative impacts associated with tourism, particularly the excessive consumption of water, energy and other consumables, have become more relevant to the climate change debate. Ecotourism, founded on sustainable tourism principles, however only presents a minor share of all tourism. This is often attributed to a lack of awareness of sustainable tourism among both the accommodation businesses and consumers.

High-end accommodation enterprises are linked to greater consumption of water and energy and thus greater waste production (Gössling *et al.*, 2012). An example of these tourism enterprises is luxury safari lodges. These lodges are high cost, low-density accommodation businesses that offer tourists a spectacular experience, with high levels of hospitably, cuisine and accommodation (Spenceley, 2003; Spenceley, 2010; Rogerson *et al*., 2013; Frommers, 2014). Nonetheless the impact of the tourism industry on the environment has only recently gained attention and has scarcely been assessed and quantified (Gossling, 2002; Becken, 2004; Bohdanowicz *et al*., 2005). However, tourism not only contributes to climate change, (Scott *et al.*, 2008; McKercher *et al*., 2010) but it is also highly sensitive to the impacts of it and its resultant influence on the environment and resources in the future, particularly as the industry is predicted to grow (Lim & McAleer, 2005; Scott *et al*., 2008; McKercher *et al*., 2010; Niang *et al.*, 2014).

The management of resources, such as water and energy, are essential for tourism accommodation to become sustainable. In the future the tourism industry will be subject to mitigation regulations and policies regarding water and waste management and GHG emissions (Steyn & Spencer, 2012). Furthermore tourism businesses like luxury safari lodges rely on and market the environment to attract guests. Therefore directing the tourism industry towards sustainability, particularly environmental sustainability, is a priority and in its own interests (Gössling, 2002; Bohdanowicz *et al.*, 2005; Lim & McAleer, 2005; Becken & Patterson, 2006). However, this often means

altering the way businesses are operated, offering more sustainable forms of consumption while maintaining superior levels of comfort and service (UNEP, 2003; Gregson *et al*., 2013; Whiley & Boehem, 2014). Probably the most difficult is changing the tourists' behaviour and informing tourists on sustainable tourism practices.

1.1. Focus of Research

This research explores the awareness of sustainable tourism and investigates environmental practices in luxury safari lodges found on private nature reserves (PNR) in the Limpopo and Mpumalanga provinces of South Africa for a number of reasons:

1. There are very few studies on the safari lodge industry in South Africa, with most studies focusing on economic and social sustainability. As a result this research focuses on environmental sustainability
2. Luxury safari lodges tend to have a higher environmental footprint due to facilities such as spas, large rooms, private pools as well as importing luxury products in order to provide a lavish experience.
3. Large number of privately owned, world-renowned, nature reserves and luxury safari lodges are found in close proximity to the Kruger National Park (KNP) in the Limpopo and Mpumalanga, thus providing a large sample group
4. 'Privately own' implies that the owners and/or manager have the freedom to operate their operations as they please. As a result environmental concern and motivation to pursue sustainability are strongly reliant on the lodges owners/managers desire, knowledge and financial situation to do so.

1.2. Aims and Objectives

The purpose of this research is to gain a broad understanding of luxury safari lodges' perception and awareness of sustainable tourism and specifically focuses on environmental sustainability. The South African White Paper on Tourism identifies the need to avoid waste and overconsumption and the sustainable use of local resources as

a key element of responsible tourism (DEAT, 1996). Consequently, this research will investigate whether the lodges are engaged in resource and environmental management, specifically focusing on water and energy consumption and waste production. This is achieved by the following objectives:

1. Ascertain the facilities and existing infrastructure of the luxury safari lodges
2. Collect data pertaining to the consumption, conservation and management of energy and water and waste production
3. Establish the lodges understanding of sustainability, sustainable tourism and environmental sustainability
4. Use the resource consumption and production data as well as the qualitative data collected regarding sustainable tourism to assess the awareness of sustainable tourism in luxury safari lodges

1.3. Summary of Chapters

The thesis is composed of six chapters, each dealing with different aspects of sustainable tourism. Chapter One is an introductory and clarifies the aims and objectives. Chapter Two examines the relevant literature and themes emerging from the sustainable tourism debate. Chapter Three describes the methodology used to complete the research, including relevant limitations. The results are discussed over two chapters. Chapter Four addresses awareness of sustainable tourism in luxury safari lodges and investigates the difficulties and challenges associated with achieving sustainability. Chapter Five consists of three sections. The first section focuses on energy consumption; the second on water consumption and the third investigates waste production in luxury safari lodges. Finally, the conclusions are drawn in Chapter Six.

Chapter Two: Tourism and Sustainability: A Review of the Literature

2.1. Introduction

This research developed from a number of observations and ideas arising from the literature on sustainable tourism awareness and environmental practices:

- Sustainable tourism is gaining prominence in the accommodation sector (Becken *et al.*, 2001)
- Energy, water and waste are the most targeted areas for environmental solutions (Bohdanowicz, 2006).
- Krug (2001), Langholz and Lassoie (2001) and De Alessi (2005) believe that PNR can be drivers of sustainable development, with tourism enterprises protecting the environment, developing the community as well as being financially successful.
- However, there is concern regarding the lack of awareness of sustainable tourism within the accommodation sector resulting in minimal participation in voluntary initiatives observed by Bohdanowicz *et al* (2005) and Van De Merwe and Wocke (2007)
- Further criticism from McCool *et al* (2001); Hunter (2002), Lui (2003) and Kiss (2004) is the lack of a universal definition leading to varied degrees of action.

Given the view that PNR and their associated tourism business can be drivers of sustainability, valuable insight can be obtained by studying sustainability through luxury safari lodges. This approach will establish an understanding of sustainable tourism and ascertain the level of awareness. Following an evaluation of the environmental activities practiced, an assessment can be made regarding the degree of activities occurring.

2.2. Tourism

Tourism is the travel for limited period of time for specific purpose, ranging from leisure and recreational purposes to business or religious reasons. The tourism sector encompasses transport, accommodation, attractions and activities as well as products purchased in relationship with the journey (Becken *et al*., 2001). It is reliant on a number of factors ranging from the nature and location of the tourism enterprise to the size and source of investment (Kirsten & Rogerson, 2002).

Tourism is one of the most important sectors of global economic growth, supporting more than 260 million people world wide and contributing 9% to the global gross domestic product (GDP) (Lansing & De Vries, 2007; WTTC, 2013). It is an expanding industry, expected to increase at a rate of 4-5% per year over the next decade (Scott *et al*., 2008). Globally, the number of international arrivals was 1 billion in 2012 and that figure is projected to grow to 1,8 billion by 2030 (WTTC, 2013). In many developing countries, tourism is rapidly expanding and is particularly important in rural areas where it can provide a rare opportunity for local development, employment and revenue generation and often is the main source of local income (Lim & McAleer, 2005; Rogerson *et al*., 2013). In 46 out of 50 of the worlds Least Developed Countries (LDC) tourism is the chief source of foreign exchange earnings (Scott *et al*., 2008).

2.2.1. Tourism and Climate Change

Without the Earths' variety of landscapes, fauna, flora and climate, tourism in many parts of the world would not exist (Lim & McAleer, 2005; Steyn & Spencer, 2012; WTTC, 2013). Very few other economic activities are so dependent on climate as tourism. As a result, tourism is highly sensitive to the impacts of climate change and its resultant influence on the environment and resources in the future, particularly as the industry is predicted to grow (Lim & McAleer, 2005; Scott *et al.*, 2008; McKercher *et al*., 2010; Niang *et al*., 2014). Africa is especially vulnerable to climate change and resource scarcity (WTTC, 2013; CDKN, 2014; Niang *et al.*, 2014).

The climate is the main driver of global seasonality in tourism demand (for example, skiing during winter) and can also have a major influence on the operating costs of tourism enterprises, such as heating and cooling expenses, insurance costs and water supply (Steyn & Spencer, 2012). As a consequence of global climate change, tourist destinations could progressively shift towards higher latitudes and altitudes (Hamilton *et al*., 2005; McKercher *et al*., 2010). Other direct climate change impacts include increased temperatures causing melting of snow and ice, changes in rainfall patterns and more extreme weather events (Solomon *et al*., 2007; WTTC, 2013; CDKN, 2014; Niang *et al*., 2014). Indirectly, climate change can influence the environment by accelerating land and marine biodiversity loss, spread disease, increasing sea level and decreasing resource availability (Solomon *et al.,* 2007; Niang *et al*., 2014).

Tourism will not only be affected by future climate change but will also contribute to it (Gössling, 2002; Becken, 2004; Lim & McAleer, 2005; Spenceley, 2010). Over the past 100 years global mean surface air temperatures over land and sea have increased significantly due to an amplified greenhouse effect (Pandey *et al.*, 2011; Cubash *et al*., 2013). The intensified greenhouse effect is the consequence of anthropogenic GHG released into the atmosphere, which increases the rate of warming (Pandey *et al*., 2011). Climate change is "unequivocal" (Solomon *et al*., 2007 p. 5) and considerable studies have identified tourism as a major source of GHG emissions (Solomon *et al.,* 2007).

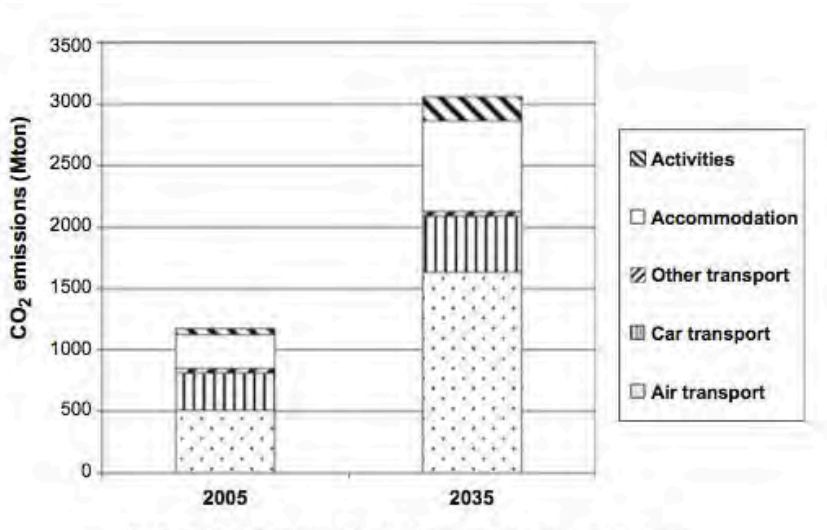

Figure 2. 1. CO_2 emissions caused by global tourism (excluding same day visitors) (Peeters & Dubois, 2010)

Globally, tourism is responsible for approximately 5% of total carbon dioxide (CO_2) emissions (overnight tourism accounts for 4.4% of global CO_2 emissions (Peeters & Dubois, 2010; Scott, 2008) and 14% of all GHG emissions (Scott *et al.*, 2008; McKercher *et al*., 2010). Global tourism emissions can be divided into three sub-sectors: transport, accommodation and activities. As shown in Figure 2.1, the transport sector accounts for the majority of emissions, however tourist accommodation is also energy intensive, representing 21% of total tourist emissions (Bohdanowicz *et al.*, 2005; Scott *et al*., 2008). Tourist accommodation, particularly hotels, also use large quantities of water and other consumables hence the environmental footprint of hotels is larger than other types of buildings that are similar in size (Rada, 1996; Bohdanowicz *et al.*, 2005). Due to the continuously growing tourism industry, emissions from tourism are projected to increase at over 3% per year (Peeters & Dubois, 2010), increasing to 152% between 2005-2035 without mitigation actions (Figure 2.1.) (Scott *et al.*, 2008). Nonetheless, tourism's contribution to climate change and the resultant impacts has only recently gained attention and is understudied, with most research focussing on energy use and the associated GHG emissions (Gössling, 2002; Becken, 2004; Bohdanowicz *et al*., 2005).

The current rate of tourism is unsustainable (Peeters & Dubois, 2010) and an increase awareness regarding climate change among consumers will act as a catalyst for behavioural change (Bohdanowicz *et al*., 2005). As a result consumers will increasingly take GHG emissions into account (Scott *et al.*, 2008), especially since some airlines now include an emissions charge in the cost of an air ticket (IATA, n.d.). Therefore it is vital that the tourist sector responds to climate change and grows in a sustainable manner. There is huge potential, using existing technology and best practices, to decrease GHG emissions by 30-40% (Scott *et al*., 2008). In the future the tourism industry will be subject to mitigation regulations and policies regarding GHG emissions (Steyn & Spencer, 2012) therefore directing the tourism industry towards sustainability is a priority and in the sectors interests (Gössling, 2002; Bohdanowicz *et al.*, 2005; Lim & McAleer, 2005; Becken & Patterson, 2006). However, it is likely future mitigation policies will increase travel costs and alter the demand for certain destinations, especially those in climate change hotspots (Scott, 2008; WTTC, 2013).

2.2.2. Sustainable Tourism

Since the inception of the concept of sustainable development through the Brundtland report (UNWCED, 1987), it has gradually become a popular field of research (Lui, 2003). Sustainable tourism[1] (interchangeable with responsible tourism in this research) has emerged from the concept of sustainable development in recent decades, as the negative effects of tourism, particularly the depletion of resources and resultant pollution, have become more pertinent (Becken *et al*., 2001; Lansing & De Vries, 2007).

Ecotourism is a form of tourism and is often used as a catch phrase for many tourism enterprises. It is closely linked to the concept of sustainable tourism and is founded on the same principles. Although the terms are often used interchangeably, ecotourism specifically refers tourism that occurs in natural areas that promotes both conservation and the local indigenous community (DEAT, 1996; UNEP and WTO, 2005). Sustainable tourism on the other hand applies to all forms of tourism, of which ecotourism contributes to, and integrates social, economic as well as environmental aspects of sustainability. Thus, sustainable tourism provides a positive view of how the tourism industry can balance the management of the natural environment as well as promote economic growth and generate profits, protect cultural heritage and uplift the local community (McCool *et al*., 2001; Hunter, 2002; Lim & McAleer, 2005; Spenceley, 2010; Ion & Gheorghe, 2014).

A central aspect of sustainable tourism is creating awareness and promoting sustainable tourism practices to tourists, whilst upholding a high level of tourist satisfaction (UNEP and WTO, 2005). Nonetheless achieving sustainable tourism is a continuous process, one that requires monitoring and initiating precautionary or remedial measures (UNEP and WTO, 2005). Environmental and corporate social responsibility (CSR) is becoming imperative for the tourism sector to impart a positive impact on society and the environment (Kasim *et al*., 2014). However, despite the ever-increasing attention and focus on sustainable tourism very few tourism companies are

[1] Defined as: "Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities" (UNEP and WTO, 2005).

participating in responsible tourism or CSR initiatives (Bohdanowicz *et al*., 2005; Van de Merwe & Wocke, 2007). Only 2% of companies participating in Global Compact[2], a voluntary initiative, are tourism companies (Van de Merwe & Wocke, 2007). This is partly due to the lack of awareness and interest in environmental issues within the accommodation sector (Becken *et al*., 2001). In addition, many tourists do not recognise the link between climate change and tourism and are unwilling to help mitigate its impacts, providing no inventive for tourism enterprises to join voluntary initiatives (Becken, 2004; McKercher *et al*., 2010).

Sustainable tourism has received a fair amount of criticism. Most of the criticism stems from the fact that there is no universally accepted definition of sustainable tourism (McCool *et al*., 2001; Hunter, 2002; Kiss, 2004) and consequently the debate is "patchy, disjointed and often flawed with false assumptions and arguments" (Lui, 2003, p.459). The variety of definitions means that different implications are required for what actions are needed (McCool *et al*., 2001). Governments promote sustainable tourism as a means to encourage potential local development through employment and income in local communities (McCool *et al*., 2001). Conversely, environmentalists and conservationists advocate sustainable tourism as a way to promote sustainable management of natural areas (McCool *et al*., 2001). Sustainable tourism should be inclusive and focus equally on the environment as well as social, economic and cultural issues. Nonetheless, the concept of environmental conservation is often perceived as the primary feature of sustainable tourism with the majority of tourism impact studies focusing entirely on wildlife. More recently, there has been a move from traditional conservation to environmental sustainability. Environmental sustainability is a holistic way of caring for the environment, where the impact of the supply of energy and water and the generation of waste on the landscape, water, atmosphere, habitats, geology and soil, wildlife and aesthetics are considered (DEAT, 2002; Hunter, 2002). Despite this, there is often ambiguity as to the degree of environmental protection being encouraged as well as the extent of environmental concern.

[2] The UN Global Compact is a strategic policy initiative for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labour, environment and anti-corruption. (UN, 2013)

The accommodation sector of the tourism industry will play a vital role in achieving sustainable tourism, and resource management and energy use are gradually becoming important issues within this sector (Becken *et al.*, 2001). However, due to the various interpretations and meanings of sustainable tourism, it is unclear what the objectives of sustainable tourism are (Hunter, 2002; Lansing & De Vries, 2007) and it is difficult to determine what should be sustained and what indicators are suitable for measuring sustainability (McCool *et al.*, 2001; Lui, 2003). There are also questions regarding whether it is actually a successful form of tourism (Hunter, 2002; Kiss, 2004; Lansing & De Vries, 2007), particularly since responsible forms of tourism represent a minor share of all tourism, which is reliant on a small market of responsible tourists who are ready to pay higher prices to guarantee the positive effect of their holidays (Gössling, 2000).

2.2.3. Tourism in South Africa

Tourism in South Africa has grown every year since 1994 and at a faster rate than the global average growth (TBCSA, 2014). This can be credited to a number of factors. The FIFA World Cup held in South Africa helped boost growth in the tourism industry aided by increasing international flights between South Africa and other countries, the weak rand and spectacular natural and cultural sites (Euromonitor International, 2013). Both the government and the private sector expect the tourism sector to become one of the key drivers of economic growth and employment (Kirsten & Rogerson, 2002; TBCSA, 2014; WTTC, 2014). Figure 2.2. illustrates that the total international tourist arrivals in 2000 was 7 518 000, and this is expected to increase to 35 041 000 by 2020 (Gössling *et al.*, 2012). Table 2.1. shows that travel and tourism directly contributes 3% to South Africa's GDP, and this is expected to increase by 4,3% in 2014 (WTTC, 2014). Tourism not only stimulates economic growth but it is also a source of tax revenue and encourages investment in infrastructure such as airports (TBCSA, 2014). The accommodation sub-sector forms a major part of the tourism industry in South Africa and is vital to any tourism initiative (Van de Merwe & Wocke, 2007).

Table 2.1. South African Tourism Data (Gössling *et al.*, 2012; WTTC, 2014)

Direct Contribution to GDP (ZAR)	103,2 bn
Direct Contribution GDP (%)	3
Total Contribution GDP (ZAR)	323 bn
Total Contribution GDP (%)	9,5
Total direct, Employment (%)	4,6
Total employment (%)	10,1

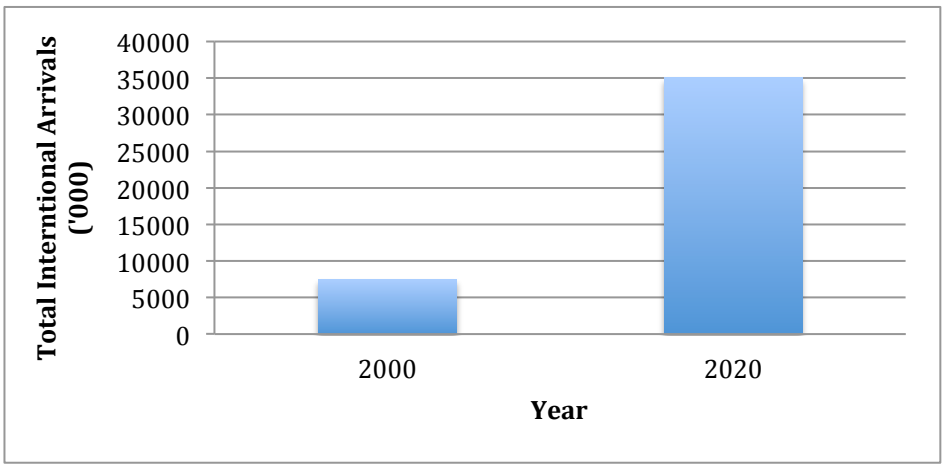

Figure 2. 2. Total international arrivals in South Africa in 2000 and 2020 (Gössling *et al.*, 2012)

South Africa has a favourable climate, with over 300 sunny days per year and little wind, which promotes outdoor tourism, especially during the summer months (November to March) (Steyn & Spencer, 2012). However, Africa's climate is changing, and the associated impacts of climate change are inevitable in future decades (CDKN, 2014; Ziervogel *et al.*, 2014). In South Africa climate change is a key concern and poses a significant threat to the country's water resources, food security, health, infrastructure as well as ecosystem services and diversity (Ziervogel *et al.*, 2014). African ecosystems on which wildlife- and nature-based tourism relies on are already being affected and future impacts on the tourism industry are predicted to be severe (Steyn & Spencer, 2012). There have been a number of studies that have demonstrated the impacts of changing climate on the environment and its influence on the tourism industry is

extensive (Wessels & Dwyer, 2011; Steyn & Spencer, 2012). For example, drier conditions in the KNP will lead to the destruction of nutritious grazing and reduction in the variety of animal species as a result of expanding Mopani forests (Steyn & Spencer, 2012). The IPCC predicts with only a 1,5-2,5^{o} C increase in temperature that 20-30% of animal and plant species risk extinction (Solomon *et al.*, 2007). As a result, eco- or nature-based tourism, such as safari lodges in game reserves, is likely to experience the largest negative effects (Scott *et al.*, 2008; Steyn & Spencer, 2012).

Rising environmental degradation is becoming increasingly apparent and there is a need for more stringent environmental and climate changes policies (Bohdanowicz *et al.*, 2005). The Responsible Tourism Manual for South Africa was published in 2002 and outlines the various responsible tourism actions available to tourism businesses in South Africa. Key elements of the manual include:

- Assessing and monitoring the impacts of tourism development,
- Maintaining and encouraging environmental, socio-economic and cultural diversity, and
- Avoiding waste and the overconsumption of local resources (DEAT, 2002)

Although South Africa is considered a leader in the field of responsible tourism policy but very few corporations or businesses have taken up the responsible tourism initiative (Van de Merwe & Wocke, 2007). Bartis and Baldies (2009) studied small accommodation properties in South Africa and discovered a lack of awareness and knowledge on how to engage operators in responsible behaviours explained in the Responsible Tourism Handbook (2002), which was developed for them (Bartis & Baldies, 2009). An important aspect of responsible tourism is being transparent and it is essential to ensure the credibility of tourism enterprises (DEAT, 2002). South Africa has a number of voluntary sustainable tourism initiatives, Trade Tourism and the Greenleaf Eco Standard are described in detail below.

2.2.3.1. Fair Trade Tourism (FTT)

FTT (previously known as Fair Trade in Tourism South Africa) is a non-profit operation. It promotes responsible and sustainable tourism in southern Africa by growing

awareness on responsible tourism, assisting businesses to operate more sustainably and facilitating a FTT certification programme. South Africa is the first country to apply the Fair Trade concept of sustainable and secure livelihoods to tourism and was recognised by the Global Sustainable Tourism Council in 2011 (FTT, 2014). FTT strives to ensure that the people who contribute their land, resources, labour and knowledge to tourism are the ones who receive the benefits, thus making tourism more sustainable (FTT, 2014). Benefits include fair wages, respect for human rights, culture and the environment as well as good working conditions (FTT, 2014). Although it is a voluntary initiative, FTT certification provides a competitive advantage to business and highlights their commitment to fair and responsible tourism (FTT, 2014).

2.2.3.2. Greenleaf Eco Standard (GLES)

GLES was established 2007 as a sustainability and certification assessment tool for the performance management of any international organisation or property. It promotes the synergy of environmental, social and economic systems. Businesses undergo a series of processes including consultation, audit and verification before being certified with the GLES. The certification represents "firm, authentic and effective commitment to sustainability" and acts as a tool to improve and social and environmental footprints, while increasing profitability (GLES, 2014). The GLES is internationally recognised, complying with all recognised international requirements and benchmarks for sustainability certification (GLES, 2014).

2.3. Sustainable Tourism in South Africa: The Case for Private Nature Reserves

Private Nature Reserves (PNR) have existed in various forms for centuries and likely originated from royal hunting reserves where ecosystems were reserved and protected from human interference (Langholz & Kerley, 2006). The First World Congress on National Parks in 1962 acknowledged that there are nature reserves around the world "owned by private individuals, but are nevertheless dedicated in perpetuity to the

conservation of wildlife and of natural resources" (Adams, 1962 p. 379) Over the last five decades, the number of PNR has expanded rapidly. By 2006, in South Africa, wildlife was being produced on nearly 10 000 commercial farms, and it is estimated at 13-17% of land was involved in wildlife production and tourism (NAMC, 2006). Nonetheless, determining the number and size of PNR worldwide is challenging. This is because, not only do PNR vary considerably in size, use and name (reserves, conservancies and protected areas), no common definition for PNR exists (Langholz & Krug, 2004). Despite having no common definition PNR can be loosely described as areas of land (greater than 5 hectares) not owned by the government that are managed with the intent of preserving land in a largely undeveloped state (Langholz, 1996; Langholz & Lassoie, 2001).

In South Africa, private land ownership dates back to settler land dispossession during the nineteenth and early twentieth centuries (Spierenburg & Brooks, 2014). In the late 1980's South Africa's agricultural sector became deregulated and this continued after the transition to democracy in 1994 (Spierenburg & Brooks, 2014). Consequently marketing boards closed, subsidies were cut and price controls and export monopolies were stopped (Vink, 2004; Spierenburg & Brooks, 2014). As a result the previously protected commercial farming sector was exposed to global markets causing debt, with many farmers becoming insolvent (Spierenburg & Brooks, 2014).

Since 1994 the conversion from agricultural farming to wildlife-based production has been an obvious trend on privately owned-land in South Africa (Langholz, 1996; Kamuti, 2014; Spierenburg & Brooks, 2014). This has led to the growing awareness that game farming is more sustainable compared to conventional agriculture, an increased interest in biodiversity conservation and economic gain (Langholz & Krug, 2004; Bothma *et al*., 2009). This acceleration can be attributed to legislation introduced towards the end of apartheid that transferred property rights over wildlife from the state to the private landowner (Spierenburg & Brooks, 2014).

With an increase in private wildlife conservation worldwide there is a strong case for conservation on private land in Southern Africa (Langholz, 1996; Kramer *et al*., 2002; Langholz & Kerley, 2006; Mitchell, 2006; Spierenburg & Brooks, 2014). According to

Van der Merwe and Saayman (2003) approximately 80% of nature conservation occurs on privately own land. Krug estimated at least 14 million hectares of private land in Southern African is under some form of wildlife protection or sustainable wildlife utilization (Krug, 2001). As result, PNR play a vital role in conserving biodiversity, ecological important areas, especially in a critical buffer zones and corridors (Langholz & Krug, 2004) and is used to complement the conservation strategies of the national government (Langholz, 1996). Government owned- and national parks have limited budgets and struggle to provide adequate environmental protection (Langholz & Krug, 2004). Collaborative[3] private nature reserves such as Sabi Sands and Timbavati PNR are directly adjacent to KNP, forming part of the Greater KNP and jointly protect over 20 million hectares of land. Consequently PNR protect a variety of fauna and flora, assisting conservation in national parks (Langholz, 1996; Langholz & Kerley, 2006).

A key concern regarding PNR, especially in a South African context, is that they are often places where wealthy landowners accommodate affluent foreign tourists (Langholz & Krug, 2004). It is imperative that PNR provide support and contribute surrounding communities through infrastructure, skills development, employment and promoting environmental awareness (Langholz & Krug, 2004).

The natural environment is the key component to attracting tourists, especially for natured-based tourism and ecotourism (Van der Merwe & Saayman, 2003; Scott *et al*., 2008). PNR are naturally beautiful and contain remarkable and varied biodiversity, (Scott *et al*., 2008) consequently they are economically attractive due to their potential profitability (Langholz & Krug, 2004). Private ownership and management are particularly effective in capturing the economic value of biodiversity, thereby making conservation a financially competitive land use (Langholz & Krug, 2004). Nature-based tourism and ecotourism are one of the most popular forms of commercially focused wildlife management outside national parks and as a result of the growing market for tourism, specifically wilderness tourism, most PNR earn their revenue from tourism enterprises (Langholz, 1996; Spenceley, 2003; Carruthers, 2008; Spenceley, 2010; Spierenburg & Brooks, 2014). Tourism on PNR also contributes significantly to the

[3] A collaborative nature reserve is an area where bordering landowners combine their farms to increase the effective size of the protected area. Individual ownership within the reserve is still retained, however all the individual farms are managed as a single entity (Langholz & Krug, 2004)

economy, generating approximately R874 million and employing an estimated 63 000 people (Van der Merwe & Saayman, 2003). Many PNR and tourism ventures have developed partnerships with local communities, contributing to economic development and poverty alleviation by generating revenue and creating jobs (Langholz & Kerley, 2006) as well as striving to be environmental friendly (Spenceley, 2003).

Recently, there has been increasing evidence that suggest that PNR can be drivers of sustainable development (Krug, 2001; Langholz & Lassoie, 2001; De Alessi, 2005), conserving the environment as well as being financially viable and contributing to the local community (Kramer *et al.,* 2002; Spenceley, 2003; Langholz & Krug, 2004; Langholz & Kerley, 2006; Mitchell, 2006). Despite this, there is very little research and limited data available on PNR, especially in South Africa (Langholz & Krug, 2004; Langholz & Kerley, 2006).

Conversely, the sole dependence on ecotourism for economic viability is flawed. While tourism has grown substantially over the last two decades, especially in South Africa, the industry is vulnerable to fluctuations (Langholz & Krug, 2004). Most recently, the Ebola crisis in West Africa has negatively influenced ecotourism ventures in Southern Africa (Everett, 2014; The Economist, 2014). A specialist travel agency reported that a survey of 500 tour operators revealed a 20-70% fall in bookings (The Economist, 2014). This trend has accelerated especially in Botswana, Kenya, Tanzania and South Africa despite being located 1000s of kilometers away from Ebola stricken areas (Everett, 2014; The Economist, 2014). In fact, many city centers in Europe such as Madrid and Berlin (3600 and 5350 km respectively) are closer to Ebola affect areas than Johannesburg (5500 km) (The Economist, 2014). Furthermore, there is a potential divergence between environmental protection and pursuing a profit (Langholz & Krug, 2004). Landowners dependent on ecotourism may be tempted to exploit resources, for example keeping captive animals, rather than protect and conserve them (Langholz & Krug, 2004). Ecotourism would benefit from outside monitoring and evaluation of its impacts, often achieve via environment accreditation (Langholz & Krug, 2004).

2.3.1. Luxury Safari Lodges

There are a number of internationally renowned luxury safari lodges in private game reserves, especially in Limpopo, Mpumalanga, KwaZulu Natal and the Eastern Cape, with the majority of lodges established near large protected areas such as the KNP (Spenceley, 2003; Rogerson *et al.*, 2013). According to Frommers[4], 2014 "the difference between a visit to a KNP rest camp and a private lodge is so big as to be almost incomparable" (Frommers, 2014). Luxury safari lodges can be described as: "accommodation establishments that offer non-consumptive game viewing experiences and charge a daily rate of over $200 per person per night" (Rogerson *et al*., 2013).

They are high cost, low-density, exclusive, lodges, generally less than 20 rooms, offering tourists a spectacular experience, involving wildlife, with high levels of hospitably, cuisine and accommodation (Spenceley, 2003; Spenceley, 2010; Rogerson *et al*., 2013; Conde Naste Traveller, 2014; Frommers, 2014; Getaway, 2014). These lodges are at least 4 stars, with some in the 5-star category (Frommers, 2014). They serve high-end gourmet cuisine, offering local specialities such as kudu and warthog as well as award-winning local wines (Frommers, 2014; Getaway, 2014). The high costs suggest their main target market are international tourists from high-income groups and they are becoming increasingly dependent on foreign currency (Langholz & Kerley, 2006; Spenceley, 2010; Travel + Leisure, 2010; Rogerson *et al*., 2013).

The principal attraction to luxury safari lodges is wildlife, and the prospect of seeing the 'Big Five' will increase the desirability of the lodge (Langholz & Kerley, 2006; Scott *et al*., 2008). Game drives generally occur twice a day, in the morning and evening, in open-topped and elevated land-rovers, guided by expert rangers and trackers and include drinks and snacks (Conde Naste Traveller, 2014; Frommers, 2014).

The lodges offer luxury; private and unfenced accommodation with lavish design finishes (Conde Naste Traveller, 2014; Frommers, 2014). Apart from the rooms, which often include private pools and outside showers, luxury safari lodges have additional

[4] Frommers are well respected and popular travel guides established in 1957, which has now expanded into a website

buildings and structures including swimming pools, spas, restaurants and lounges (Gössling, 2002; Frommers, 2014; Getaway, 2014). Some lodges even provide private butlers and chefs to guests (Conde Naste Traveller, 2014). The land use per bed is the extent of the area required by the safari lodge at ground level divided by the total number of beds (Gössling, 2002). In general, hotels in cities have a smaller land use per bed than those in more remote areas due to the value of sites in cities (Gössling, 2002).

2.4. Consumption and Production

The Davos Declaration (2007) calls for the tourism industry to implement mitigation and adaptation measures as well as raise awareness and encourage tourists to reduce their environmental or ecological footprints[5] by choosing environmentally friendly activities (Scott *et al*., 2008). The hotel sector is one of the most energy- and resource-intensive sectors of the tourism industry and consequently is responsible for substantial environmental impacts (McKercher, 1993; Bohdanowicz *et al.*, 2001; Gossling, 2002). Therefore it is imperative that the tourism industry develops environmentally sound practices and products, especially considering the ever increasing prices of basic commodities particularly energy and water (Bohdanowicz & Martinac, 2007). According to APAT (2002) as much as 75% of all environmental impacts by the hotel industry can be attributed to the excessive consumption of non-durable goods, energy and water. As a result energy, water and waste are the most targeted areas for environmental solutions (DEAT, 1996; DEAT, 2002; Bohdanowicz, 2006).

2.4.1. Energy Consumption

Tourism is an energy-intensive sector and is playing an ever-increasing role in many economies (Becken *et al.*, 2001; WTTC, 2013; Katircioglu, 2014; Katircioglu *et al*., 2014). In the immediate future, the tourism industry will feel the effects of rising crude oil and other fossil fuel prices particularly since tourism-related activities mainly rely on

[5] These footprints convert resource consumption and waste production into spatial units (Hammond, 2007).

energy directly from fossil fuels or indirectly from electricity (Becken & Patterson, 2006; Becken, 2013; WTTC, 2013). It is also believed that a significant portion of the energy used in the hotel sector is wasted (Bohdanowicz *et al.*, 2001; Bohdanowicz & Martinac, 2007). The tourism industry is growing; increasing the demand for energy therefore the importance of energy for the tourism sector is undeniable (Katircioglu, 2014). Despite this, the contribution of tourism to energy use is not well researched (Becken *et al*., 2001).

Energy consumption in tourism can be divided into transport- and destination-related activities (Gössling, 2002). Destination energy consumption is divided further into accommodation and activities. Every tourist relies on accommodation and it is a core subsector of not only the tourism industry, but also mitigation activities within the industry (Becken *et al.*, 2001; Becken, 2013). Energy consumption in the accommodation sector is substantial in order to ensure the comfort of guests and many guests are willing to pay for exclusive amenities, treatment and entertainment (Bohdanowicz *et al*., 2001). Energy consumption is predominantly from heating and air conditioning (Bohdanowicz & Martinac, 2007; Gössling, 2002) however cooking, refrigeration, lighting and geysers also contribute significantly (Gössling, 2002; Becken, 2013).

Energy consumption can vary in hotels and depends on the source and the amount of energy used (Gössling, 2002). Comfort standard (campsite vs. 5-star hotel), design, age and size of building, years after the last major renovation, climatic conditions, type of resource management systems, maintenance schemes, and energy regulations and costs are linked to energy consumption (Bohdanowicz & Martinac, 2007). Many hotels, especially in remote areas, will have self-sufficient power generation, which utilizes more energy per bed night than electricity from the grid (Gössling, 2002). Level of amenities and services, customer preferences, occupancy, culture and awareness of resource use were also identified as relevant (Bohdanowicz & Martinac, 2007). In general, hotels consume more energy per visitor due to the energy intensive facilities such as bars, restaurants, pools and luxurious rooms (Becken *et al*., 2001; Gössling, 2002). Most of the energy consumed in the accommodation sector is electricity, although gas and diesel are also important energy sources (Becken, 2013).

Tourists can be active at their destinations and go on several recreational excursions and activities (Gössling, 2002). However, the energy intensity of different activities can vary considerably and it is extremely difficult to determine the amount of energy consumed for activities (Gössling, 2002).

Good energy management and reducing the reliance on fossil fuels in tourism establishments is extremely beneficial, not only for the environment but it will also reduce operating costs (Scott *et al.,* 2008; WTTC, 2013). Although energy only contributes 3-6% of operational costs of a hotel, it is usually the second largest cost factor after labour costs (Bohdanowicz *et al*., 2001). The volatile price of energy, image and position in the market, participation in labeling schemes (example Fair Trade), customer loyalty, supply chain pressure, staff satisfaction and retention and regulation also encourage energy management (Molina-Azorin *et al*., 2009; Becken, 2013).

Over the last decade, the tourism sector has attempted to understand and manage its energy requirements and resultant GHG emissions (Becken, 2013). Due to climate change impacts and additional uncertainties such as carbon tax, increasing operational costs and further risk factors such as potential power cuts, new energy policies and negative consumer perceptions, it makes good business sense to reduce energy consumption and increase energy self-sufficiency (Becken, 2013).

2.4.2. Water Consumption

Tourism depends on large quantities of water, both as a resource used to provide needs such as hygiene and food and as a vital asset for certain tourist activities (Gössling *et al.*, 2012; Gössling, 2015). Consequently, tourism can exacerbate water problems in tourist areas. Tourist behaviour is significant as many hotel guests employ the 'pleasure approach' to shower or bath, using more they normally would at home (Eurostat, 2009). Therefore, not only do they shift their water demand to other regions but they also use between 2-6 times more water on a per capita basis (direct use) on holiday than at home, increasing global water consumption (Gossling, 2002; UNEP, 2003; Gössling *et*

al., 2012). The sustainability of tourism is dependent on the adequate supply of water and despite the increasing importance of tourism in developing countries; there is very little research on the links between tourism, development and the impact on water scarcity in tourist destinations (Cole, 2014).

Apart from using water for personal hygiene, considerable quantities of water are consumed operating spas, swimming pools, wellness areas and water intensive appliances such as washing machines and irrigation (UNEP, 2003; Gössling *et al*., 2012). Swimming pools alone account for an estimated 15% of water demand in hotels (Gössling *et al.*, 2012). Water is also required in order to maintain hotel gardens and additional water features (Chapagain & Hoekstra, 2008; Gössling *et al.*, 2012). Not only is the consumption of water problematic; guest rooms, kitchens, restaurants, laundries and gardens produce large volumes of wastewater, which can result in adverse impacts on human health and the natural environment (UNEP, 2003).

Several factors can affect water use such as geographical location, hotel structure (larger resort-style hotels use more water than smaller, less luxurious establishments) and the comfort standard (campsite, 1-5 star) (Gössling *et al*., 2012). It has been recognised that higher hotel standards are connected to increased water use (Scott *et al.*, 2008) mainly as a result of spas, wellness areas and swimming pools (Bohdanowicz & Martinac, 2007). In addition, length of stay and meal arrangement (half board or full board) can also influence water consumption (Kasim *et al*., 2014). Hotel size does not necessarily matter in terms of water needs, tourist water consumption patterns as well as season and climate is more important (Kasim et al., 2014).

Although the tourism sector is accounts for less than 5% of national water use, the situation may be different on regional level, especially in popular tourist destinations where water is already scarce (Gössling *et al.*, 2012; Kasim *et al*., 2014; Gössling, 2015). In South Africa water use by the tourism industry is very important in the face of droughts and water scarcity in many areas (Lim & McAleer, 2005), particularly agri- and wildlife-tourism, which are indirectly dependent on water (Gössling *et al*., 2012). As shown in Table 2.2, the total international tourism related water use in 2000 was 18,27 million m^3 and this number is expected to escalate to 85,15 million m^3 in 2020 (Gössling

et al., 2012). Water consumption rates can range from 84 – 2000l per tourist per day and up to 3423l per bedroom per day (Gössling *et al*., 2012), of which an estimated 250l of water per day per person in staff housing and 30l per day for each staff member during working hours is used (Lamei *et al*., 2009; Lamei, von Münch, Imam & van der Zaag., 2009).

There are numerous incentives why the tourism industry should participate in sustainable water management (Kasim *et al.*, 2014). Tourisms consumption of water is likely to rise over time as a result of growing tourism numbers, higher hotel standards as well as increased water intensity of tourism activities, placing immense pressure on water usage and availability (Gössling *et al*., 2012; Kasim *et al*., 2014). With the exception of Asia and the Americas, tourism growth is occurring in areas already experiencing water scarcity, specifically Africa (Kasim *et al*., 2014). The shift of water demand from water-rich countries to water scarce regions on a large scale are placing huge pressure on water resources in these areas (Kasim *et al*., 2014). Correspondingly, an increase water consumption by tourist facilities results in more wastewater being discharged (UNEP, 2003). If wastewater is not treated correctly it can contaminate water resources and can cause harmful impacts on human health and the natural environment (UNEP, 2003). Therefore reducing overall water use by maintaining equipment and installing water efficient equipment will help reduce wastewater and decrease the pressure on the water supply (UNEP, 2003).

The availability and quality of water has received ample international attention over the years and over the next few decades' water availability will become a significantly larger issue, especially in the face of global climate change (Gössling *et al*., 2012). Therefore, water and wastewater management in hotels urgently needs to be addressed in order to protect the environment, meet the growing demand for environmentally friendly facilities and ensure tourism enterprises long-term viability (UNEP, 2003; Kasim *et al*., 2014).

2.4.3. Waste Production

Waste[6] management is a key issue and is central to achieving sustainable development and sustainable resource management (Johnson, 2002; Karani & Jewasikiewitz, 2007; Corsten *et al.*, 2013; UNEP, 2013; Laurent *et al.*, 2014) through the decrease in raw materials, energy and water required in the production of products (Nahman *et al.*, 2012; Ion & Gheorghe, 2014).

Table 2.2. Tourist water consumption in South Africa (Gössling *et al.*, 2012)

Total Renewable water resources (million m³/year)	**Total water use in 2000 (million m³ per year)**	**Total household water use (10^6 L/yr)**	**% Of renewable water used**	**Total international t-related water use 2000 (million m³)**
50000	15306	2261	30,6%	18,27
Water use per tourist per day	**Total international t-related water use 2020 (million m³)**	**Int. tourism related water use as % total 2000**	**Int. tourism related water use as % of total 2020**	**Share of domestic water for int. tourism 2000**
300	85,15	0,12%	0,56%	0,81%
Domestic water use	**Domestic tourism**	**Net domestic tourism water use per night**	**Total domestic tourism water (million m³)**	**Total tourism water use**
50	27165910	140	73,11	91,37
Domestic tourism share of water use	**Int. tourism share of domestic water**	**Total share**		
3, 23%	0,81%	4,04%		

As solid waste generation continues to grow, it is becoming harder to manage the volume of waste, especially as costs continue to rise (UNEP, 2003; Laurent *et al.*, 2014).

[6] Waste may be defined as an item/material that has been considered by its intended user to be of no further use (Patel *et al.*, 2014).

As a result, countries and businesses are under growing pressure from the international community to execute policies that prioritise waste prevention and encourage reuse and recycling (Johnson, 2002; Corsten *et al.*, 2013; Ion & Gheorghe, 2014; Whiley & Boehem, 2014).

Waste is the consequence of a consumer-based lifestyle, which drives many of the worlds' economies (Hoornweg & Bhada-Tata, 2012) and the travel culture is founded on over-indulgence and hedonism (Whiley & Boehem, 2014). Over 3 billion urban residents generate 1,2 kg of waste per person per day and this is likely to increase in the future mainly due to population growth, increased urbanization and socio-economic development of low- and middle-income countries (Hoornweg & Bhada-Tata, 2012; Ion & Gheorghe, 2014; Laurent *et al.*, 2014). Table 2.3. shows that the national average waste generation in South Africa slightly higher than the SSA average, however is still relatively low in comparison to other regions (Karani & Jewasikiewitz, 2007). Although paper, plastic, glass, tinplate and aluminium are recycled, about 10,2 millions tons of general and hazardous waste is disposed in landfills (Karani & Jewasikiewitz, 2007). This is expected to increase by 2 millions ton per year by 2010 (Karani & Jewasikiewitz, 2007). Food and garden waste make up a substantial percentage of organic waste disposed in landfills (Nahman *et al*., 2012). Food waste in SSA is estimated to be 170kg/person/year (Gustavsson *et al.*, 2011)**,** with post-consumer food waste in South Africa accounting for 4, 14% of food waste (Oelofse & Nahman, 2013).

One of the most important causes of environmental and health impacts in the tourism sector are the generation of municipal solid waste (MSW) (Mateu-Sbert *et al*., 2013). Tourism facilities such as guest rooms, kitchens, restaurants, laundry rooms, office and gardens produce significant volumes of solid waste (UNEP, 2003). Tourists waste generation behaviour is different to their typical behaviour at home (Coggins, 1994). Tourists bring a lifestyle based on a high level of consumption and they expect a variety of food, drinks and other consumables (Coggins, 1994). The waste products generated by tourist activities are similar to the type of waste produced by urban communities (McKercher, 1993). Hotels and restaurants generate paper, cardboard, plastics, wood, food wastes, glass, metals, special wastes, hazardous and chemical wastes and e-wastes (UNEP, 2003; Hoornweg & Bhada-Tata, 2012). All their meals are provided in hotels;

therefore they become a centre of large-scale generation of food waste and packaging (Coggins, 1994). Coupled with increased tourist numbers, tourism development increases the amount of waste produced in tourism areas, often placing strain on local waste management as well as the environment (Coggins, 1994; Shamshiry *et al*., 2011; Mihai, 2013).

Solid waste can impact the environmental significantly; by the use of energy and materials required to produce supplies and pollution problems caused when the waste is disposed of in landfills and incinerators or illegally dumped (UNEP, 2013; Ion & Gheorghe, 2014). It can adversely affect water resources, local ecology; cause disease and ruin the aesthetics of the environment (Nahman *et al*., 2012; UNEP, 2013; Ion & Gheorghe, 2014). Landfills can also generate significant volumes of methane gas (CH_4), a particular potent GHG that has a warming effect 25 times stronger than CO_2, as a consequence of decomposing organic waste (Karani & Jewasikiewitz, 2007; Nahman *et al*., 2012; Ion & Gheorghe, 2014). In South Africa, the waste sector contributes 4,3% to the national GHG emissions, mainly caused by decomposing organic waste (DEA, 2009). Not only does food waste release CH_4 but also means that potentially valuable food, water and energy is wasted (Nahman *et al*., 2012).

Solid waste management (SWM) is becoming an increasingly integral part of sustainable tourism. Waste audits are essential to determine the quantity and variety of solid waste being produced (UNEP, 2003; Ion & Gheorghe, 2014). They can evaluate whether higher rates of reuse and recycling can occur and identify actions to ensure waste prevention (UNEP, 2003; Ion & Gheorghe, 2014). There are a number of SWM methods that can be implemented. The waste hierarchy is a set of options for managing waste, ranked in terms of their environment benefits (from best to worst): waste prevention, reduction, reuse, materials recycling and energy recovery before disposal in landfills is slowly being applied in sustainable tourism policies (Coggins, 1994; Gregson *et al.*, 2013; Laurent *et al*., 2014). The waste hierarchy should be adapted to local conditions including site-specific action, and businesses should aim to target higher up on the hierarchy (Gregson *et al*., 2013; Laurent *et al*., 2014). Recycling and waste minimization is still widely accepted as one of the best ways to reduce environmental damage and achieve sustainable waste management by simply reducing the amount of

primary resources used (Shamshiry *et al*., 2011; Ion & Gheorghe, 2014). Reuse of waste products is preferable to recycling, as the product does not need to be reprocesses (UNEP, 2003). Organic waste from hotels and restaurants can be important to local farmers, as animal foodstuffs or compost and energy recovery is a central component of combustion (UNEP, 2013). However, the only economically viable, long-term solution to avoid the effects of solid waste on the environment is to prevent its production (Gregson *et al.*, 2013; UNEP, 2013; Ion & Gheorghe, 2014). This means altering the way business is conducted and opposing the current tourism culture of indulgence and consumerism, by offering more sustainable forms of consumption as well as altering the mind-sets of the 'throwaway society' (UNEP, 2003; Gregson *et al.,* 2013; Whiley & Boehem, 2014). The responsibility for waste management returns to those who produce it (Ion & Gheorghe, 2014), therefore consumers and the service sector are also be accountable for waste production and should play a central role in sustainable waste management (Whiley & Boehem, 2014).

Table 2.3. MSW generation data (kg/capita/day) (Karani & Jewasikiewitz, 2007; Gustavsson et al., 2011; Hoornweg & Bhada-Tata, 2012)

Region	**MSW generation**	**Average MSW**	**Average MSW 2025**	**Food Waste**	**Total Solid Waste Generation** (million tonnes/yr)
World	-	1,2[7]	1, 42[9]		13 000 [9]
SSA/AFR	0,09 – 3,08[9]	0,65[9]	0,85[9]	170[8]	62[9]
SA	**0,3 - 0,8[9]**				
MENA	0,16-5,7[9]	1,1[9]	1,43[9]	215[9]	63[9]
OECD	1,1-3,7[9]	2,2[9]	2,1[9]	280-300[10]	572[9]
EAP	0,44 - 4,3[9]	0,95[9]	1,5[9]	240[9]	270[9]
EAC	0,29-2,1[9]	1,1[9]	1,5[9]	215[9]	93[9]
SAR	0,12-5,1[9]	0,45[9]	0,77[9]	120[9]	70[9]
LAC [10]	0,1-14[9]	1,1[9]	1,5[9]	225[9]	160[9]

[7] (Hoornweg & Bhada-Tata, 2012)
[8] (Gustavsson *et al.,* 2011)
[9] (Karani & Jewasikiewitz, 2007)
[10] Most comprehensive and consistent data

2.6. Conclusion

Tourism, climate and the environment are fundamentally linked, however the consequences of tourism on the environment has barely been evaluated and quantified (Gössling, 2002). Sustainable tourism is becoming increasingly relevant in the tourism industry and there is growing interest in sustainable tourist destinations as climate change becomes more prominent (Gössling *et al.*, 2011; Steyn & Spencer, 2012; Rogerson *et al*., 2013). PNR are argued to be drivers of sustainable development, protecting the environment, supporting local economic growth and being financially viable. Yet, luxury accommodation, such as luxury safari lodges, is associated with high levels of consumption and production resulting in a multitude of negative environmental impacts. Awareness of sustainable tourism is crucial in order to achieve sustainability and encourages participation in voluntary initiatives and audits. The literature highlighted numerous activities and methods business can employ to combat excessive energy and water consumption and waste production. The level of actions taken however depends on the understanding of sustainability. Furthermore achieving sustainable this requires altering the way business is conducted by offering more sustainable forms of consumption as well as altering the mind-sets of the tourists and businesses.

Chapter Three: Methodology

3.1. Introduction

This chapter outlines the method used to gather both qualitative and quantitative data for this research. Specifically it presents detail on the study area, research methodology, questionnaire design, participant selection, semi-structured interviews and analysis techniques used. Ethical considerations and limitations are also discussed.

3.2 Study Area

The area of study encompasses parts of Limpopo and Mpumalanga, South Africa (Figure 3.1.). Up until the early 20th century human settlements in this area, often referred to as the Lowveld, have always been brief and some areas have never been permanently settled (TPNR, 2014). It is home to over 80 mammals (including the 'Big Five'), 260 bird species, 79 reptile and amphibian species and 85 listed species of tree (TPNR, 2014). The lowveld is home to a high concentration of PNR and safari lodges. This includes the Timbavati (TPNR), Makalali, Kapama, Thornybush and Sabi Sands PNR, which all form part of this study (Figure 3.1.).

3.2.1. Private Nature Reserves

Originally, most of the reserves in the area were agricultural enterprises, mainly cattle farming (Kapama, 2015; Makalali Private Game Lodge, 2013; OWNR, 2014; Sabi-Sands, 2015; TPNR, 2014). From the mid- to late-20th century domestic livestock and internal fences separating properties were removed creating numerous nature reserves (KPNR, 2014; Kapama, 2015; Makalali Private Game Lodge, 2013; Manyeleti, 2015; OWNR, 2014; Sabi-Sands, 2015; TPNR, 2014). In 1993 the animal fences between the KNP, TPNR, KPNR and the Umbabat were removed, allowing natural species migration (TPNR, 2014). Most of the reserves are involved in the full spectrum of nature

conservation including protecting the land from degradation from soil erosion and biodiversity loss, especially anti-poaching (KPNR, 2014; Kapama, 2015; Makalali, 2015; Makalali Private Game Lodge, 2013; Manyeleti, 2015; OWNR, 2014; Sabi-Sands, 2015; TPNR, 2014). Today, most of the lowveld is largely untouched and very lightly inhabited (TPNR, 2014). All the reserves are privately owned and the most common source of income is ecotourism (Kapama, 2015; Sabi-Sands, 2015), although commercialization is often regulated (KPNR, 2014). Today, this area is home to some of the most luxurious and expensive safari lodges in Southern Africa.

The number of PNR including the TPNR, Kapama, Thornybush and Sabi Sands are members of the Association of Private Nature Reserves (APNR), a cooperative organization established to coordinate the interests of its members and act as a single body in interacting with government entities (KPNR, 2014). The APNR forms part of one huge ecosystem that combines the two million hectares of KNP with several hundred thousand privately owned hectares (OWNR, 2014). Together, this area is called the Greater Kruger Park.

3.3. Research Methods

The literature review established a theoretical understanding of tourism and sustainability. The research was completed in two stages (September 2014 – January 2015 and March 2015). The first stage comprised of email questionnaires. The literature highlights the excessive consumption of non-durable goods, energy and water, especially in high-end accommodation businesses (Chapter Two, Section 2.4.). Furthermore, Bohdanowicz (2006) observed a clear focus on energy, water and waste for environmental solutions. However, to the knowledge of the author there has been no study on energy, water and waste in luxury safari lodges in South Africa. Hence, there was a need to conduct a survey to gather and analyse information from this sector of tourism. Energy, water and waste data for this type of accommodation is not readily available therefore the information had to be collected directly from the lodge. The second stage of research involved a field research and interviews, examining a specific safari lodge in detail. Data was collected via semi-structured interviews with lodge employees and was used to supplement and validate questionnaire data. Multiple

methods can increase the robustness of the results (Gable, 1994) and the combination of questionnaire and interview methodology has been used in similar studies (Langholz & Kerley, 2006; Rogerson *et al.*, 2013).

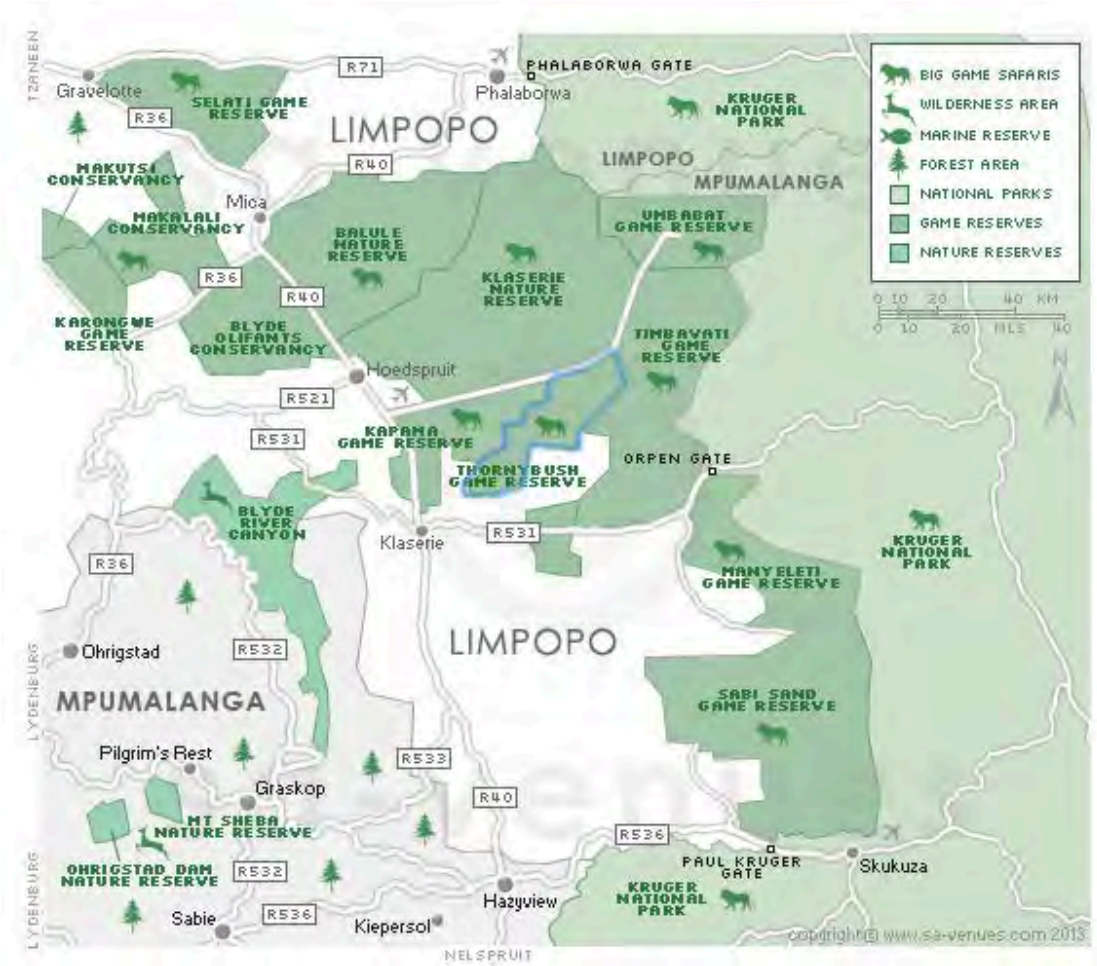

Figure 3. 1. Map of PNR in the lowveld (SA-Venues, 2014)

3.3.1. Questionnaire

Due to time constraints, email correspondence was chosen to distribute the questionnaire. An initial email was sent explaining the purpose of the study and requesting the respondent's participation. Following a confirmation of participation, a standard questionnaire was circulated electronically to a 25-luxury safari lodges between August and November 2014. After distributing the questionnaire, reminder notices were sent out approximately every 2 weeks. The questionnaire, comprising of a total of 72 questions, is divided into the four sections with various themes in order to investigate sustainability of the lodges (Appendix A.):

1. Background
2. Luxury Safari Lodge
3. Sustainable Tourism
4. Consumption and production, divided into energy, water and waste

The questionnaire is carefully thought out and designed, and the questions originate from personal research opinions and observations through studying the literature. The questions consist of a combination of close-ended quantitative and open-ended qualitative questions, organized according to key themes to ensure that the questions are designed to achieve the aim of the study. The close-ended questions collected data regarding the waste, energy and water consumed in the running of the accommodation buildings and business vehicles. Open-ended questions about the lodge, sustainable tourism and sustainability help explore the lodges 'views, belief and attitudes' (Niewenhuis, 2007) in more detail and allow for greater clarification of the quantitative data. This provides perspective in order to fully understand and explain the numerical data collected. This bottom-up approach leads to a greater level of detail and potentially greater accuracy in the data.

The questionnaire is used to study a representative sample of luxury safari lodges in the lowveld and discover common relationships across luxury safari lodges. Consequently it can provide general statements about the sustainability of these lodges (Gable, 1994).

3.3.2. Research Participants

There are numerous luxury safari lodges (Figure 3.2.) in the area all of which advertise the 'Big Five' and offer activities such as guided game drives and walks. There are a number of criteria in order to be classified as a luxury safari lodges and included in this research. These criteria include:

- The lodges must have at least 3-5 stars;
- Rates must be R2000 or more per person per night;
- Emphasis must be placed on luxurious and exclusive accommodation and an unforgettable experience; and

- Lodges must be located in the lowveld (Limpopo and Mpumalanga region)

Self-catering and mobile-tented camps are not included in this study. Figure 3.2. shows the 25 luxury safari lodges that qualify for this research in the selected study area. The details of the respondents can be found in Table 3.1.

Figure 3. 2. Map of participant lodges indicated by the yellow star

Table 3. 1. Lodge details (Author, 2014)

Lodge	Position
1	Owner
2	Reservations Manager and Camp Manager
3	Owner/Director
4	Operations Manager
5	Lodge Managers
6	Sustainability Coordinator
7	Senior Lodge Manager

3.3.3. Questionnaire Response Rate

Valid responses arrived from 24% (n = 6) of the 25 lodges contacted (Figure 3.2.). The overall response rate was lower than desired but large enough to provide a useful analysis of the lodges. Only 4% (n = 1) of the lodges explained their declination to participate in the study, citing confidentiality reasons. An additional 20% (n = 5) of the lodges agreed to participate in the research, however despite numerous emails and phone calls, never returned the completed questionnaire.

Low response rates of 15%, 17,4% and 36% have been seen in similar studies on safari lodges and PNR by (van der Merwe & Saayman, 2005), (Radder *et al.*, 2002) and (Langholz, 1996) respectively. In addition, comparable studies on hotels also experienced low response rates of 16,5% and 25,5% (Bohdanowicz, 2006), 19% (Becken *et al.*, 2001) and 27,4% (Becken, 2013). All the above-mentioned studies employed the same method of research: questionnaire/survey. The low response rate can be attributed to using email for correspondence (lack of personal contact), the length of the questionnaire and time limitations. Nevertheless, the questionnaire has provided valuable insights into the environmental best practices of luxury safari lodges.

3.3.4. Interviews

Following an analysis of the questionnaires, the interview was designed to examine, in greater detail, the awareness of sustainable tourism and environmental practices in luxury safari lodges. Due to the poor response rate of the questionnaire, the interviews can be used to validate the various approaches taken by the lodges and highlights the conditions under which they developed. It also brings out the rationales for developing such approaches, which could not be deduced by the questionnaires alone.

Semi-structured interviews are often used in qualitative research. The interviewer can broadly introduce a number of themes to explore through a set number of open-ended questions (Appendix A). This allows the interviewer to investigate and discuss new ideas that arise as a result of what the interviewee says. Semi-structured interviews

validate the data emerging from the literature and questionnaire (Niewenhuis, 2007). They also allow the researcher to modify their questions to the interview context and interviewees.

On-site visits were conducted for detailed interviews with members of staff including management staff, rangers and labourers (Table 3.2.).

3.3.5. Selected Site: *Lodge 7*

Lodge 7 was selected to conduct the semi-structured interviews. It is an established, well-known luxury safari lodge located on a PNR bordering the KNP and the TPNR in the Limpopo province of South Africa. Originally, it was privately owned game farm, with a small, non-commercial lodge. The late owner bequest the land for conservation purposes to the World Wide Fund South Africa. In 1992 a private company purchased the tourism and private traversing rights, establishing *Lodge 7* for tourism reasons and income for the company (*Interviewee 4*, *Lodge Maintenance and Field Ranger, 08/03/2015).* WWF-SA to this day retains ownership of the land. *Lodge 7* currently employs 97 permanent staff, which all live on-site in private rooms[11]. Employees have to live on-site with their children up until school going age. The employees consist of managers, rangers, chefs, housekeepers and labourers, the majority of which come from the Welverdiend/Hlokomela[12], the closest community to the lodge.

This five-star, high cost luxury safari lodge entertains a maximum of 47 guests in 21 luxurious rooms. The website describes *Lodge 7* as having "romantic colonial ambience" with a "timeless, unhurried atmosphere" where guests can "indulge in sumptuous cuisine". In addition it is "renowned for having some of the most highly trained professional, passionate and knowledgeable rangers and trackers". It has also received top reviews on the popular travel site, Trip Advisor. Of the 280 reviews *Lodge 7* has received 250 were 'Excellent' and 24 were 'Very Good' (Trip Advisor, 2015). The reviews on Trip Advisor (2015) affirm that *Lodge 7* is "very luxurious", the "food was exceptional" and "staff at [*Lodge 7*] go above and way beyond expectation". In addition

[11] Couples can choose to share a slightly bigger room.
[12] Approximately 10 000 people (Spenceley, 2003)

"not only was the accommodation, service and food of the highest standard, but the expert game rangers and trackers made sure that the wildlife experience was second to none" and "five stars are not enough to rate this excellent location".

Lodge 7 is well known for and actively involved in environmental and socio-economic initiatives and efforts. The lodge has focused on wildlife tourism since its inception in the 1990s, and hope to leave it in a better condition in the future. The senior lodge manager (SLM) (*Interviewee 11, SLM, 08/03/2015)* explains that 50 years ago sable was hunted for staff rations and today there are no sable in the area. Over time there has been an increased effort to look after the staff and uplift the surrounding community, observed by some of the employees that have worked for the lodge for over a decade. *Interviewee 5 (Ranger, 08/03/2015),* who has worked for the lodge for 21 years, states that initially the staff salaries were pretty poor but today they receive a good salary and working conditions are much better. Most of the changes occurred when the current company took over, according to *Interviewee 7 (Ranger and Tracker, 08/03/2015)*.

In addition, the infrastructure of the lodge has been renovated and altered over time (*Interviewee 3, Laundry Ladies, 08/03/2015 and 9, Assistant Workshop Manager, 08/03/2015*) such as improving the rooms, building a new crèche on the lodge property and, in the last five years, the greening of infrastructure. When camps and lodges in the area where originally established the awareness of their environmental impact was not what it is today. In 2010 *Lodge* 7 began taking steps to modernise infrastructure of the lodge to reduce the environmental footprint. Furthermore the lodge is subject to bi-annual environmental audits covering everything from energy use to bush rehabilitation.

3.3.6. Interviewee Details

All the initial interviews were completed in the field in March 2015 and audio recording was utilised to document the interview and allow for greater data retention for analysis. Interviewees were selected at random, determined by who was available at the time. To initiate the interviews, queries were made regarding the interviewees' background

such as position on the staff, how long they have been working for the lodge and whether they have worked for other lodges. A total of 17 people were interviewed of which Interviewees 3 and 7 were completed as a focus group due to the language barrier. A member of each group was able to communicate in English and assist in translation. A follow-up interview with *Interviewee 11* was done telephonically on 18 March 2015. The interviewees' details can be found in Table 3.2.

Table 3. 2. Interviewee details (Author, 2014)

Interviewee(s)	Position	Years at Lodge	Date of Interview
1	Receptionist and Shop Assistant	18	08/03/2015
2	Shop Manager	20	08/03/2015
3	Laundry Ladies	/	08/03/2015
4	Lodge Maintenance and Field Manager (LM&FM)	6 months	08/03/2015
5	Ranger	21	08/03/2015
6	Tracker	9 months	08/03/2015
7	Ranger, Tracker and Tracker	24, 23, 24	08/03/2015
8	Bush Banqueting Waiter	1	08/03/2015
9	Assistant Workshop Manager	18	08/03/2015
10	Ranger	1,5	08/03/2015
11	Senior Lodge Manager (SLM)	2	08/03/2015 and 18/03/2015
12	Ranger	1	11/03/2015
13	Ranger	2	11/03/2015

3.3.7. Additional Research Methods

In addition to the questionnaire and the literature review, an Internet search of the luxury safari lodges as well as other marketing, provincial and tourism organization the lodges may be affiliated added to the data collected from the questionnaire. Furthermore some of the lodges sent supplementary documents. The additional

documents provided greater detail to the research. Site visits to *Lodge 7* also provided extra information and allowed for increased depth in the data through first-hand observations and casual conversations with employees.

3.4. Analysis

The quantitative data was formulated into graphs, tables and charts to graphically depict the numerical data. Calculations were applied to the numerical data to evaluate the consumption of energy, waste and water if required. The qualitative data was examined using a simple manual content analysis. This approach allows patterns, themes and attitudes to be identified. Common themes, patterns and attitudes that arise help connect the relationships between the different sets of information. The qualitative data was used to provide a better understanding of the meaning of the conclusions produced by the quantitative data regarding consumption and production.

Due to limited research time and scope, the aim of this research is not to generate a representative sample of the sustainability of luxury safari lodges across South Africa, but rather as a baseline study, focusing on luxury safari lodges in the lowveld region, that can serve as a foundation for future research.

3.5. Ethical Considerations and Confidentiality

As a researcher at the University of Cape Town (UCT), I am required to abide by certain codes for research 'involving human subjects'. (UCT, n.d.). Following the completion of the form 'Research Ethics: Researcher Statement' UCTs' Ethic's Committee has approved my application for research. The following measures are required as part of the ethical clearance:

- Implement the measures described in my application to ensure the process of my research is ethically sound;
- Uphold ethical principles throughout all stages of research and respond appropriately to unanticipated issues; and

- State, in the assumptions and limitations section of my dissertation, that I am relying on the truthful responses from the safari lodges who will be providing you with information

Prior to the start of my research all the lodges were approached via email and/or telephone to enquire whether they would be interested in participating in this research. Given the sensitive nature of certain questionnaire questions, the confidentiality of the data and results was guaranteed. The luxury safari lodges were assured that confidential business information would be securely stored and only repeated in collective form. This paper does not include information that could be potentially linked an individual PNR or a specific safari lodge.

3.6. Limitations

The research is reliant on the truthful responses from the safari lodges that are providing the data regarding the consumption of energy, water and waste. In reality the quality and quantity of data provided is varied and no response is important to consider. The data available is severely limited to the number of lodges that respond to and complete the questionnaire. This has proved to be an arduous task and in retrospect using a questionnaire was a mistake due to the high no response rate. However, the addition of semis-structured interviews to the research method helped in answering questions the questionnaire could not.

In addition, there was no control over who would respond to the questionnaire. Depending on the size of the lodge, the respondent could be owner, manager or other qualified personal. Moreover, since participation was voluntary there is potential for bias towards lodges that are actively involved in sustainable tourism. There is also no control over the quality of the data, which ranges from extensive and detailed to basic answers.

Regarding the interviews, there are a number of limitations to consider. The language barrier, concern about giving the 'right' answer, lack of knowledge and general

reluctance to be interviewed about the lodge all influence the quality and quantity of interview data. Again the research is dependent on the truthful responses from the interviewees.

Chapter Four: Sustainable Luxury Safari Lodges: Oxymoron or Pleonasm

4.1. Introduction

The objective of this chapter is to determine the lodges' understanding and awareness of sustainable tourism, what it entails and why it is important (research objective 1). It also investigates the actions and activities employed by the lodges to achieve sustainability. In addition, this chapter examines the motivation and challenges of achieving sustainable tourism. These topics are examined in relation to the questionnaire and interview findings, supplementary documents and web searches, with reference to the accompanying literature. The results from this research have provided valuable feedback on the level of interest and consciousness of sustainable tourism among the lodges. In the subsequent chapters, the individual lodges will be referred to as '*Lodges*' followed by their corresponding number indicated in Table 3.1. The interviewees will be referred to as '*Interviewee*' followed by their corresponding number, position and date of interview indicated in Table 3.2.

All the lodges that participated in the questionnaire apart from *Lodge 5* answered section 3 of the questionnaire. The no response is important as the lodge in question declined to answer any of the questions relating to sustainable tourism and sustainability stating: "Unfortunately that is research that you can do on your side. That section, we are unfortunately not going to complete." This response can be interpreted in three ways: disinterest in the subject matter, ignorant about the subject matter or concern about being displayed unfavourably.

4.2. Understanding Sustainable Tourism

4.2.1. Perception of Sustainable Tourism

A common view in the literature of the sustainable tourism concept is that it encompasses environmental, social and economic aspects of the tourism business and provides a positive outlook of how tourism businesses can balance these three aspects (Chapter Two, Section 2.2.2.). In general, the lodges and interviewees agree with this view. They assert that sustainable tourism means managing business operations in a way that ensures the environment is left as natural as possible (*All Lodges*), economic sustainability ensuring the financial survival of the business (*Lodge 1, 3, 6 and 7*) and the development of local communities in the area surrounding the PNR (*Lodge 1, 2, 4, 6 and 7*). Lansing and De Vries (2007) view that sustainable tourism has the potential generate profits and support local economic growth, deliver responsible tourism experiences to wealthy tourists and protect the environment. This view is comparable to that of the lodges and interviewees, which the CEO of *Lodge 6* eloquently summarizes:

> "Sustainable tourism is not only measuring its success on financial performance but on our environment and community performance too. Our long term goals are to meet the needs of our consumer and guest without sacrificing the future needs of conservation and community development."

Ultimately it is an obligation of private corporations, such as commercial safari lodges to contribute to sustainable development (*Lodge 1*).

However, there is a clear focus on mitigating or minimising the negative effects of tourism while enhancing the positive contributions, with a great emphasis placed on the environment. Environmental protection is specifically stressed when explaining sustainability exemplified by *Lodge 3* as "leaving the reserve to remain as natural as possible with minimal interference". Half the interviewees emphasize the importance of environmental sustainability for the longevity of the lodge. *Interviewee 4* (*LM&FM, 08/03/2015*) states:

> "Economically they have to work because you won't have the others but environmentally is the most important"

Despite the importance placed on environmental sustainability, many of the lodges and interviewees recognise "all three aspects have to work together" (*Interviewee 4, LM&FM, 08/03/2015*). A continuous flow of guests, and thus a steady revenue stream, ensures there is funding for both the environment and community projects.

Lodge 6 cites the Brundtland report: "development that provides for the needs of the world's current population without damaging the ability of future generations to provide for themselves". The 'future' is an integral part the lodges' perception of sustainable tourism and is highlighted by several lodges and interviewees. They emphasise "long term viability" (*Lodge 1 and Interviewee 13, Ranger, 11/03/2015*), protecting the environment and resources for future generations (*Lodge 6, Interviewee 11, SLM, 18/03/2015 and 12, Ranger, 11/03/2015)* and explain future plans for the lodges (*Lodge 1, 2, 6 and 7*) such as the greening of infrastructure and expanding lodges.

The bulk of the lodges broadly agree on what sustainable tourism encompasses but variable emphasis on the different facets of sustainable tourism can lead to varied actions and levels of activity to achieve sustainability. This is one of the main criticisms of sustainable tourism in the literature mentioned by numerous authors (McCool *et al*., 2001; Hunter, 2002; Kiss, 2004; Lansing & De Vries, 2007). Regarding environmental sustainability, there is often ambiguity as to the degree of environmental protection being encouraged and the extent of environmental concern and this is observed among the lodges. This is examined in greater detail in Chapter Five.

4.2.2. Importance of Sustainable Tourism

An important question to consider is why sustainable tourism should concern luxury safari lodges. Amongst all the lodges it was unanimous and frequently stressed that sustainable tourism is important because if the lodges did not operate with sustainable

practices, the tourism operations would not survive due to the loss the tourist attraction (the natural environment) they are offering. As a result "preserv[ing] and protect[ing]" (*Lodge 6*) the natural environment is central to sustainable safari lodges. Concern for the environment by the lodges is well founded. Both Steyn and Spencer (2012) and Solomon *et al* (2007) stress that the changing climate with severely affect the tourism industry, especially safari lodges which are reliant on fauna and flora as their principal attractions. It is a common view that environmental protection entails leaving the environment as it is found. Negative environmental impacts from safari lodge include GHG emissions and air pollution from the use of fossil fuels, water scarcity and contamination and "mass tourism" (*Lodge 1*) degrading the natural environment. These impacts are widespread in the accommodation sector and are documented in several studies (DEAT, 2002; UNEP, 2003; Solomon *et al*., 2007; Kasim *et al*., 2014) and by the lodges themselves. For example, *Interviewee 11* (*SLM, 08/03/2015*) highlighted the need for a cement base near and around areas where liquid fuel such as paraffin, diesel and petrol are used and stored to avoid any possible contamination of the soil and ground water.

There is also agreement that sustainable tourism should "benefit and develop" (*Lodge 1*) local communities in the area from which they draw the majority of their staff.

> "You can't expect to run a successful wildlife business if you don't include the communities. People have tried and it has failed time and time again. You have to include the people." (*Interviewee 12*, *Ranger, 11/03/2015*)

According to *Interviewee 4* (*LM&FM, 08/03/2015*) most of their staff come from one village, Welverdiend/Hlokomela, therefore it is in their best interest to provide economic support and social development opportunities to these communities in order to" attract and retain great employees" (*Lodge 6*). This is evident in *Lodge 7* where some employees have been working for the lodge for over 20 years. *Interviewee 13* (*Ranger, 11/03/2015*) stresses the importance of ensuring that the community "buy in to the idea that this land and what we are doing is a positive thing that benefits them." Community development projects and initiatives are explained in greater detail in section 4.3.

4.3. Sustainable Luxury Safari Lodges: In Practice

Over the last decade, there have been a number of studies providing evidence that PNR and their accompanying tourism businesses can be drivers of sustainable development (Chapter Two, section 2.3.). It is clear from previous section that the lodges have formed their own individual understanding of sustainable tourism and recognise the importance of sustainability in the tourism industry. Nonetheless, the central question is whether this understanding has been translated into practice. This is answered in the following section and environmental activities are examined in greater detail in Chapter Five.

All the lodges, apart from *Lodge 6* regard themselves as sustainable lodges and are engaged in varying degrees of resource management and conservation. However *Lodge 6* believes it is "on the right path, but could always do better". The majority of the interviewees agree with *Lodge 6's* judgement and they sustain that *Lodge 7* and other lodges can do more and can do better. *Interviewee 10* (*Ranger, 08/03/2015*) believes that the route to sustainability is continuous, comparable to the view of the UNEP and WTO (2005) who also see sustainable tourism as a continuous process. Likewise, *Interviewee 7 (Ranger and Tracker, 08/03/2015)* reflects:

> "It's getting better and better every day I would say because of what [*Lodge 7*] is doing for the people because everyone is learning…Ya [*Lodge 7* can do more], one step at a time."

The lodges, including *Lodge 7,* are dedicated to the conservation of the environment and collectively protect 617, 03 km^2 of land in six different PNR, concurring with Langholz and Krug (2004). They believe that PNR play a vital role in conversing biodiversity in ecologically sensitive areas. All the lodges placed a large emphasis on minimising the negative impact on the environment and leaving it as it in its original condition. Considered equally important is recovering any negative impacts and attempting to make positive contributions where possible, through exemplary conservation measures and resource conservation and management. Accordingly the lodges conserve and protect the environment by maintaining the biodiversity of species (*Lodge 1, 2, 3, 4, 6, 7*)

and are involved in a number of environment projects (*Lodge 1, 2, 3, 6 and 7*). Save the Elephants SA (*Lodge 1*) and Ground Hornbill Research (*Lodge 1, 6 and 7*) are both research projects focusing on elephant migration patterns and providing better understanding of the breeding ecology and home range use of Ground Hornbills respectively. *Lodge* 7 is involved in a project called Rhino Without Borders committed the conservation of rhino species across Southern Africa. *Lodge 2* has a partnership with Greenpop, an organization that plants trees; educates people on best practice tree care as well as monitors the tree to ensure their legacy (Greenpop, 2011). *Lodge 3* is involved in a carbon-offset initiative where guests can contribute to the planting and growing of spesbok trees in the Eastern Cape. Furthermore *Lodge 1, 6 and 7* maintain and rehabilitate environmentally sensitive areas. For example, *Lodge 7* has recently rehabilitated an area affected by problems with the water treatment facility. *Lodge 1* is also in the process of closing permanent artificial watering holes and both *Lodge 1 and 7* monitor and focus game viewing, especially off road driving, to allow improved bush recovery. It is clear that some of the lodges are more involved in conservation and environmental protection than others, most likely the consequence in disparities in understanding and awareness of sustainable tourism and resources available to participate in such activities.

Langholz and Kerley (2006) observed that a number of lodges on PNR formed partnerships with the local community to promote development and economic growth. Likewise, this is observed with the lodges in this research, all of which are involved in community projects and initiatives to ensure the development of an economically sustainable, healthy and educated community. Many of the lodges are involved in and support skills development including ranger and tracker apprenticeships, training for field guides, cookery school. *Lodge 7* runs an internship programme where unskilled workers can apprentice at the lodge for several months to learn a skill e.g. waiter or bar tender and get experience, making it easier to find a job in the tourism industry. *Interviewee* 8 was part of the internship programme and proved to be an excellent asset to the lodge and they employed him full time. They are also invested in education, developing an Adult Literacy Programme, supporting of the Timbavati Bush School and the Southern African Wildlife College and providing bursaries for further studies. *Lodge 7* has a pre-school/crèche on-site for younger children, however children of school

going age are not allowed to live on-site to encourage them to receive further education. Healthcare is also included in the lodges' social responsibility with many lodges educating and counseling staff and their families on HIV/Aids and supporting clinics in the area. *Lodge 7* has a clinic on-site which is open 2 days a week where staff can go to receive medicine, vitamins and have check-ups. The *Interviewee 11* (*SLM, 08/03/2015*) has observed that when the clinic has closed for longer periods of time the number of sick employees rises considerably, thus the clinic results in happier and healthier staff. Other projects include supporting local businesses, community garden projects and funding a local home for abandoned and orphaned children. At *Lodge 7* all the staff get involved in community development projects such as building classrooms and have recently painted a school and built swings in the neighboring Welverdiend/Hlokomela community.

4.3.1. Policies and Accreditations

South Africa's Responsible Tourism Manual highlights the importance of tourism enterprises to develop strategies and policies to address the different areas of the business that impact the environment (DEAT, 2002). Policies are designed to guide a certain set of principles towards a desired outcome. In the case of sustainable tourism, SABS (2011) explains that a policy should dictate the overall intentions and directions of a business on sustainable tourism, formally expressed by the business. Four lodges have written policies on sustainable tourism and although *Lodge 1* has no formal written policy, it has a "very serious commitment to sustainable tourism". *Lodge 6* aims to follow the South African National Standard (SANS 1162). There are a number of requirements and criteria associated with the SANS 1162 including sustainable operations and management, social and cultural criteria, economic criteria and environmental criteria (SABS, 2011). Part of the criteria requires that the organization shall establish a responsible tourism policy. *Lodge 6* does not have one overarching policy but instead has a number of policies covering all aspects of sustainability from a reasonable seafood policy and codes of conduct regarding environmental and social matters. *Lodge 2's* policy is put in place by the lodge and FTT to hold them accountable and motivate the lodge to "uphold everything, the standards and the commitments" that

are stipulated in the policy. The policy is divided into two sections: environmental and socio-economic. The environmental section of the policy is committed to minimising the footprint they leave in the environment. The socio-economic section is based on the strict FTT guidelines and incorporates policies on local recruitment, internal skills development and promotion and employment equity. *Lodge 2* is extremely proud of these policies and it is what the lodge is built on and the experience they strive to give their guests. *Lodge 7* has a 'Policies and Procedures' document covering aspects of lodge operations. The lodge is audited bi-annually and points are allocated and deducted according to how closely these policies and procedures are followed and fulfilled. *Lodge 7* is also subjected to bi-annual environmental audits, with both lodges regularly receiving high scores. The environmental audits cover everything from "paper usage, paraffin usage, where we are dumping our diesel, oil…everything that we can is recycled" (*Interviewee 4, LM&FM, 08/03/2015).*

Transparency is a critical aspect of sustainable and responsible tourism and being compliant to certain standards and programmes forms part of this (see Section 2.2.3). However, despite the ever-increasing attention and focus on sustainable tourism, Bohdanowicz *et al* (2005) and Van de Merwe and Wocke (2007) observed the lack of participation in voluntary sustainable tourism initiatives by the tourism industry. On the contrary, more than half the lodges in this research are certified with accredited programmes, mainly with FTT (pg. 16, Chapter Two) and Greenleaf (pg. 17, Chapter Two) (both *Lodge 1* and *2*). *Lodge 6* was certified with FTT but left in 2014 due to a number of reasons (Appendix A). The 'other' certifications held by the lodges include EcoAtlas (*Lodge 2* and *3*), an online ethical tourism directory allowing consumers to making responsible tourism and travel decisions (EcoAtlas, 2012) and Bioregional, One Planet Living (*Lodge 6*) "champions a better, more sustainable way to live" (Bioregional, n.d.). Certification often requires yearly audits of environmental management and other aspects of the business and thus is an important tool to document and evaluate the on-going performance of the business.

It is easy to concur with Langholz and Krug (2004) when they write that ecotourism would benefit from outside monitoring and evaluation of its impacts, often achieved via environment accreditation and/or audits. *Lodge 4 and 5*, do not have policies or

accreditation and evidence of their activities and practices show that they are lacking in comparison to the other lodges. The lodges that are accredited by various initiatives and/or have sustainable tourism policies are involved in numerous environmental and socio-economic activities and projects to uphold these policies in order to retain their accreditation.

4.3.2. Awareness and Education

Becken *et al* (2001) observed a lack of awareness and interest in environmental issues within the accommodation sector. On the contrary, the lodges are aware of the environmental impact caused by their business and are continuously improving their practices to become more sustainable.

Equally important, tourist behaviour and awareness emerged regularly in the literature as a critical aspect of changing resource use in tourist accommodation. Creating awareness and promoting sustainable tourism practices to tourists while providing an exemplary level of service and accommodation is essential in fostering both vocal and financial support for sustainable tourism. Consequently, the lodges educate and encourage their guests on responsible and sustainable tourism practices. Educating guests changes often "pre-conceived ideas of what it is to be a responsible tourist" (*Lodge 1*). Many think they are being responsible but acting in ways that are not sustainable in the environments that they are visiting (*Lodge 1*). Bohdanowicz *et al* (2005) proposes that an increase in awareness among consumers will act as a catalyst for behavioural change. This is observed by *Lodge 1 and 7* who by creating environmental awareness and leading by example, find guests are more likely to understand and wish to engage with the environment in a responsible manner. The majority of the interviewees consider guest awareness as important, indicated by *Interviewee 4* (*LM&FM, 08/03/2015*) *and 11* (*SLM, 08/03/2015*) respectively*:*

> "It is also very important, you know, that your guests are the ones seeing you are putting in an effort"

> "…your purpose to be here is to make sure you have a good successful lodge, you give guests a good experience in the bush and you teach them about it."

Interviewee 11 (*SLM, 08/03/2015*) continued, commenting that guests leave having an experience that makes them realise that nature is something special and "starts them [the guests] conserving in their own life." In the words of *Interviewee 13:*

> "We do conservation though our guests" (*Ranger, 11/03/2015)*

The lodges need to impress the guests visiting and ensure "they will never forget and go and tell their friends" (*Interviewee 5, Ranger, 08/03/2015*). The continuous flow of guests, and the resultant revenue means that these lodges have to capital to 'green' their infrastructure and sponsor a variety of projects. Moreover, *Interviewee 11* (*SLM, 08/03/2015*) says that many guests return home and start raising money for conservation or for the rhino foundation. Guests are encouraged to participate in and contribute towards programmes and efforts both environmental and community orientated (*Lodge 1, 2, 3, 6 and 7*). In *Lodge 3* guests can contribute to a carbon offset programme. At *Lodge 6 and 7* guests and staff participate in 'environmental days' such as Earth Hour[13] and Rhino Marathon promoting environmental awareness.

Several interviewees agree that both staff and community awareness is also vital:

> "You might not work in the lodges but your relatives works here and can get help from them. The money you get from the guests coming to see the animals" (*Interviewee 1, Receptionist/Shop Assistant, 08/03/2015*)

> "I think we need to encourage people and make awareness, especially with communities" (*Interviewee 7, Ranger and Tracker, 08/03/2015*).

This is particularly imperative with respect the rhino poaching and there is a need to teach local communities the importance of the rhino (*Interviewee 1, Receptionist/Shop*

[13] Earth Hour is a lights-off event to raise awareness about climate change (WWF, 2015)

Assistant, 08/03/2015) as it is part of the reason why guests are attracted to these lodges.

Likewise, *Lodge 2*, *6 and 7* engage with the staff, creating environmental awareness as well as providing in-house ranger and tracker apprentices and educating the staff on HIV/AIDS.

Conversely, while *Interviewee 10 (Ranger, 08/03/2015) and 11 (SLM, 18/03/2015)* consider staff awareness as important, they both argue whether it makes a difference if, for example, they knew what sustainable tourism is and entails. *Interviewee 11 (SLM, 18/03/2015)* considers having the right policies and training in place are more important as they will dictate staff behaviour and actions. This supports Bohdanowicz (2006) who highlights the importance training and enforcement of behavioural changes of staff have on the success of best practices.

4.4. Challenges and Motivation

The lodges face a number of challenges, especially when concerning sustainable tourism. Langholz and Krug (2004) argue that there is a potential conflict of interest between ecology and profit, where owners are tempted to exploit resources rather than protect them. That being said it is not economically feasible to focus all their efforts on ecology (*Interviewee 10, Ranger; 08/03/2015*). The *Interviewee 11* (*SLM, 18/03/2015)* confirms that for lodges it is a challenge balancing the desire to make a profit and ecology. It is vital that the lodges maintain "a balance between attracting enough guests to ensure business survival and growth but not too many guests" (*Lodge 1*) or lodges, which will result in "mass tourism" (*Lodge 1 and 3*) leading to the degradation of the natural environment attracting guests in the first place (*Lodge 1, 3, 4, 6 and 7*). However, most of the PNR where the lodges are found have regulations restricting the number and size of the lodges allowed. It was noted by several interviewees that smaller, commercial lodges, not part of a large company are more focused on profit than sustainability. However, this may be case specific as the smaller lodges in this research are very focused and concerned about sustainable tourism.

Several interviewees reveal that a major challenge is dealing with poaching; particular rhino poaching, not only from a conservation standpoint but it is what attracts guests to the lodges.

> "Mostly people say Big Five or cats. But you will also get people who are interested in birds or tree and flowers. It doesn't happen as regularly" (*Interviewee 13, Ranger, 11/03/2015*)

There is also difficulty integrating all aspects of sustainability in the running of a tourism enterprise. *Lodge 6* who tries to find a "balance between conservation, community and economic objectives" highlights this difficulty. An imbalance comes about because lodges place variable importance on the different aspects of sustainable tourism. *Lodge 1, 2, 6 and 7* try to follow a holistic approach, whereas *Lodge 3* is more focused on the environment and *Lodge 4* is concerned for both the environmental and financial success. In a South African context, where PNR and luxury safari lodges are often places where wealthy landowners accommodate affluent foreign tourists (more than 80% are foreign, *All lodges)* (Langholz & Krug, 2004), it is an important challenge to "make a genuine commitment" (*Lodge* 1) to assisting with the growth and development of the communities from which the lodges draw their staff. The difficulty is that the lodges are often limited by what they can do:

> "There is lots lodges can do and there are camps that are completely eco-friendly and use renewable power and that sort of thing but sometimes it is not feasible" (*Interviewee 10, Ranger, 08/03/2015*)

This limitation often comes in the form of financial constraints. Several of the lodges and interviewees make reference to the cost and challenge "balancing financial obligations for the 'greening' of infrastructure and other services to would advance sustainability" (*Lodge 6*), an issue also raised in study of the Polish and Swedish hotels industry (Bohdanowicz, 2006). Modernising infrastructure by shifting to renewable energy and replacing old fittings requires a substantial financial investment, especially in lodges built in the 1980's and early 1990's when sustainability was not a prominent

issue (*Interviewee 11, SLM, 18/03/2015*). In addition, most voluntary initiatives and memberships such as FTT have annual fees, contributing the financial cost of sustainability. The *Interviewee 4* (*LM&FM, 08/03/2015*) admits that even though *Lodge 7* has the capital to become sustainable, even after 20-30 years it is still not there. In recent times, this is a consequence of the Ebola crisis; a problem also noted by *Lodge 3* and *4.* The crisis has been a prominent story in international news and has led to fluctuations in the tourism industry, with 500 tour operators reporting a 20-70% fall in bookings (Everett, 2014; The Economist, 2014), despite the fact that "Eastern and Southern Africa are far away and so far untouched unlike the USA and Europe" (*Lodge 3*). Occupancy of lodges in Tanzania and Kenya are as low at 8% and although *Lodge 7* is not directly affected (occupancy is approximately 70%), "the company has taken a hit" (*Interviewee 4, LM&FM, 08/03/2015*). All profit made by *Lodge 7* goes straight into the Tanzanian and Kenyan lodges, so the business is currently running even.

Creating staff and guest's awareness is also a challenge, particular behavioural change around resources since many guest do not realise that they are acting irresponsibly. Other challenges include politics and land claims (*Lodge 4 and Interviewee 12, Ranger, 11/03/2015*). In terms of politics "tourists will be less likely to come to this country on holiday if the political situation deteriorates" (*Interviewee 12, Ranger, 11/03/2015*), a likely outcome if the Zimbabwean tourism industry is used as an example. In the 1990s tourism was Zimbabwe's fastest growing industry. However by 2001 it was in profound decline resulting in a decrease in tourism activity by 38%, due to the country's worsening and unstable economic crisis and political climate (AfBD/OECD, 2003). Most PNR in South Africa bordering the KNP are proclaimed nature reserves under provincial legislation (Mpumalanga and Limpopo) including Sabi Sands Nature Reserves and reserves part of the APNR (SANParks, 2008). Although *Lodge 3* states that these areas are "now protected by law from land claims", this is not the case. Protected areas, even the KNP, can be subject to land claims, for example the Makuleke claim in the northern Pafuri area of KNP (Stickler, 2012). However, as discussed Chapter Three, Section 3.2., many parts of the lowveld have never been permanently settled, therefore land claims may not be particularly relevant to this area. Some PNR may be susceptible, for example the Mala Mala land claim has recently been concluded. *Lodge 4*, which cited

land claims to be a challenge, is the only reserve in this research to be subject to a land claim, which ultimately was a false claim.

Beside the business health and ethical and moral imperatives, the lodges discuss a number of motivating factors to strive towards sustainability. First and foremost, sustainable tourism ensures the safari lodges remains in perpetuity. In addition, inviting tourists to these natural environments, helps spread the word of the importance of those areas and thereby helping to guarantee their continued existence and the sustained development of the local community. The interviewees emphasize the importance of a constant flow of guests ensuring the financial success the lodge and thus investment in the community and environmental sustainability.

Further incentive stems from current market trends and what guests expect to see in terms of the lodge's responsibility to the environment and the community. *Interviewee 4 (LM&FM, 08/03/2015)* believes that guests do look for environmentally friendly lodges with a few guests questioning why the lodge does not utilise solar power. Nonetheless he thinks they are more interested in community and wildlife conservation projects. Increased awareness among tourists will act as a catalyst for change demand for sustainable tourism businesses and thus being sustainable is a positive form of marketing to attract not only guests but to appeal to guests who are responsible travellers. Conversely, *Interviewee 11 (SLM, 08/03/2015)* states that all the work *Lodge 7* does for the environment and community is not entirely a marketing strategy but is part of the lodges ethos and has been since it has started.

Lastly, "to be profitable" (*Lodge* 4) is a fundamental motivation because it is vital in ensuring the longevity of the business (*Lodge 1*, *4* and *6*). Although the cost of sustainability is viewed as a challenge by the lodges, in the long run, savings from sustainable infrastructure and services will be realised (*Lodge 1* and *Interviewee 4; LM&FM, 08/03/2015*). With consumer preferences' changing towards more environment friendly and sustainable holidays, being sustainable is not only "financially savvy" (*Lodge 6*) but also encourages resource efficiency (*Interviewee 10, Ranger, 08/03/2015*) and earns "respect from operators, guests and the community alike" (*Lodge 3*).

Chapter Five: Environmental Activities

5.1. Introduction

Chapter Five expands on the results and findings of the section 1, 2 and 4 of questionnaire coupled with the interview findings, an Internet search and supplementary documents sent from the lodges (Research objective 1 and 2), with considerable reference to the accompanying literature. To ensure comparability of the different establishments, the lodge characteristics were taken into account.

It is important to note that safari lodges are a unique form of tourism accommodation generally based around wildlife-rich areas such as national parks. Many safari lodges are found in Southern Africa as a result of the diverse wildlife, particularly the 'Big `Five'. There are relatively few studies on resource management in safari lodges. In order to provide some context to the resource consumption and production in luxury safari lodges, comparisons have been made to tourism accommodation data found in the literature. However, the bulk of the literature focuses on hotels based in Europe and Australasia. While data can be site- and case-specific, for example a hotel located in a city will have easier access to certain resources than safari lodges located in a nature reserve, tourism behaviour tends to be universal especially at luxury facilities.

5.2. Lodge Characteristics

The safari lodges are located in Limpopo and Mpumalanga province, South Africa in an area known as the lowveld, west of KNP, comprising of the subtropical climatic zone with warm, wet summers and cool, dry winters. The lodges are situated between 20 and 155 km from Hoedspruit, the closest town, thus have access to the similar resources and services (Table 5.1.). The ones investigated are classified as 'luxury' offering a high level standard of service. They emphasise exclusivity, outstanding service, food and

accommodation as well as comfort. All the lodges are owned by private companies[14], of which half are owner managed. However, the participant lodges vary widely in property size (10 – 150 km^2), size of operation (18 - 47 beds), number of employees (24 -149) and duration of operation (11 – 37 years) (Table 5.1.).

Table 5. 1. Lodge Characteristics (Author, 2014)

	Respondent	**Distance to Hoedspruit (km)**	**Property Size (km^2)**	**Duration of Operation (years)**	**Number of Employees**
Lodge 1	Owner	50	11,28	37	49
Lodge 2	Reservations and Camp Manager	40	10	24	24
Lodge 3	Owner/Director	75	24,75	17	34
Lodge 4	Operations Manager	30	141	16	68
Lodge 5	Lodge Manager	20	130	28	48
Lodge 6	Sustainability Coordinator	155	150	11	149
Lodge 7	Senior Lodge Manager	50	150	23	97

The respondents are members of the lodge management; owner and sustainability coordinator allows the assumption that the answers are relatively reliable, as respondents possess the adequate background information to enable them to answer the questions on environmental issues or other relevant activities.

With regards to expansion, *Lodge 1, 6 and 7* have indicated that they plan on expanding lodge operations. *Lodge 1* plans to open a further 10 beds (currently 12), *Lodge 6* has plans to expand the staff village and *Lodge 7* wants to build a massage therapy room in the future. *Interviewee 11 (SLM, 18/03/2015)* explains that the lodge was "built a long time ago" and 30 years down the line expansion and refurbishment is required. Expansion of lodges can also be attributed to the ever-growing tourism industry in

[14] Private companies are either owned by non-governmental organizations or have a relatively small number of shareholders

South Africa, with international arrivals expected to increase significantly over the next decade (Figure 2.2) (Gössling *et al.*, 2012). The average occupancy of 65, 43% is similar to regional trends in 2013 ranging 46, 60% in northern Africa, 60,30% in the Middle East and Africa (2012) to 68% in Asia Pacific (Statista, 2014).

Table 5. 2. Tourist accommodation: capacity, prices and rating (Author, 2014)

CAPACITY	
Average Number of Beds	30,71
Range (minimum to maximum)	18-47
Average Occupancy (%)	65, 43
Range (minimum – maximum)	61,80-70
Average length of stay	3,12
Range (minimum to maximum)	2-4
PRICE (ZAR)	
Average price per person per night	5777, 71
Range (minimum to maximum)	2500-14600
RATING	
Average Stars[15]	4,33
Range (minimum to maximum)	3-5

The sample lodges can be divided into 3 stars (n = 1), 4 stars (n = 2) and 5 stars (n = 3) (Table 5.2.). *Lodge 6* does not subscribe to formal star ratings, however is rated 5 stars on Trip Advisor (Trip Advisor, 2015). The number of stars (excluding *Lodge 6*) is reflected in the price per person per night, ranging from R2500 to R5175, full board (Table 5.2.). As the number of formally rated stars increase so does the price per person per night. *Lodge 6* has the highest price per person per night (R14600) by a large margin. Given the high prices charged, lodges marketing mostly target the foreign market at upper income groups and this is confirmed by the data provided. The overwhelming majority (90%) of guests to these lodges are foreign. These luxury establishments provide a number of facilities, the most common being a pool (n = 7),

[15] Rated by the Tourism Grading Council of South Africa. "1 Star being very basic in the facilities it offers and 5 Stars being a place with all the bells and whistles" (TGSCA, 2013)

spas or wellness centres (n = 4) and private pools (n = 3) (Table 5.3.). As expected, all the lodges have on-site kitchens and restaurants. The size of the lodge and all the additional buildings range from approximately 2721m^2 (*Lodge 6*) to 3000m^2 (*Lodge* 1) in area making land use per bed 65-125m^2 respectively. This is more than double the world average of 30m^2 per bed in hotels observed by Gössling (2002). This confirms Gössling's (2002) comment that tourism accomodation in more remote areas, like the TPNR, have a larger land use per bed than those in cities, where land is more valuable.

The lodges and the PNR on which they stand represent a total area of 617,03 km^2, ranging from 10 to 150 km^2 in size (Table 5.1.). Over 80 mammals, 260 bird species, 79 reptile and amphibian species and 85 listed species of tree are found in this area (TPNR, 2014). As a result, the lodges are wildlife based ecotourism ventures, with the all their websites focusing on the "Big Five" experience and emphasising the abundance and diversity of fauna and flora. Travel magazines and websites such as Conde Naste Traveller and Frommers emphasis that like game reserves and national parks, wildlife is the single most important attraction with the 'Big Five' species being a major draw card. Several interviewees also made this observation and all the lodge websites advertise the Big Five:

> "The reason why guests come here is for the animals" (*Interviewee 1, Receptionist/Shop Assistant, 08/03/2015*)

> "Most people say Big Five or cats. But you will also get people who are interested in birds or tree and flowers. It doesn't happen as regularly. " (*Interviewee 13, Ranger, 11/03/2015*)

As a result, by far the most common activity is wildlife viewing, primarily by game drives in open vehicles and guided walks, followed by sleep outs in the bush (n=3), other activities outside the PNR and dining in the bush (n=1).

Energy-, water- and waste-related issues are the focus areas of most environmental solutions (Bohdanowicz, 2006). All the respondent lodges are engaged in a wide variety of activities and practices relevant to energy and water conservation as well as

responsible waste management. This is seen as both a necessity (for example see Section 5.3.2.) and enables the lodge to "run more efficiently and reduce waste" (*Interviewee 10, Ranger, 08/03/2015*) and to expressly promote environmental sustainability.

Table 5. 3. Lodge amenities (Author, 2014)

AMENITIES					
	Pool	**Private Pool**	**Spa**	**Gym**	**Laundry**
Lodge 1	X			X	X
Lodge 2	X				
Lodge 3	X		X		X
Lodge 4	X	X	X		X
Lodge 5	X	X	X		X
Lodge 6	X		X	X	X
Lodge 7	X	X			X

5.3. Energy Consumption and Conservation

Energy consumption in an accommodation business comprises of energy directly consumed in the running of the accommodation building. Other uses, such as business vehicles are also included in the energy consumption as they play an integral part of the safari lodge industry, such as game viewing. The questionnaire asked for the monthly consumption of electricity and other fossil fuels in the most commonly used unit (e.g. kWh or litres). However, a number of the lodges (n = 3) could not provide information on energy use such as power bills, or only recorded ZAR spent. In this case, the average price for the relevant energy source was applied to estimate the actual energy use. Therefore parts of the data are subject to a non-quantifiable error.

5.3.1. Energy Consumption

According to Gössling (2002) and Bohdanowicz and Martinac (2007) a number of factors affect energy use such as source of energy, standard of accommodation, services

and amenities offered, the age and size of the operations, climatic conditions and resource awareness and management system.

Fuel types used to satisfy energy demand are a source of variation in safari lodges, with no lodge using a single source of energy. The most common source of energy is diesel and/or petrol generators (*All Lodges*); this is followed by solar (n=6), electricity (n=5) gas (n=3), paraffin[16] (n=3) and biofuel (n=2) (Table 5.4.). This confirms findings from Becken and Patterson (2006), Becken (2013) and WTTC (2013) that tourism is reliant on energy directly from fossil fuels or indirectly from electricity. In particular, energy in South Africa is mainly fuelled coal-powered electricity generation.

Table 5. 4. Lodge energy mix (Author, 2014)

	Electricity	**Generator**	**Solar**	**Paraffin**	**Gas**	**Biofuel**
Lodge 1	X	X	X	X	X	
Lodge 2		X	X		X	X
Lodge 3	X	X	X			X
Lodge 4	X	X				
Lodge 5	X	X	X	X		
Lodge 6		X	X		X	
Lodge 7	X	X	X	X		

The lodges have a number of energy intensive amenities and activities. Restaurants, pools and spas all consume energy as well as guest rooms and staff accommodation. Washing machines (n=6), baths (n=5), dishwashers and tumble driers (n=2) are also common (Figure 5.1.). Game drives are a prevalent in all the lodges and require the use of diesel vehicles for many hours every day.

Figure 5.2, depicts the energy consumption in the lodges. *Lodge 2* is the only lodge that uses 100% alterative energy (completely off the grid), relying mainly on solar power for energy. As a result it has the lowest consumption of electricity and fuel. *Interviewee 10 (Ranger, 08/03/2015)* states that:

[16] Also called kerosene

"Camps that are completely eco friendly and use renewable power and that sort of thing but sometimes it is not feasible"

This provides an explanation for why *Lodge 2* is singular in its' predominant reliance on solar power. For some lodges it is not financially feasible to completely convert to solar power.

Lodge 6, followed by *Lodge 7,* has the highest energy consumption by a significant portion (Figure 5.2.). *Lodge 7* relies primarily on the electricity from the grid for energy, utilising minimal solar power and has diesel generator on standby, accounting for its' higher than average MJ/month/room. *Lodge* 6 does not use grid electricity and relies entirely on a diesel generator for all its' energy needs, thus the extremely high MJ/month/room rate for *Lodge 6.* It is also important to note that *Lodge 6* has 2-6 times more employees living on site than the other lodges in this research. As a result, a large percentage of the electricity consumption can be attributed to staff use.

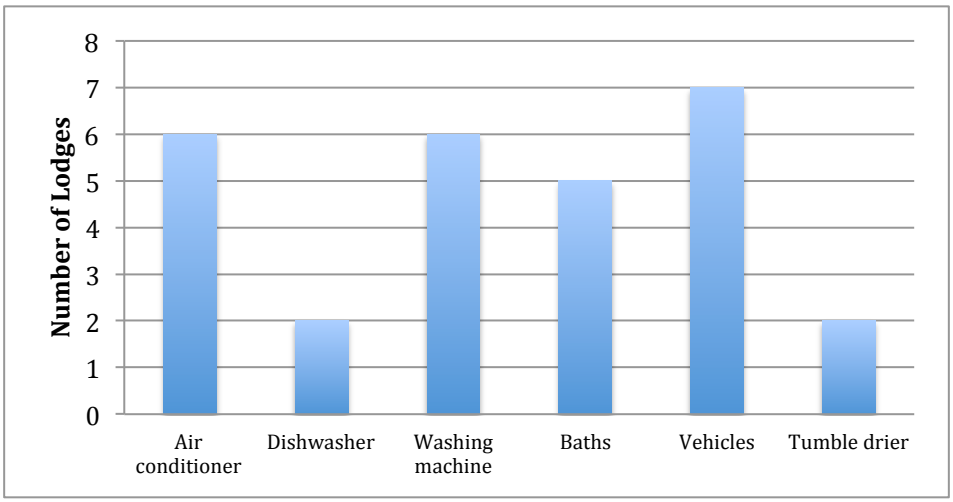

Figure 5. 1. Energy intensive appliances (Author, 2014)

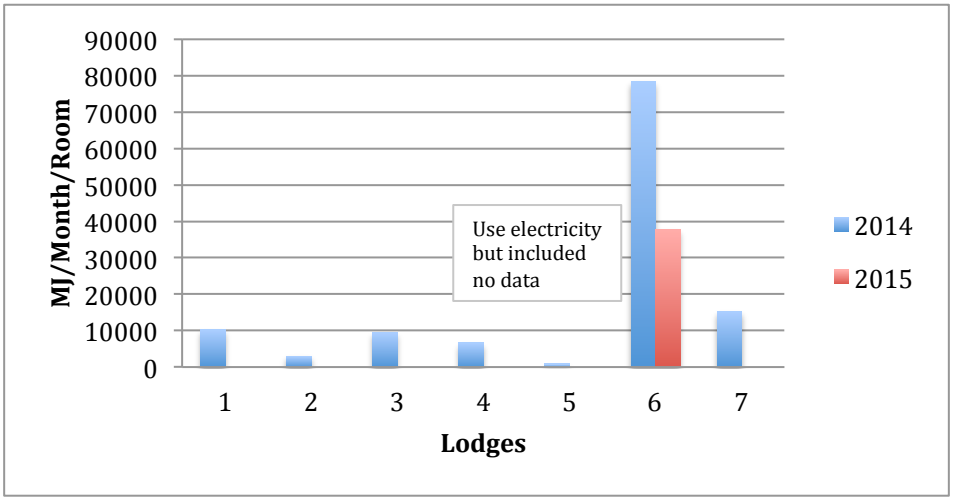

Figure 5. 2. Mega joules used per month room in the lodges (Author, 2014)

5.3.2. Energy Conservation

Fortunately, the lodges are located in a subtropical climatic zone where internal heating is not required. Although most of the lodges have air conditioners, in the majority of them guest accommodation is not cooled. In fact one lodge does not have any air conditioning units at all. This contradicts the findings of Gössling (2002) and Bohdanowicz and Martinac (2007) that state the majority of energy use is from heating and cooling.

Geysers, cooking, refrigeration and lighting and also contributed significantly to energy usage (Gössling, 2002; Becken, 2013). However, by using modern technology, best practices and good management, there is huge potential to decrease energy consumption and thus GHG emissions by as much as 30-40% (Scott *et al.*, 2008).

According to Bohdanowicz *et al* (2001) energy costs account for 3-6% of the operational costs of a hotel, second only to labour costs. In *Lodge 1, 3 and 6* energy expenditure accounts for 2,88%, 6,77% and 12,69% (Figure 5.3.) of the operational costs respectively. *Lodge 1* and *3* energy costs are comparable to those observed by Bohdanowicz *et al* (2001). The extremely high-energy expenditure in *Lodge 6* is due to the reliance on liquid fuels, such as diesel, for energy, especially considering the exceptionally high fuel costs during 2014. However *Lodge 6* plans to implement a hybrid system of solar power, batteries and generators in March 2015, decreasing the diesel generator usage by 52%. As a result the percentage energy expenditure in *Lodge*

6 will decrease to 6,09%, comparable to observed percentages (Figure 5.3.). *Interviewee 4 (LM&FM, 08/03/2015) and 11 (SLM, 08/03/2015)* both comment on the use of a generator stating that it is not economically feasible to rely entirely on a generator for power due to the excessive cost, shown in Figure 5.3.

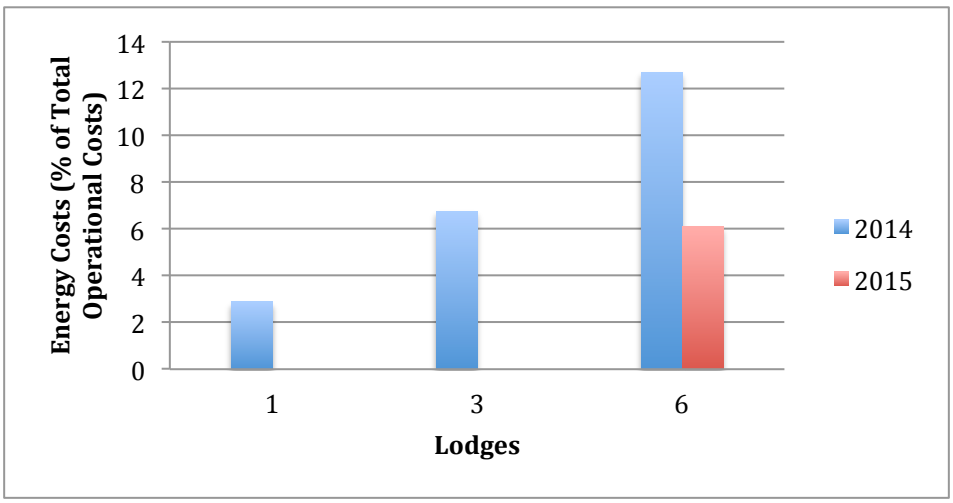

Figure 5. 3. Energy costs as a percentage of operational costs (Author, 2014)

All the lodges employ at least two energy saving measures. The most common energy saving measure is the use of solar power, which is utilised by six of the lodges (Table 5.5.).

> "[Solar power is] the most efficient clean energy (*Lodge 7)*

The study area receives plenty of sun throughout the year, thus solar power generation remains an excellent alternative to fossil fuel generated energy and is a popular source of energy among the lodges. As mentioned previously, *Lodge 6* plans to utilise solar power in 2015, reducing the diesel generator usage (Figure 5.2.). In the future, *Lodge 1, 3, 4, 6 and 7* "would like to migrate to more use of Solar Energy" because it is initially "very expensive to get solar" (*Interviewee 4, LM&FM, 08/03/2015)*, savings can be achieved over time and it will reduce their reliance on the power grid (*Lodge 1 and 6 and Interviewee 4, LM&FM, 08/03/2015*), supporting the opinion of Becken (2013). Solar geysers and heat pumps have replaced electrical geysers in most of the guest and staff accommodation, with heat pumps being utilised in four of the lodges (Table 5.5). Only *Lodge 2* uses non-renewable energy to heat water (LP gas geysers).

As mentioned previously, three of the lodges use gas to cook in the kitchen and heat geysers and although gas is expensive, it is 20% more efficient than coal. Lighting is an area of energy use that can have significant energy saving potential (Bohdanowicz, 2006). Table 5.5 shows that five lodges utilize LED (light emitting diode) lights in an effort to reduce the environmental footprint by using up to 75% less energy. Furthermore, LED lights are extremely reliable and last 25 times longer than incandescent bulbs (U.S. Department of Energy, 2012), reducing the lodges' reliance on the waste and recycling chain.

Table 5. 5. Energy saving measures (Author, 2014)

Measure	Lodges who reported measure
Solar Power	*Lodge 1, 2, 3, 5, 6 and 7*
LED	*Lodge 1, 4, 5 and 6*
Heat Pumps	*Lodge 1, 3, 4 and 5*
Electrical Switch Off Schedule	*Lodge 1, 3, 6 and 7*
Energy Saving Appliances	*Lodge 5 and 6*
Biofuel (e.g. gas)	*Lodge 2 and 3*
Load Balancing	*Lodge 1*

Other common energy saving measures that were reported include electrical switch off schedules when guest and staff rooms are empty (n=4), energy saving appliances such as inverter air conditioners (n=2), biofuel (n=2) and load balancing[17] (n=1) (Table 5.5.). Given the view that a large portion of the energy used in the hotel sector is wasted (Bohdanowicz *et al*., 2001; Bohdanowicz & Martinac, 2007), both a switch off schedule and load balancing can significantly reduce wasted energy. *Lodge 7* actively employs best practices and turns off all appliances such as computers at the end of each day to reduce wasted energy. In addition, *Lodge 2* has plans to install a biogester to generate biogas in 2015/2016. *Lodge 7* drains the water used wash vehicles into a pit and oil present in the water rises to the surface. The oil is scraped off and used as biofuel by

[17] Excess energy/electrical power is stored during low demand periods for realise as demand rises

local farmers. Furthermore, this means that no oil or toxic chemicals contaminate the soil and infiltrate into the water systems.

Table 5. 6. Energy saving measures (Author, 2014)

Measure	Lodges who reported measure
Solar Power	*Lodge 1, 2, 3, 5, 6 and 7*
LED	*Lodge 1, 4, 5 and 6*
Heat Pumps	*Lodge 1, 3, 4 and 5*
Electrical Switch Off Schedule	*Lodge 1, 3, 6 and 7*
Energy Saving Appliances	*Lodge 5 and 6*
Biofuel (e.g. gas)	*Lodge 2 and 3*
Load Balancing	*Lodge 1*

Although outside the scope of this study it is also important to note that three lodges source local produce where possible. *Lodge 1* works with other lodges to ensure suppliers deliver to multiple destinations in the reserve to reduce their total fuel use and "minimizing carbon footprint in our deliveries value chain".

It is common for lodges in remote area to have self-sufficient power generation in the form of generators, however this does increase the energy use in these establishments (Gössling, 2002). All the lodges have generators, in addition to vehicles and paraffin (kerosene) lamps (n=3); adding to the liquid fuel consumption.

The recent increase in electricity price[18] in South Africa may form part of the lodge's justification to move towards energy-efficiency. Figure 5.4 shows the *Lodge 1's* annual electricity consumption and cost from 2011 – 2014 respectively. Although annual electricity consumption has stayed relatively similar between 2011 and 2014, the costs have progressively increased. *Interviewee 4 (LM&FM, 08/03/2015)* argues that due to the electricity price volatility coupled with South Africa's' increasingly unreliable

[18] There has been a 78% increase in real electricity prices from 2008-2011 in South Africa (Deloitte, 2012).

electricity provision, it makes good business sense to increase energy efficiency and move towards renewable energy, agreeing with Becken (2013), thus supporting the sustainability of the lodge.

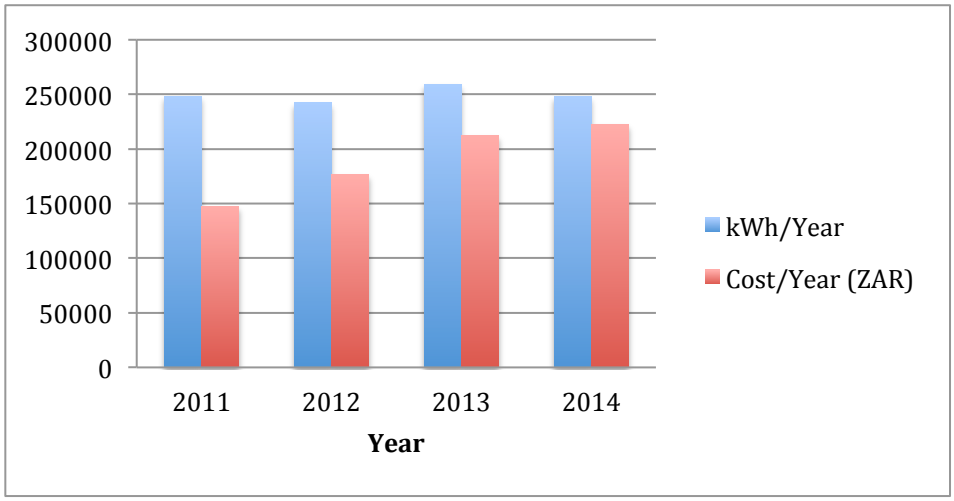

Figure 5. 4. A comparison of kWh per year and cost per year of electricity in *Lodge 1* (Author, 2014)

The energy use of different tourist activities can vary considerably and is difficult to quantify (Gössling, 2002). The most energy intensive activity at these lodges is twice daily game drives in diesel vehicles. *Lodge 1* reduces fuel consumption by focusing on efficient vehicle fuel management, which includes regular vehicles maintenances, improved driving technique and fuel-efficient tyres. *Lodge 7* also regularly maintain and service their vehicles, which can improve fuel efficiency and consumption. It is difficult, if not impossible to quantify the energy use of the other activities offer including guided walks, dining out in the bush and romantic sleep outs. Some of the other lodges do offer activities outside the PNR, for example helicopter rides but these are not integrated in direct running of lodge operations.

5.4. Water Consumption and Conservation

Water consumption of accommodation business incorporates the water directly consumed in the running of accommodation buildings, including lodge operations and guest rooms. Indirect water consumption from food, fuel and infrastructure is not

included in this research. The monthly consumption of water, in the most commonly used unit (litres), was provided by four lodges.

5.4.1 Water Consumption

Over the next three decades, the lowveld will see a decrease in rainfall, especially during the dry winter months, and the length of dry spells will also increase in the future, particular from May to September, also the dry season (CSAG, 2000). The sustainability these lodges is dependent on the adequate supply of water, therefore water management is crucial in order to conserve water and mitigate environmental issues associated with water consumption and scarcity.

Like energy use, water consumption varies with type, standard and size of the accommodation, services and amenities offered, climate, irrigation, and existing water conservation practices (Bohdanowicz, 2006). At all the lodges water cost is not an issue because, due to its remote location, water is supplied from a borehole (n=6) or river (n=1). Therefore there is no financial incentive to conserve water.

As luxury accommodation, the lodges have a number of water intensive amenities. In the lodges water is used for:

- Personal hygiene: All rooms have luxury on-suite bathrooms with indoor and outdoor showers
- Kitchen and Restaurant: Water is used in the preparation of food for guests and staff
- Swimming pool: 15000l to over 200000l pool, only *Lodge 5* has pool covers
    - *Lodge 4, 5 and 7* have private pools in some/all the guest rooms (Table 5.3).
- Laundry: On-site laundry (n=6)
- Gardens and Irrigation: Six lodges have indigenous gardens and only three uses irrigation such as sprinklers.
- Spa/wellness centre: Four lodges have a spa/wellness centre
- Gym facilities: Two lodges have gym facilities

Water consumption ranges from 476 l/room/day to 2701 l/room/day (Figure 5.5). Since no major expenses are incurred as a result of water utilization, *Lodge 2, 3* and *4* did not have data regarding water consumption. According to Gössling (2012) water consumption rates can range from 300 – 3423l per room per day, with South Africa's average water use being 600l per room per day. Given the view that luxury accommodation consumes large quantities are water (Gössling *et al*., 2012), it is expected that these lodges will have a higher than average water consumption rate. However this is not the case for *Lodge 1,5 and 7*. This can be attributed to the absence of a spa (*Lodge 1 and 7)* and private pools (*Lodge 1*) and the incorporation of water conservation policies and activities such as pool covers (*Lodge 1, 5 and 7*). Consequently, water consumption in *Lodge 1, 5 and 7* is lower than other 4- and 5-star hotels with water consumption rates of 1802 litres per room per day (Alexander, 2002) and 1410 -2190 litres per room per day (Lamei *et al*,. 2009; Lamei, von Münch, Imam & van der Zaag, 2009). It is important to note that *Lodge 6* has 120 staff that live on-site, 2-6 times more than the other lodges. This will contribute significantly to its' extremely high water consumption as Lamei *et al* (2009) and Lamei, von Münch, Imam & van der Zaag (2009) estimate that as much as 250l of water is used in staff housing per person per day. *Lodge 7*'s waste consumption is significantly lower than the other lodges; it is even lower than South African average of 600l per room per day. *Interviewee 11* (*SLM; 18/03/2015*) attributes this to the water treatment facility. Recycled water is used for water intense activities such as irrigation and fresh water use is limited to guest and staff hygiene.

5.4.2. Water Conservation

There are multiple techniques to conserve water and the lodges embrace a variety of methods. The most prevalent methods include encouraging guests to reuse towels (n=6) and planting only indigenous plants in the gardens (n=6) (Table 5.6.). Recycling grey water (n=4), refraining from irrigation (n=3) and utilizing modern and efficient technology such as low flow showerheads and toilets (n=3) is also common (Table 5.6.). In addition a few of the lodges harvest rainwater (n=2) as well as check for leaking taps (n=2) (Table 5.6.). Measures employed less frequently can be seen in Table 5.6. *Lodge*

3 and 7 have a water treatment facility on-site, recycling grey water into clean, drinkable water utilised for irrigation and cleaning vehicles. This assists in water management, as the lodge no longer has to pump fresh water from the borehole.

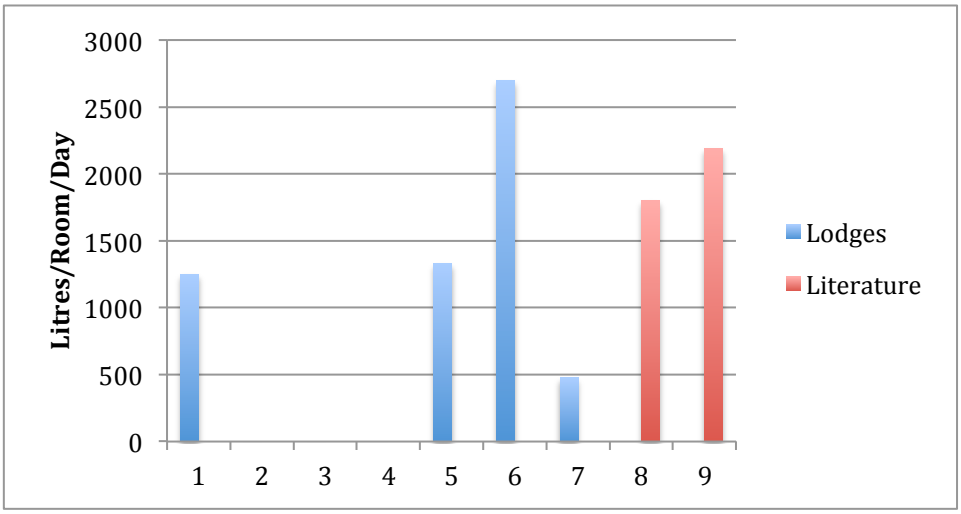

Figure 5. 5. Water consumption (litres) per room per day (Author, 2014)

Table 5. 7. Water saving measures (Author, 2014)

Measure	Lodges who reported measure
Encourage guests to reuse towels	*Lodge 1, 2, 3, 4, 6 and 7*
Indigenous gardens	*Lodge 1,2 4, 5, 6 and 7*
No Irrigation	*Lodge 2, 3 and 6*
Recycle Grey water	*Lodge 1, 2, 3 and 7*
Low flow shower heads and toilets	*Lodge 1,2 and 5*
Harvest Rain water	*Lodge 3 and 6*
Checking leaking taps	*Lodge 3 and 6*
Water Treatment Facility	*Lodge 3 and 7*
Encourage guests to shower not bath	*Lodge 1*
No Laundry on site	*Lodge 2*
Pool Covers	*Lodge 5*

**Lodge 3* doesn't have gardens

According to Gössling *et al* (2012) pools, water features and landscaped gardens are responsible for considerable water consumption. Large, uncovered pools in 6 of the lodge's leads to increased evaporation especially during the hot summer months. It is estimated that pools can account for 15% of the water demand in hotels (Gössling *et al*., 2012). Although most of the lodges have landscaped indigenous gardens, the use of indigenous plants can conserve 30-50% of water (Gössling *et al*., 2012) as indigenous plants require less irrigation. Consequently three lodges do not irrigate their gardens. As most water consumption occurs in hotel guest rooms (Bohdanowicz, 2006), three lodges have installed water efficient equipment (low flow shower heads and toilets) as part of steps to modernise their infrastructure, which can decrease water consumption by 30% (Gössling *et al*., 2012) to reduce pressure on the borehole water supply. Regular maintenance is also part of water conservation is a documented method of reducing water wastage.

Guest behaviour is also a crucial part of water conservation as many guests employ the 'pleasure approach', using more water than would use at home (Eurostat, 2009). Many of the lodges encourage guests conserve water by reusing towels (n=6), to shower not bath (n=1) and to reconsider getting laundry done (n=1). The towel reuse initiative is one of the most prevalent water conservation methods and is a common practice in most European countries (Bohdanowicz, 2006). Over 80% of the lodges guests are foreign; therefore this practice is easily incorporated into lodge operations. The initiative not only saves water but also reduced electricity and detergent consumption and prolongs the life of materials (Bohdanowicz, 2006).

Water consumption is not the only problem associated with water usage. Wastewater discharge can be contaminate groundwater and cause numerous negative impacts on human health and the natural environment (UNEP, 2003). As a result four lodges recycles grey water from showers, baths and basins. In *Lodge 1* the water is fed back into the soils through small bed rocks were it slowly filters into the water table or provides underground water for the riverine habitat. The lodges also manage their sewage (n=3). *Lodge 1* uses septic tanks and soak aways and *Lodge 3 and 7* have water treatment facilities. A water treatment facility was investigated for *Lodge 1* but the

consultants advised that the current system is possibly better suited to the size and layout of the camp and staff quarters. Furthermore, *Lodge 7* restricts sewage contamination on daily game drives. Rangers have a 'pit stop bag', which consists of a brown paper bag containing hand sanitizer and toilet paper.

> "On the first stop that you take your guests out on, I will show you this bag its got, a brown paper bag, please don't leave anything toilet paper out there, because guests will take their own toilet paper. So they pop it into the brown paper bag and you get rid of it at the lodge." (*Interviewee 13, Ranger, 11/03/2015*)

5.5. Waste Production

Hotels are large consumers of goods (Bohdanowicz, 2006) with tourists expecting a variety of food, drinks and other consumables (Coggins, 1994). All the lodges offer full board accommodation and a variety of local alcoholic beverages. In addition the lodges also offer imported wine, champagne, beers and spirits and afternoon tea.

The operations of tourism accommodation like lodges generate significant volumes of solid waste (UNEP, 2003), especially plastic, paper and wet waste. Waste production encompasses all the waste produced in the operation of the safari lodge. The majority of the waste produced at safari lodges originates from the both lodge operations and guests. The bulk of the waste is composed of plastic, paper, wet waste[19], glass, cans/tins, cardboard and compost.

5.5.1. Waste Management

The lodges use different systems to manage their waste. Most of the waste management systems in place focus on recycling and reusing waste material, thus mitigating the negative effects of waste disposal. Shamshiry *et al* (2011) and Ion and Gheorghe (2014)

[19] Wet waste refers to organic waste

consider recycling as one of the best ways to reduce environment damage and achieve sustainable waste management and it is common among all the lodges. The majority of the lodges do some degree of recycling on-site. The waste is separated on site before being collected by an outsourced recycling company that further refines the recyclables. *Lodge 1's* contracted recycling company estimates that 92% of the waste collected is reused or recycled. *Lodge 7* is also has stringent rules for waste disposal during daily game drives, a responsibility of the rangers:

> "If you have litter on the vehicle give it to me and I will get rid of it at the lodge." (*Interviewee 13, Ranger, 11/03/2015*)

Interviewee 13 (*Ranger, 11/03/2015)* continues further to say:

> "We making sure that nothing [sic], what we take out there comes back."

Recycling is not the only form of waste management. All meals are provided in the lodges; therefore they become a centre of large-scale generation of food waste and packaging (Coggins, 1994). *Lodge 1 and 7* freeze the wet waste produced from the preparation of guest and staff food for collection and it is delivered to a local pig farmer for reuse in feeding their pigs. *Lodge 2* and *Lodge 3* utilize a digester to convert organic waste into biogas. This will mitigate the negative impacts of wet waste disposal such as methane production and decrease the quantity disposed; half the lodges reuse the organic waste products (Figure 5.6.). Reuse of waste products is preferable to recycling, as the product does not need to be reprocessed (UNEP, 2003).

Nevertheless, most of the lodges have not targeted the top of the waste hierarchy, waste prevention. Although this is not unusual, both *Lodge 2 and 6* prevent waste production (Figure 5.6.), by eliminating plastic water bottles (*Lodge 6*) and individually packaged products such as butter and sugar (*Lodge 2*), reducing chemical waste by using non-toxic and biodegradable cleaning products (*Lodge 2*) and replacing individual soaps and lotions with dispensers (*Lodge 2)*. In this respect, although the majority of the lodges are actively engaged in recycling and reusing waste, they need to continue to aim to prevent waste production perceived as the only economically viable, long-term solution

to avoid the effects of solid waste on the environment (Gregson *et al.*, 2013; UNEP, 2013; Ion & Gheorghe, 2014)

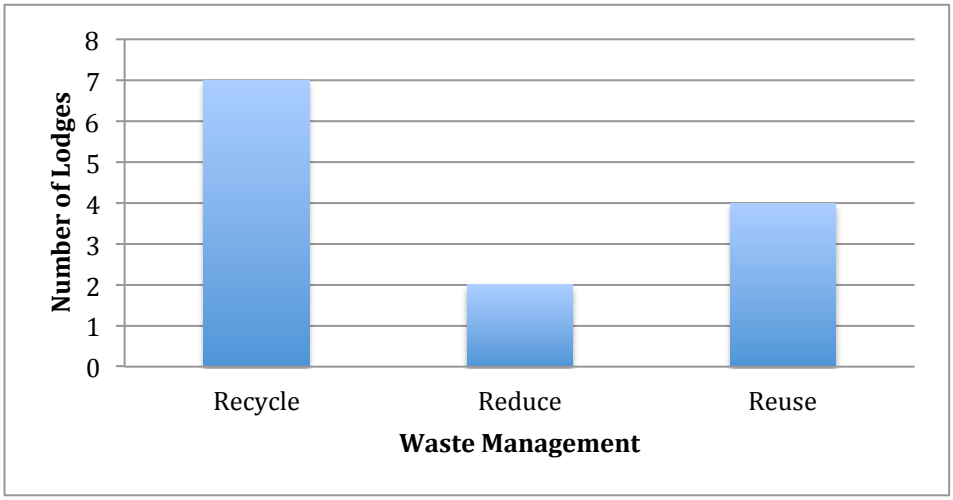

Figure 5. 6. Waste management breakdown (Author, 2014)

Solid waste is not the only waste product produced by tourism enterprises. Grey water from bathrooms, laundries and kitchens, often containing toxic cleaning products, can be an environmental hazard, contaminating the soil and underground water systems (UNEP, 2003; Nahman *et al.,* 2012; Ion & Gheorghe, 2014). As mentioned in section 5.4.2, four lodges recycle grey water from showers, baths and basins.

The responsibility for waste management returns to those who produce it (Ion & Gheorghe, 2014), the accommodation sector and also the consumers need to be accountable for waste production. With South Africa's tourism industry growing, there will be increased strain on both local waste management and the environment (Coggins, 1994; Shamshiry *et al.*, 2011; Mihai, 2013). In the future all the lodges must continue to play a central role in waste management and guests should be encouraged to become actively involved in the reduction and prevention of waste.

Chapter Six: Conclusion

6.1. Introduction

The main aim of this study was to explore the awareness of sustainable tourism in luxury safari lodges and assess the environmental initiatives and activities they currently employing. Due to the small sample size, the conclusions as a whole do not reflect the entire luxury safari lodge industry, just the lodges participating in this study.

The current rate of tourism is unsustainable (Peeters & Dubois, 2010). Not only will the tourism industry be affected by global environmental change, but also, as an energy- and resource-intensive industry, it is responsible for a number of environmental impacts. Bohdanowicz and Martinac (2007) believe that it is crucial that this tourism business engaged in environmentally sound practices.

It is argued that tourism ventures on PNR can be drivers of sustainable development (De Alessi, 2005; Krug, 2001; Langholz & Lassoie, 2001), therefore it was important to determine whether the lodges are actively committed to sustainable practices. Although there is huge potential to minimise the impact lodges have on the environment, there has been very little documented evidence in the literature suggesting lodges participate in best practices. Further complications arise due to ambiguity surrounding the definition of the concept of sustainable tourism. Subsequently, it unclear what the objects of sustainable tourism, therefore it is difficult to determine what should be sustained and what actions are required.

Moreover, very few tourism businesses participate in voluntary sustainable tourism initiatives such as FTT (Bohdanowicz *et al.*, 2005; Van de Merwe & Wocke, 2007). It has been suggested that this originates from a lack of awareness and knowledge of environmental and sustainability issues (Becken *et al.*, 2001) within the industry and among consumers. Nevertheless, Bohanowicz *et al* (2005) indicates that an increase in awareness among consumers will act as a behavioural change.

6.2. Main Findings

Regarding Objective 1 and 2, a number of water- and energy-intensive facilities and amenities were identified as well as resource management and conservation best practices. While the lodges offered similar facilities and amenities, the research indicated differences in the degree of environmental activities.

Regarding Objective 3, the following was determined:

- Sustainable tourism encompasses environmental, social and economic sustainability, however there is a clear focus on the environment
- Safari lodges rely on the environment to attract guests therefore it is vitally important to conserve and protect environment to ensure the longevity of the business
- The majority of the lodges believe they are sustainable, supported by the fact that they are involved in varying levels of resource management, socio-economic projects and conservation activities

6.3. Luxury Safari Lodges and Sustainable Tourism

Based on the findings in this research, there is a high level of interest and consciousness of sustainable tourism among the lodges. Justifiably, the environment, as the main tourist attraction, is a focal point of interest. Nonetheless, there is a general consensus that all three facets of sustainable tourism have to work together to safeguard the longevity of the lodge.

Several of lodges and interviewees reflected that promoting the development of the community is a vital component of sustainable tourism. From the lodges perspective this primarily entails economic growth through skills and education development and social upliftment through health care. It is clear from the interviewees, especially those from the local community that the lodges work hard to ensure the community benefit

from the operation of the lodge. Furthermore several participants in the research indicated that lodges could not operate successfully without the support and backing of the community. Education and skills development is a key part of social responsibility within the lodges. Providing people with the opportunity to learn a skill or the advancement of their education allows the possibility of more job prospects for the community. Health and health education is a common area of support from the lodges. HIV/AIDS education and counselling provides people with the support, knowledge and tools to deal with virus and hopefully combat the spread of it in the area. Furthermore, *Interviewee 11 (SLM; 08/03/2015)* alluded that regular clinic visits results in healthier employees. This is particularly important in such a labour-intensive business. The lodges also support economic growth within the neighbouring communities, by supporting local businesses in particular the community garden from which lodges often buy fresh produce.

Although the majority of the lodges consider themselves sustainable, achieving sustainable tourism is a continuous process. Many of the interviewees alluded to the fact that lodges can always improve and further their sustainable tourism agenda. This is consistent with the opinion of *Lodge 6* and UNEP and WTO (2005), that achieving sustainable tourism is an on-going process, and is an accurate representation of sustainability in these lodges. Many of the lodges are audited annually, therefore have to constantly upgrade and improve their facilities to ensure that they retain they accreditation and receive high scores.

The research indicated two major directions are required when pursuing environmental activities into the luxury safari lodge industry. Firstly, education and awareness of staff and guests is central to supporting and achieving sustainability in luxury safari lodges. Secondly, lodges affiliated with voluntary initiatives such as FTT and Greenleaf are audited regularly to ensure a specific standard has been achieved, thus maintaining sustainable best practices in the lodges.

6.3.1. Awareness

The participant lodges are acutely aware of sustainable tourism, but equally critical is guest, staff and community awareness. Many of the participants believe that staff and community environmental awareness is central to achieving sustainable tourism. Moreover, staff can educate guests on sustainable practices. Many guests do not realise that they are acting irresponsibly (*Lodge 1*). It was found that leading by example, guests were more likely to understand and wish to engage in responsible tourism practices (*Lodge 1 and 7*). This can act as a catalyst for a behaviour change and "starts them conserving in their own life" (*Interviewee 11; SLM; 08/03/2015*). Conversely *Interviewee 11 (SLM; 08/03/2015)* believes that the proper training and policies are more essential, as staff actions are dictated by the training and policies, agreeing with Bohdanowicz (2005). However, there needs to be increased awareness and education among communities' members regarding conservation especially concerning rhino conservation. *Interviewee 13 (Ranger, 11/03/2015)* asserts, "The community needs to buy in to the idea that this land and what we are doing is a positive thing that benefits them."

6.3.2. Policies and Accreditation

Although Bohdanowicz *et al* (2005) and Van de Merwe and Wocke (2007) observed a lack of participating in voluntary initiatives, this is not the case for the lodges in this research. More than half the lodges in this research have policies in place and/or are accredited by voluntary initiatives, most commonly FTT and Greenleaf. Langholz and Krug (2004) state that ecotourism would benefit from outside monitoring and evaluation of its impacts, often achieved via environment accreditation and/or audits. It is evident that policies and accreditation are essential to initiate awareness and action. For example, *Lodges 4 and 5* do not have policies and are not part of a voluntary initiative. Subsequently, they do very little for environmental and social sustainability in comparison to the other lodges in this study, providing an explanation for the variable levels are environmental activities between the lodges. Policies are used to dictate the overall intentions and directions of a business (SABS, 2011) therefore lodges

have to follow certain requirement and criteria. Most initiatives require yearly audits of participant lodges to evaluate and document their performance and to ensure a specific standard is upheld, thus maintaining sustainable best practices in the lodges.

6.4. The Environment – Nature Conservation and Environmental Activities

This research supports the view that the participant lodges are concerned with environmental sustainability. The luxury safari lodges participating in the study recognise that their facilities influence the natural environment, both negatively and positively. In order to minimise and mitigate the negatives and enhance the positives, they are actively involved in environmental best practices. This is recognised as both a necessity to ensure that their businesses continue to operate into the future and forms part the basic business principles, clearly emphasised by *Lodge 7*.

In the PNR the lodges protect a diversity of species and are involved in a diverse array of projects including the Ground Hornbill Project, Elephants SA, Rhinos without Borders and GreenPop. Currently, rhino poaching is the focal point of most conservation efforts and significant financial support to protect this species. On a smaller scale, they are also rehabilitating and maintaining environmentally sensitive areas and have focussed game viewing to reduce damage to the local ecosystems.

6.4.1. Environmental Activities

The findings of this research provide a number of insights that may have significant relevance for the development of sustainable practices in the safari lodge industry at all. The results of this research confirm that luxury safari lodges are the management of energy, water and waste.

The study indicates that energy management and conservation comprises a large proportion of environmental activities. This is particularly important for safari lodges

in both a global and national context. Climate change is "unequivocal" (Solomon *et al*., 2007 p. 5) and with it comes far-reaching and major impacts that could severely impact the safari lodge industry (Steyn & Spencer, 2012). As a result, despite the initial high cost of renewable energy like solar power, nearly all the lodges use some form of renewable energy and plan to migrate to using solar power in the future. Not only will this reduce GHG emissions (either directly from fuel use or indirectly from electricity) but will decrease operational costs. Energy costs account for the second largest expense after salaries in several lodges. This is significant because the cost of sustainability is one of the key challenges lodges face. Therefore, the ensuing decrease operational costs can act as a motivating factor to install renewable energy. In addition, self-reliance is advantageous in South Africa where energy provision is becoming increasingly unpredictable. Over and above renewable energy, most of the lodges have implemented additional energy saving measures. The installation of LED lights is common among the lodges, together with reducing wasted energy, a problem noted by Bohdanowizc *et al* (2001) and Bohdanowizc and Martinac (2007).

Crucially, most of the luxury safari lodges engage with water conservation strategies and have replaced dated fixtures with modern water-efficient ones in order to cope with future variations in rainfall in the area (CSAG, 2000). This is particularly important since such businesses consume large quantities of water to run their facilities and provide excellent and comfortable accommodation to their guests. Apart from future water supply problems, the wildlife and natural environment depend on water for survival. These makes water conservation at these lodges especially significant. Several lodges recycle grey water, in order to reduce to pressure on the borehole. Additionally, two lodges have, at a considerable cost, constructed a water treatment facility to recycle grey water and handle sewage.

Waste management is crucial to achieving sustainable development. However, this is the area where many of the lodges are found lacking. Recycling waste material is common among all the lodges, however several of the lodges are still at the bottom of the waste hierarchy. It is essential that they strive to move up the waste hierarchy from recycling to reusing and finally waste reduction. Gregson *et al* (2013), UNEP (2013) and Ion and Gheorghe (2014) maintain that waste reduction and prevention is the only

economically viable, long-term solution to avoid the efforts of solid waste on the environment. Currently only two lodges reduce and prevent waste production.

6.5. Moving Toward the Future

The lodges admit there are number of challenges to achieving sustainable tourism namely,

1. Profit vs. Ecology
2. Maintaining a balance between conservation, community and economics
3. Financial Constraints
4. Politics and land claims
5. Awareness among guests, staff and the community

Firstly, the lodges are in agreement with Langholz and Krug (2004) that there is a potential conflict of interest between making a profit and protecting the environment. It is difficult to attract enough guests to ensure growth and financial longevity and not too many guests leading to environmental degradation. Consequently, profitability is both a motivation and a challenge. Secondly, it is extremely challenging to maintain a balance between conservation, community and economics. This highlighted by the clear emphasis on environmental sustainability by most lodges and profitability by others. Sustainable tourism is multi-faceted and cannot be sustainable without including all aspects of sustainable tourism.

However, what the lodges can do is limited and most lodges are especially limited financially. This leads to the third challenge; the cost of upgrading and 'greening' infrastructure, an issue also noted by Bohdanowicz (2006). Adding to the cost of sustainable infrastructure and fittings, most voluntary initiatives require annual fees.

Lodges also face other challenges such as the affect of politics on the popularity of the lodges and the Ebola virus, which has severely affected safari lodges in Africa. Lastly, it is a challenge to create staff and guest awareness, especially since many guest do not realise that they are acting irresponsibly.

Therefore motivation for achieving sustainable tourism within luxury safari lodges can be seen as driven by four factors. Firstly, the recognition that sustainable tourism is key to the long-term viability of the lodges. Secondly, the need to preserve the natural environment and thirdly, the opportunity to reduce operating costs and thus increase profitability. Finally, growing awareness thus growing demand among consumers for environmentally friendly safari lodges.

Ultimately, safari lodges need to rely on providing an exceptional eco-tourism experience to their guests (*Lodge 6*). They are aware that it is strategic for lodges to be sustainable by nature, because, as *Lodge 2* concisely pronounces, without sustainable tourism most safari lodges "will not exist in the future". Achieving sustainable tourism is a continuous process and is constantly changing and expanding. In the future, these lodges need to be proactive and must constantly improve. In the words of *Lodge 1*, try "finding the best solution where there is never a 100% perfect solution".

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Appendix A

A.1. Questionnaire

Section 1: Background

1. Company Name:
2. Respondents Name (optional):
3. Respondents Position:
4. Location:
5. Closest town:
    - Distance to closest town (km):
6. Size of Property (farm) (km^2):
7. Size of operation (lodge and additional buildings) (m^2):
8. Duration of operation (years):
9. Total number of employees:
10. Number of employees living on site (including additional family members):
11. Wage Bill (ZAR):
12. Average annual salary per full time employee (ZAR):
13. Gross revenue (ZAR):
14. Operating costs (ZAR):
15. Type of legal entity: ☐Public company ☐Private company ☐Closed corporation ☐ Partnership ☐Other (explain)
16. How many stars is the lodge rated?

Section 2: Luxury Safari Lodge

1. Average price charged per person per night (ZAR):
2. Average length of stay (nights):
3. Number of rooms and beds:
4. Bed nights per year:
5. What is the lodge's occupancy (%)?:
6. When is the busiest time of the year?
7. Are the majority of the guests foreign or local? What is the percentage?
8. What activities do you offer: ☐Game drives ☐Guided walks ☐Other (explain)
9. Do you have negotiated traversing rights with other properties?
    - If so, how many properties can you traverse?
10. Will the lodge expand in the future? If so by how much?
11. What amenities do you offer? ☐Pool ☐Private pools ☐Spa ☐Restaurant(s) ☐Gym ☐Other (explain)
12. Do you have landscaped gardens?

Section 3: Sustainable Tourism

1. What do you believe looking after the environment entails?
2. What is your understanding of sustainability?
3. How would you describe sustainable tourism?
4. Do you think that this lodge is sustainable? If so what practices does this lodge implement that makes it sustainable?
5. Have you been certified sustainable by any programmes?
    - ☐ Heritage Environmental Ratings Programme (level):
    - ☐ Fair Trade in Tourism in SA
    - ☐ Other:
6. Why do you think sustainable tourism is important?
7. What do you think the most important part of sustainable tourism is? Why?
8. Do you have a responsible/sustainable tourism policy?
9. Do you have any environmental management systems in place? Explain.
    - ☐ Sewage
    - ☐ Water
    - ☐ Energy use
    - ☐ Waste
10. How do you encourage your guests to be responsible visitors?
11. What are the challenges of sustainable tourism?
12. What is the motivation to become a sustainable lodge?

Section 4: Consumption and Production

Energy:

1. What sources of energy does the lodge use?
2. What type of energy would you like to use? Why?
3. Do you have a generator?
4. How much liquid fuel (diesel, petrol, paraffin) do you use per month (litres) ?
5. What is liquid fuel used for?
6. What type of vehicles do you have?
7. How much is spent on fuel per year (ZAR)?
8. Does your electricity come from the national grid?
9. If yes to above, how much electricity do you use per year?
10. What is you electricity bill per year (ZAR)?
11. Do you have appliances? How many?
    - ☐ Air conditioners
    - ☐ Dishwashers
    - ☐ Washing machines
    - ☐ Geysers
    - ☐ Other
12. How do you save electricity?
13. Do you have an alternative electricity supply? If so, what is it?
14. Do you use renewable energy? If so, what is it?
15. Do you record your energy use? If so, can you attach a sample of the record?

Water:

16. Where does the lodges' water come from?
17. How much water is used per month?
18. How does the lodge save water?

19. Is grey water recycled? If so, what does it get used for?
20. Are guests encouraged to reuse towels?
21. Does the lodge have an onsite laundry?
22. Are the gardens irrigated? What type of irrigation?
23. Does the garden have indigenous plants?
24. How large is the pool?
25. Are there pool night covers?
26. Are there any other water features?
27. How much is spent on water per year (ZAR)?

Waste:

28. How does the lodge manage its waste?
29. How much waste is disposed every month (per black bag)?
30. What does the bulk of the waste consist of?
31. Where is your waste disposed?
32. Where does the bulk of the waste originate? Guests? Lodge operations?

A.2. Interview Key Questions

1. When was the lodge established, by whom and for what purpose?
2. Did the business approach of the lodge change over time? Why.

3. What do you think sustainable tourism entails?
4. There are challenges to becoming a sustainable lodge – what are they and how do you deal with these challenges?
5. What is required to achieve ST? Why?
6. Do you think that this lodge and other lodges in the area can do more to become more sustainable? Explain

A.3. Summary Reasons for Leaving FTT

In discussion with [redacted] *COO 30/07/2014*

- Did not see the benefits compensating for the effort made for administration and fees.
- Onerous administration - forms to submit.
- Fees (but not a key reason), but better spent elsewhere.
- [redacted] has a VERY strong and well established brand in its markets and so does not really need to additional marketing push that comes from FTT, or even Relais & Chateaux.
- 80% American guests who do not necessarily put much emphasis on the FTT brand.
- Established, not a new business, which needs the marketing support.
- We market our environmental and community efforts very strongly and it was felt the FTT may just obfuscate this, confuse it. We feel One Planet is a better fit for our business which is heavily conservation focussed. The feeling is that FTT has to do mostly with fair labour practices, which is not an issue with our

business. So FTT represents just a small part of the business - OP is a more holistic programme, as we understand it.