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The importance of an eco-efficient tourism industry surrounding the Vaal River: a tourist's perspective

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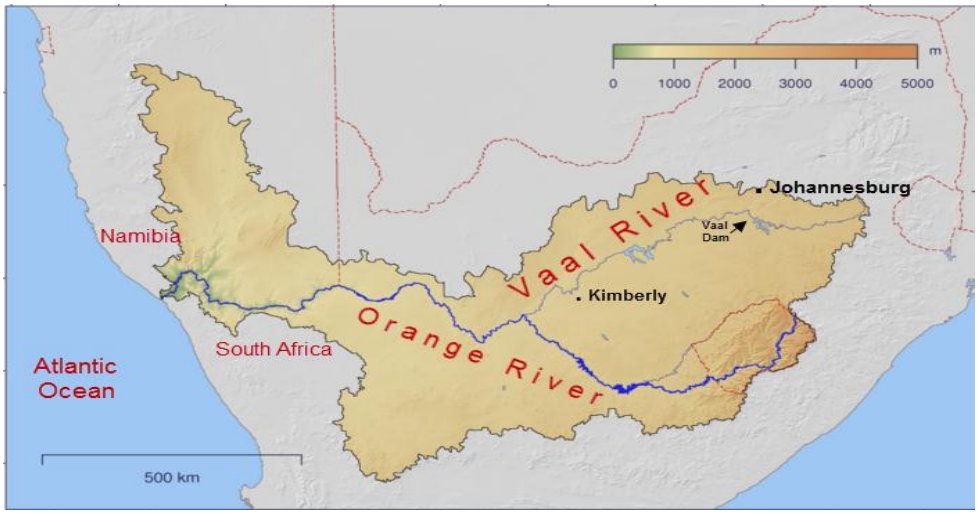
Abstract

Aquatic environments such as wetlands, rivers and lakes are major attractions for tourism development. However, with the growth of tourism, more pressure is being placed on these environments in terms of consumption, pollution and climate change. The Vaal River is South Africa's second longest river that stretches over 1120 kilometres. It is not only one of the country's main water sources, but also lends itself to recreational activities and tourism development. It is therefore important that an interest is taken in the long-term well being of the river and surrounding natural environment. If tourism in aquatic environments is not managed in an environmentally responsible manner – it can negatively impact the very resource on which it is dependent. Implementing eco-efficient practices are therefore becoming increasingly important for the tourism industry. Knowledge of tourists' perceptions regarding eco-efficient practices will provide tourism managers with insight as to how environmental awareness can be created and tourists' environmentally responsible behaviour be promoted. This study followed a quantitative research approach in which a survey was conducted with 265 respondents. Two factors were identified from the exploratory factor analysis: eco-friendly practices and support for environmentally friendly behaviour.

***Keywords*:** tourism, eco-efficiency, perceptions, Vaal River, sustainability



Source: http://b.static.trunity.net/files/228901_229000/228988/vaal-and-orange-river-watershed.png

INTRODUCTION

The tourism industry relies heavily on the sustained aesthetics of the environment in which it operates (Verbeek & Mommaas, 2008; Powell & Ham, 2008; Keyser, 2009). Aquatic environments such as wetlands, rivers and lakes are in particular a major attraction for tourism development (Newsome, Moore & Dowling, 2013). The Vaal River, for example, the second longest in South Africa, is a key water source for the country, but it also lends itself to recreational activities and tourism development. The Upper Vaal's banks on which the towns of Vereeniging and Vanderbijlpark are situated, is the Vaal River's recreational hub. Riverfront guesthouses, hotels and golf courses line its banks and tourists can enjoy everything from dining to water sports and Vaal River cruises (South African Tourism, 2014). Preserving this aquatic environment, while offering high-quality tourism experiences, are extremely important goals for tourism managers to strive for so as to sustain the tourism industry (Beunen, Regnerus & Jaarsma, 2008; Marion & Reid, 2007; Hearne & Salinas, 2002). Healthy tourism development around aquatic environments have the benefits of stimulating the local economy, increasing local community pride and facilitating other positive effects such as the effective use of resources and minimising the negative impacts on the environment (Mao, Meng & Wang, 2014; George, 2007; Johansson & Diamantis, 2004).

However, with more and more people travelling to these areas every year, tourism can pose irrevocable negative impacts through over-exploitation (Holden, 2009; Verbeek & Mommaas, 2008; Powell & Ham, 2008; Keyser, 2009; Jones, Scott & Gössling, 2006). Since tourism contributes to the environmental degradation of these aquatic environments through the construction of buildings, waste disposal, and energy- and water usage, the tourism industry has come under great pressure to become more eco-efficient (Lee, Jan & Yan, 2013). Eco-efficiency is a notion that advocates a reduction of the amount of energy and natural resources used, as well as waste management and the minimisation of pollutants discharged in the production of goods and services (Kelly, Haider, Williams & Englund, 2007).

It must be noted that it is not solely the responsibility of the tourism providers to ensure eco-efficiency. Tourists are the consumers of tourism products, and they too have a role to play in achieving an eco-efficient tourism industry. Unless tourists take a true interest in the long-term viability of aquatic environments, little can be achieved either by government or by industry efforts (Saayman, 2009; Keyser, 2009). Having knowledge of tourists' perceptions regarding eco-efficient practices and promoting environmentally responsible behaviour is crucial for achieving a sustainable tourism industry. Identifying the perceptions of tourists to aquatic environments regarding eco-efficient practices will provide tourism managers with insight into how to create environmental awareness and promote tourists' environmentally responsible behaviour.

Hence the purpose of this study is to highlight the perceived importance of tourists' eco-efficient practices in the Vaal Region. The article commences with a discussion on water-based (river) tourism, the consequent impacts and key areas in which tourism organisations can contribute to a healthier environment such as energy-, water-, and waste management. Thereafter, the methodology and results of the empirical study will be discussed, which consist of descriptive statistics and a factor analysis of visitors' responses regarding eco-efficient practices. The paper concludes with the management implications pertaining to an eco-efficient tourism industry in the Vaal Region.

LITERATURE REVIEW

Rivers are intricate ecosystems that are

noticeably manipulated by many human activities, including tourism and recreation (Prideaux, Timothy & Cooper, 2009). These water resources (as is the case with the Vaal River) are often positioned as an attraction, which contribute to the aesthetics of a destination and the quality of the tourism experience (Prideaux *et al.,* 2009; Jones *et al.,* 2006; Bogdanovitz & Martinac, 2007). For the surrounding tourism industry in the Vaal Region, the Vaal River is indispensable, not only in terms of recreational activities such as boating, white-water rafting and recreational fishing, but also in terms of water supply to the accommodation sector and other land-based activities such as the irrigation of golf courses (Jones *et al.,* 2006). However, with the growth of tourism, stronger pressure is being placed on the river in terms of consumption, pollution and climate change as a result of greenhouse gas emissions, to name but three of the concerns (Holden, 2008). The tourism industry's contribution to greenhouse gas emissions is categorised into three sub-sectors namely accommodation, tourist activities and transportation (OECD, 2011). The type and severity of impacts depend on a variety of factors, including the number of people and group sizes visiting (more people means greater impact), the type and frequency of activity, equipment used, minimal-impact skills and practices in use, ecosystems and management philosophy (Buckley, 2004). Since tourism development will have inevitable negative impacts on rivers, it is crucial for stakeholders to take responsibility for reducing these impacts. Tourism managers, for example, have a responsibility to educate tourists on how to decrease their impact on the surrounding environment and tourists should in turn behave in an environmentally responsible manner (Lee *et al.,* 2013). The wise use of resources is becoming ever more important in order to remain sufficient for current use, and for that of future generations. In order to contribute to the long-term well being of the river and the surrounding natural environment, it is essential for tourism organisations to adopt eco-efficient practices (Coetzee & Saayman, 2009; DEAT, 2003). Three key areas in which tourism organisations and tourists can contribute to a healthier environment are energy-, waste- and water-management.

The biggest source for generating energy is the burning of fossil fuels, such as coal, oil and natural gas. Consequently this leads to air pollution, especially greenhouse gases that contribute to climate change (DEAT, 2003). Heating and cooling, by conventional electric methods, in the accommodation sector is a major consumer of electricity and therefore a major contributor to generating greenhouse emissions and increases the threat of climate change. According to Randwater, the most severe impact of climate change will be on the world's fresh water resources and a few of the risks associated with this include water security, waterborne diseases, algal blooms and infrastructural damage (Randwater, 2011). Most of Eskom's power stations in Gauteng are supplied by the Vaal River system (Van Wyk, Rademeyer & Van Rooyen, 2010). It is therefore important to use electricity wisely and/or make use of renewable energy sources wherever possible in order to reduce the need for coal-produced electricity (Beeton, 1998).

Waste disposal is a worldwide problem and is particularly relevant to the tourism industry because tourism operations are producers of large quantities of waste, some of which are toxic and can lead to the pollution of rivers (DEAT, 2003; Kandari & Chandra, 2004). Therefore tourism managers should aim at minimising waste generation and its impacts. There are two main types of waste, hard (or solid) waste, which includes paper, tins, glass, plastic and kitchen waste; and waste water which consists either of clean water that is wasted; grey water produced in kitchens and ablutions, and black water which comes from toilets (Saayman, 2009). There are three fundamental principles in

managing waste. These principles are receiving ever-increasing coverage under the mantra of "reduce, reuse and recycle". Tourism managers have an obligation to inform tourists about how they can adhere to the just-mentioned principles.

Water conservation is a major issue in the tourism industry (Buckley, 2009). The tourism industry is dependent on fresh water resources in terms of recreation activities and is a significant consumer of fresh water. For example, tourists need and consume water when washing or flushing the toilet, when participating in activities such as golf tourism (irrigation), and using spas or swimming pools. Water is furthermore used for landscaping, tourism infrastructure development, food preparation and energy production (Gössling, Peeters, Hall, Ceron, Dubois, Lehman & Scott, 2012). Where demand exceeds supply, it will put enormous pressure on available resources and may very well lead to discord with the local community. The level of water consumption in the tourism industry is extremely high; therefore tourism managers and tourists alike should take their responsibility of conserving water seriously (Holden, 2008; DEAT, 2003).

If tourism in aquatic environments is not managed in a sustainable manner – it can destroy the very resource on which it is dependent (Newsome *et al.*, 2013; Arabatzis & Grigoroudis, 2010). It is therefore crucial for the tourism industry and its stakeholders to take responsibility for the world's rivers in order to conserve the natural wealth that it provides (Prideaux *et al.,* 2009).

METHODOLOGY

For this research study a quantitative approach was employed. The survey was conducted in August 2013. The study population consisted of visitors to the selected venues in the Vaal Region and a non-probability convenience sampling method was applied. Fifteen trained fieldworkers collected data. A total of 400 questionnaires were distributed, of which 265 were adequately completed. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was calculated and the score was 0.953, which is sufficient, since the necessary threshold is a score of 0.6 (Field, 2013). The measuring instrument was a structured questionnaire, which consisted of three sections. Section A consisted of demographic-related questions, Section B focused on consumer preferences and Section C comprised a 5-point Likert scale question with 20 indicators. These included eco-efficient practices with regard to energy-, waste- and water management as well as awareness aspects such as environmental education. All indicators were identified in and are based on the literature review. Sources used to a large extent to develop the questionnaire include the works of Buckley (2009); Holden (2008); Kelly *et al.* (2007); DEAT (2003) and Beeton (1998). A Likert scale of 1 (not important at all) to 5 (extremely important) was applied in order to express the significance of each particular statement.

The data was analysed by means of the SPSS (Statistical Package for Social Sciences) software program. Sections A and B of the questionnaire were analysed by means of descriptive statistics and Section C was analysed by means of an exploratory factor analysis. The factor analysis was conducted in order to determine the importance of different perceptions of tourists regarding eco-efficient practices in the Vaal Region. The pattern matrix with the principal axis factoring extraction method and the Oblimin rotation method were employed; two factors were extracted according to Kaiser's criterion explaining 62% of the total variance. A Cronbach's Alpha (1 = very reliable) and inter-item correlation reliability tests were conducted in which both the factors proved to be reliable. In terms of ethical considerations the following were adhered to: firstly permission was obtained from the selected venue managers to conduct the survey and secondly participation in the

survey was voluntary and anonymity was ensured.

RESULTS AND DISCUSSION

In order to put the results in context, Table 1 will address the demographic details of respondents and main reasons for visiting the Vaal Region. Thereafter the factor analysis (Tables 2 & 3) will be discussed.

Table 1: Demographic information

	Business	Desire to escape	Outdoor recreation	Attending a wedding	Family & Friends	Food & Wine	Other	Total
Main reason	33.7%	12.5%	9.6%	1.0%	16.3%	17.3%	9.6%	
Age								
18-29	14.4%	4.8%	2.9%	0.0%	5.8%	10.6%	1.9%	40.4%
30-39	10.6%	3.8%	1.0%	0.0%	6.7%	3.8%	2.9%	28.0%
40-49	7.7%	1.9%	3.8%	1.0%	2.9%	2.9%	4.8%	25.0%
50-59	1.0%	1.0%	1.9%	0.0%	0.0%	0.0%	0.0%	3.8%
60+	0.0%	1.0%	0.0%	0.0%	1.0%	0.0%	0.0%	1.9%
Province								
Gauteng	22.1%	10.6%	6.7%	0.0%	11.5%	10.6%	3.8%	65.4%
Mpumalanga	1.0%	0.0%	0.0%	0.0%	1.0%	1.0%	0.0%	2.9%
North West	2.9%	1.9%	0.0%	0.0%	1.0%	1.9%	0.0%	7.7%
Eastern Cape	1.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	1.9%
Western Cape	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	1.0%
Northern Cape	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	2.9%
KwaZulu-Natal	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%
Limpopo	1.0%	0.0%	1.9%	0.0%	1.0%	1.0%	0.0%	4.8%
Free State	1.9%	0.0%	1.0%	1.0%	0.0%	1.9%	3.8%	9.6%
Outside RSA	1.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%	1.9%

As can be gathered from Table 1, the majority of respondents were between ages 18 and 39 (68.4%), from the Gauteng province (65.4%%) and the main reasons for visiting the Vaal Region were business (33.7%), food and wine (17.3%) and visiting family and friends (16.3%). It is possible that “food and wine” was rated second highest because the fieldwork coincided with the Wine Route which is an annual event that runs for a month over July and August in the Vaal Region.

Factor analysis

Two factors were extracted from the factor analysis as indicated in Tables 2 and 3. Indicators with a factor loading lower than 0.4 were omitted.

Table 2: Eco-friendly practices

Factors	Mean Value	Chronbach Alpha	Factor loading	Key indicators
Factor 1	3.733	0.954		
Eco-friendly practices			0.914	Implement the reduce, reuse and recycle principle
			0.872	Water-efficient equipment
			0.868	Waste management plan
			0.844	Negotiate with suppliers to minimise packaging
			0.831	Collecting of rain water

			0.775	Renewable energy sources
			0.767	Responsible Tourism Declaration
			0.75	Environmentally friendly purchasing
			0.742	Reduce CO_2 emissions
			0.689	Increase environmental awareness
			0.572	Tourists have to respect the natural environment

This factor (eco-friendly practices) has a mean value of 3.733, which shows that tourists perceive these indicators to be important (3) to very important (4). The factor includes the following important indicators: water management, waste management, energy saving, policy (responsible tourism declaration) and tourist behaviour (respect for the environment). Eco-efficiency plays an important role in minimising negative impacts on rivers such as climate change and pollution (Coetzee & Saayman, 2009; DEAT, 2003). All stakeholders, including tourists, should take responsibility for minimising the negative impacts on the environment by familiarising themselves with the code of conduct of the destination/establishment they are visiting. Tourists can furthermore play an important role in conserving resources by supporting businesses that are environmentally conscious, and by using the least possible amount of non-renewable resources (Iyyer, 2009; Saayman, 2009; Keyser, 2009).

Table 3: Support for environmentally responsible behaviour

Factors	Mean Value	Chronbach Alpha	Factor loading	Key indicators
Factor 2	3.925	0.901		
Support for environmentally responsible behaviour			0.836	Educational programmes for communities
			0.83	Training for staff regarding eco-friendly practices
			0.777	Provide tourists with information regarding environmental issues at the destination
			0.731	Purchase locally produced products
			0.615	Stakeholders should behave in an environmentally responsible manner
			0.604	Provide tourists with information regarding eco-friendly practices
			0.562	Tourism providers should make use of eco-friendly consumer products

This factor (support for environmentally responsible behaviour) has a mean value of 3.925 and is consequently the factor with the highest mean value. The factor includes the following important indicators: educational programmes for communities, purchasing policies and awareness. The tourism industry forms an important link between the environment, tourists and communities; it is imperative that this position be amplified to influence local communities and tourists at destinations (Saayman, 2009). In order for tourists to behave in an environmentally responsible way, they must realise the need to care for the environment, have an awareness of the environmental issues pertaining to the destination and have the resources available in order to act responsibly (for

example recycling bins) (Reiser & Simmons, 2005).

Based on the research, the following important implications were revealed. It is irrefutable that visitors to aquatic environments will have an impact on the environment, such as littering, pollution, vegetation trampling and erosion. Left unmanaged, these impacts can lead to unwanted changes in resource conditions, such as the loss of sensitive habitats and aquatic life (Page & Connell, 2009). Degradation of the environment will furthermore lead to the decline in visitor satisfaction that will ultimately affect the economic viability of the tourism industry surrounding these aquatic environments (Verbeek & Mommaas, 2008; Powell & Ham, 2008; Keyser, 2009). From the results of the survey it is clear that tourists perceive the support for environmentally responsible behaviour as a critical factor. This has an implication for managers of tourism organisations in terms of creating an environment that is conducive to environmentally friendly behaviour. Managers should ensure that tourists are properly informed regarding environmental issues of the destination and how they can contribute to minimise negative environmental impacts. According to Marion and Reid (2007), visitor and community education programmes should recognise that impacts are largely a result of ignorance concerning the potentially adverse impacts and a lack of sensitivity to the costs of thoughtless actions, rather than due to spiteful or malicious behaviour. Educational programmes should therefore be designed in such a manner that they will make visitors aware of their own physical and social impacts; promote enhanced ethical behaviour and encourage visitors to support and undertake low-impact practices (Marion & Reid, 2007).

Tourism managers themselves should set an example in terms of support for environmentally friendly behaviour. For example, purchasing from local suppliers will reduce food miles that can contribute to a reduction in CO_2 emissions (Buckley, 2009). Tourism managers can furthermore implement eco-friendly practices (Factor 1) such as making use of energy- and water-efficient equipment in the kitchen and managing waste. Not only is eco-efficiency necessary to ensure a sustainable tourism industry, but it also makes sound business sense for the individual tourism businesses (Frey & George, 2010).

CONCLUSION

This research reveals the importance of an eco-efficient tourism industry surrounding aquatic environments from a tourist perspective. Two factors crucial for an eco-efficient tourism industry were identified, which are: eco-friendly practices and support for environmentally friendly behaviour. The second factor (support for environmentally friendly behaviour) was the factor with the highest mean value. This has implications for tourism managers to create an environment that is conducive to environmentally friendly behaviour. This study made the following contributions: it was the first time that the perceptions of tourists regarding the importance of an eco-efficient tourism industry in the Vaal Region were measured. One of this region's strongest attractions is the Vaal River and it is important to sustain this valuable resource – not only in terms of its value to tourism but also in terms of its value for sustaining life. The research furthermore contributes to the literature regarding eco-efficiency in aquatic environments and the tourism industry, particularly from the tourists' point of view. Lastly, it can assist tourism managers in addressing environmental issues pertaining to aquatic environments, while providing tourists with quality recreational experiences. It is recommended that research be conducted to determine what kind of eco-efficient practices are currently being implemented in the tourism industry surrounding aquatic environments, since it is crucial for sustaining these environments and

minimising negative impacts where natural features such as rivers attract tourism.

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