AN ANALYSIS OF ECOTOURISM AND ITS POTENTIAL IN MAURITIUS

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List of Abbreviations

AVE	Average Variance Extracted
CBD	Convention on Board Diversity
CFI	Comparative-fit-index
COP-15	Copenhagen 2015
CSR	Corporate Social Responsibility
EIA	Environment Impact Assessment
GATS	General Agreement on Trade in Services
GDP	Gross Domestic Product
GFI	Goodness-of-fit-index
GIS	Geographical Information Systems
HDS	Hotel Development Strategy
ICT	Information and Communication Technology
IRS	Integrated Resort Scheme
LDCs	Least Developed Countries
LED	Local Economic Development
MDGs	Millenium Development Goals
MID	Maurice Ile Durable
MSB	Mauritius Standards Bureau
NEP	New Ecological Paradigm
NGOs	Non Governmental Organisations
NNFI	Non-normed-of-fit-index
NTDP	National Tourism Development Plan
PGFI	Parsimony goodness of fit index
PNFI	Parsimony normed fit index
PPG	Planning Policy Guidance
SIDS	Small Island Developing States
TRA	Theory of Reasoned Actions
UNCSD	United Nations Conference on Sustainable Development
UNDP	United Nations Development Programme
UNEP	United Natios Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNWTO	United Nations World Tourism Organisation

Abstract[1]

The contribution of the tourism sector towards the development of host nations is undeniable in that it provides several benefits such as creation of employment, generation of added value and tax revenue, and boosting of inward foreign direct investment. Yet, tourism does also have negative environmental, economic and socio-cultural effects and it is also true that tourism can have a negative impact on the physical environment, economic, and socio-cultural landscape of host nations. This is particularly true for the case of SIDS. Due to their distinct characteristics and vulnerabilities, SIDS are most affected by the change in climatic conditions. And in this regard, Mauritius is no different. Fortunately, the island's successive governments have embarked on a series of policy measures aimed at fostering green initiatives with the ultimate objective of greater sector sustainability, one of which the promulgation of an eco-tourism sub-sector. However, despite their best efforts, there is the wide-held belief that the eco-tourism sector is yet to take off with a number of supply side factors being viewed as major constraints to the promulgation of same.

As such, the aim of the present study is two-fold. Firstly, through a review of the existing regulations and legal frameworks and through discussions with various sector stakeholders, delineate the various supply side factors hindering the expansion of an eco-tourism sub-sector and propose remedial measures accordingly. Secondly, through the use of the survey method, our research attempts to delineate the various demand driven factors fostering the behavioural intention of tourists towards eco-tourism. Using data from the survey, this study engages in deeper statistical analysis through the use of a structured equation modeling in an attempt to identify and quantify the various factors influencing the adoption of eco tourism practices. The results show that consumers' ecotourism attitude positively influence ecotourism intention, ecotourism interest, and willingness to pay a premium to participate in ecotourism activities. The results also indicate that consumers' ecotourism interest would positively predict their intention towards ecotourism. Furthermore, consumers' environmental attitudes did not positively predict ecotourism intention. As regards the supply side impediments, discussions with stakeholders reveal that the main constraints to promoting an eco-tourism sub-sector include firstly, lack of finance with respect to the fostering and conservation of eco-sites; lack of a holistic approach for

[1] *We would like to thank the WTO Chairs Programme for having kindly funded this research project.*

the strategic orientation of the sector; lack of educational and sensitization programmes and the prioritization of return on investment when making investment decisions in the sector; the island's topography is not conducive to fostering eco-tourism; and finally a lack of inter-institutional communication, collaboration and coordination amongst the various tourism stakeholders. To that end, several measures are proposed including a more holistic approach to the sector, the promulgation of a branding exercise, fostering greater private public partnership to increase funding opportunities, promoting greater interplay between the different tourism stakeholders, incentivizing tourism businesses to seek certification and finally providing training programmes to stakeholders and embarking on sensitization campaigns to foster the integration of the local community.

Keywords: Eco-tourism, Mauritius, SEM, Sustainable Tourism.

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1.0 Introduction

The contribution of the tourism sector towards the economic development of nations has been well documented in the literature. From direct benefits which include creation of employment, generation of added vale and tax revenue, boosting of inward foreign direct investment as well as generation of much needed foreign exchange to wider spillovers through skills diffusion as well as other related spillover benefits, the potential benefits which can be engendered by the tourism sector have been clearly spelt out in the literature (for e.g. see Sinclair (1998) for a comprehensive review).

And the above is particularly true for the case of Mauritius. The prevalence of the tourism sector towards the economic development of the island is undeniable. Today, the tourism sector is considered as the second pillar of the economy, approximating 18% of GDP and tourists' earnings nearing Rs 4.5 billion in the year 2013. Tourist arrivals for the year 2014 were 1,038,968 and total passenger arrivals were essentially by air (99%) by air and 1% by sea. And various factors have served to generate such an increase in revenue and tourist numbers. The element of trust as an element inducing first time visitors and repeat tourists (Sannassee and Seetanah (2014); infrastructure (Khadaroo and Seetanah (2007, 2008); and marketing promotion expenditure (Seetanah and Sannassee (2014) have been identified as some of these delineating elements.

Yet, tourism does also have negative environmental, economic and socio-cultural effects and it is also true that tourism has had a negative impact on the physical environment, economic, and socio-cultural landscape in Mauritius. Indeed, over the past twenty years or so, a number of issues have cropped up, including inefficient use of resources (water, energy, etc.); generation of a large amount of waste; coastal and marine degradation; Damage to the physical environment (land, sea, beaches); and loss of biodiversity.

And in this regard, one of the biggest challenges for a Small Island Development State (SIDS) such as Mauritius therefore relates to its capacity to ensure sustainable development in the tourism industry, hence its long-term competitiveness. Managing tourism in a sustainable way involves instilling appropriate policies and measures to optimise benefits while mitigating its

negative impact on the society, culture and environment. The aim of sustainable tourism therefore is to ensure that development brings a positive experience for local people, tourism businesses and tourists themselves.

As a result and very much aware that the current tourism trend and policy focus which is presently principally geared towards beach tourism is not sustainable in the long-term, the government has, since the turn of the new millennium, embarked on a series of policy measures aimed at fostering green initiatives with the ultimate objective of greater sector sustainability. These include amongst others the National Tourism Development Plan (2000), the Environment Protection Act (2002), the Tourism Authority Act (2006) and further enacted in 2008, the Hotel Development Strategy (2008) and finally the Tourism Sector Strategy Plan (2009-2015).

More interestingly and of greater relevance to the current paper, the above Acts and Plans has led to the fostering of the eco-tourism concept in Mauritius which was further reinforced by the Mauritius Ile Durable (MID) concept which was launched in 2008 under the long-term vision for sustainable development and which was principally geared towards making Mauritius as a world model of sustainable development. In a similar vein, additional measures which were also initiated included amongst others a Blue Flag Programme and an Eco-Label scheme.

However, one can argue that, despite their very best intentions, successive governments have been unable to propound an integrated eco-tourism plan and that the above-mentioned measures are at best piecemeal in nature. To make matters worse, one can even contend that there is no record of any assessment of existing eco-tourism sites on the island, let alone the absence of any study reviewing the existing regulations (if any) governing the conservation/protection of same.

Given the above, the objective of the present study is two-fold. Firstly, through a review of the existing regulations and legal frameworks and through discussions with various sector stakeholders, assess the relevance and prevalence of same towards fostering ecotourism. This should also permit to uncover any supply side constraints which may or could have hampered the benefits to be had from exploiting these sites and propose remedial measures accordingly. Secondly, through the use of the survey method, delineate the various demand driven factors fostering the behavioural intention of tourists towards eco-tourism.

The rest of the study is structured as follows: section II deals with the related literature pertaining to both the demand and supply side perspectives. Section III provides information on the tourism industry in Mauritius as well as a review of the existing regulations and policy frameworks on eco-tourism. Section IV discusses the methodologies to be used, data collection and discusses the empirical findings. Section V concludes and provides the resulting policy implications.

2.0 Related Literature

2.1 Concept of Ecotourism

The concept of "ecotourism" was first introduced during the international environmental protection conference in Mexico in 1986 (Wang, 2010). Since then, it has gained persistent attention in the tourism industry (Weaver & Lawton, 2007), and has been recognized as a sustainable way by many governments to develop and enhance their economy (Weaver, 2011) to the extent that nowadays ecotourism is often cited as the fastest growing phenomenon within the global tourism industry (Wood, 2013; Buckley 2004).

Over the last few decades, there have been a considerable number of debates with respect to the definition of ecotourism and how to conceptualize it (Pipinos and Fokiali 2009). The context in which ecotourism is defined may differ since it is perceived differently by different stakeholders and with different interests. From a tourist's perspective, ecotourism may mean a new experience or a change in consumption; from a planner's point of view, ecotourism is a way of exploiting new opportunities in the industry; whilst from a tourist attraction perspective, ecotourism is a way of management (Wang, 2010).

Freedman (1995) defines *"*ecotourism as a segment of the travel industry which appeals to the environmentally conscious and which has a low impact on the surrounding area while contributing to the local economy*"*. Ceballos-Lascuráin (1996) viewed it as a responsible way of travel in which local features are appreciated and special attention is paid to minimizing negative impact from visitors. It is generally understood as nature or culture based travel activities that enhance public environmental awareness, respect and conserve local resource and culture, and minimized tourism impact, empower local residents, generate income for the economy and share the benefits among the population (Weaver, 2011; Honey, 2008).

Even though, over the years, there have been different conceptualizations of the term ecotourism, researchers agree that the core dimensions of ecotourism definitions are almost the same (Bjork 2000). Fennell (2002) studied 85 definitions of ecotourism and the words that were mostly encountered were nature areas, conservation, culture, benefits to locals, education, and sustainability. Likewise, Diamantis (1998) found that the three common elements in the most widely used definition of ecotourism are nature-based environment, environmental education, and sustainable management.

The above definition touches upon multiple characteristics of ecotourism. Although there is no agreed definition of ecotourism in the literature, the study considers the development of ecotourism to be based on the following premise: to respect nature, follow ecological rules, travel to natural areas with traditional cultures to allow tourists to enjoy the phenomenon of nature; it must also reflect the fact that ecotourism has certain educational connotation. Ecotourism educates and increases awareness of the importance of natural and cultural conservation among local residents and tourists; it must reinforce responsibilities of local community to protect and conserve local resources and environment by increasing local benefits; and finally it needs to complement economic, social, ecological development in order to enhance ecological sustainability.

Ecotourism activities are generally understood as being of a non-consumptive nature and have a low-impact on the environment (Weaver, 2012). As a result, and to be able to maximise the impact of and benefits to be had from the promulgation of eco-tourism, it is therefore crucial to determine the current and future intentions of tourists in visiting ecotourism sites to ensure that the latter act responsibly and in a manner that can only serve to fulfill the set out objectives of the supply side stakeholders. Therefore, determining the factors that influence tourism intention towards ecotourism is also fundamental and this is explored in the subsequent sections.

2.2 Demand Driven Factors

2.2.1 Behavioural Intention towards Ecotourism

Behavioral intention of the tourists may be termed as intentions generated post the tourism process (Liu et al. 2013). In this regard, Parasuraman, Zeitham & Berry (1985) concluded that

consumers' behavioral intentions comprise of their intention to revisit the holiday destination and to recommend the same destination to others, thereby further indicating their perceptions, satisfaction and loyalty to the tourism destination (Bigne, Sanchez & Sanchez, 2001). As a consequence, most of the studies employed consumers' revisit intentions and willingness to recommend as measurement factors of tourists' behavioral intentions and tourist loyalties (Liu et al. 2013).

The ecotourism intention literature is fraught with studies which have linked attitude to behavioural intention since attitude is a predisposition to evaluate destination as satisfactory or dissatisfactory (Solomon et al., 2006). This is supported by the theory of reasoned action (TRA) developed in the 1960's which view attitude as an important determinant of behavioral intention, which further predicts the individual behaviour (Ajzen & Fishbein, 1980). Moreover, some eco-tourists may develop their interest towards a destination based on how safe the destination is, their advertisements, its service quality and the provision of environment friendly products.

Integrating these concepts together, Figure 1 presents the model being tested. It establishes a model of intention towards ecotourism, which suggests that intention to visit ecotourism sites is influenced by ecotourism attitude and interest of the individual. And that ecotourism attitude and interest is further influenced by environmental attitude. Overall, environmental attitude, ecotourism attitude, ecotourism interest and ecotourism intention is further considered to influence willingness to pay a premium to participate in ecotourism activities.

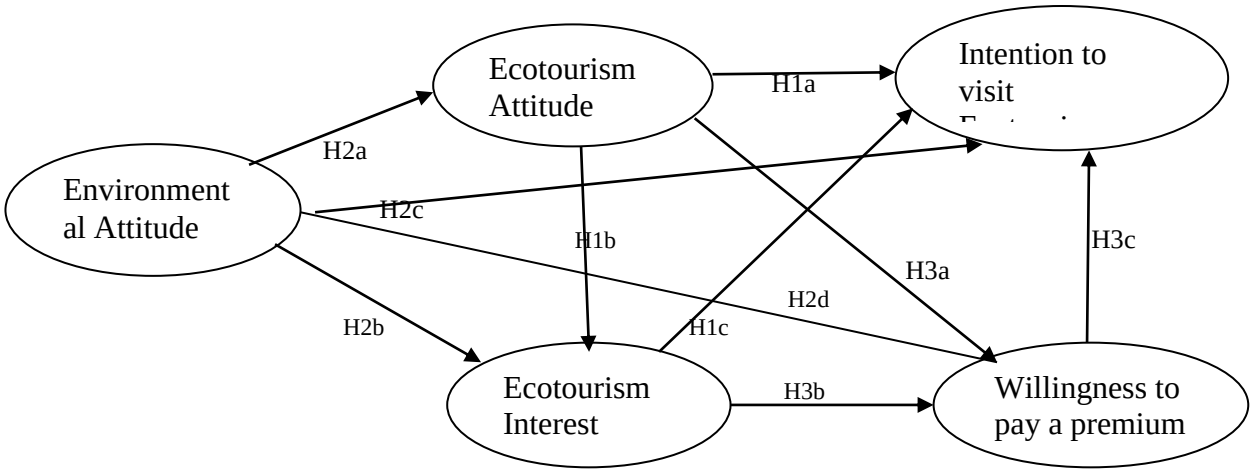


Figure 1. The Proposed Model of Intention to Participate in Ecotourism Activities in Mauritius

2.3 Hypothetical Constructs

2.3.1 Impact of Ecotourism Attitude on Ecotourism Intention and Ecotourism Interest

Attitudes are personal tendencies to do something after reflecting and weighting on the final outcome as being favourable or unfavourable (Eagly and Chaiken, 1993). Attitude can further be decomposed into three significant components: the cognitive, the affective and the behavioural component. The cognitive component is based on an individual's knowledge, beliefs, perceptions, regarding for example environmental values which one acquires through experiences in one's life. It is the cognitive attitude of an individual that in turn has a direct influence on the individual behaviour (Ajzen and Fishbein, 2000; Moutinho, 1993, p.19). The affective or emotional component consists of emotions and sentiments which are aroused by just the mere thought of visiting an ecotourism site. The behavioural component relates to all the precise and clear behaviours toward ecotourism. These are behaviours and decisions relating to money management, family balance which should be differentiated by spending intentions (Cosma and Pattarin, 2012). For the purpose of this study, attitudes will be treated as respondents' particular feelings (affective) and perceptions (cognitive) towards the stated questions relating to ecotourism.

Attitudes are affected by a set of social influences namely culture, reference group, family (Sirakaya & Woodside, 2005), and beliefs. In this regard, Wang and Pfister (2008) found that an individual attitude towards tourism is influenced by his values and personality which are very hard to change. Attitudes are also influenced by factors that might be invisible to researchers (Allendorf *et al.*, in Waylen *et al*. 2009), thus making them more difficult to observe and to understand.

Understanding individuals' attitudes towards ecotourism are vital since it is precisely such attitudes which will determine their intention and final decision towards their holiday destination. In this vein, many authors have propounded that individuals who have positive attitude and interest toward ecotourism are attracted to destinations where natural environment and culture are conserved and opportunities for learning and experiencing are provided (e.g. Hall (1992) and Jefferson (1995)). A high correlation between attitudes, behavioral intention and the subsequent behavior has also been established (Lai & Nepal, 2006; Vaske & Donnelly, 1999).

Accordingly, at industry level, understanding tourism's attitude will help eco-tourist companies to change or create consumer attitude to alter the belief of their companies by introducing environmental attributes or by highlighting their eco-label (Moutinho, 1993). At a macro level, management principles may help operators devise more efficient and appropriate management strategies to harmonize conservation of local resources as well as economic development of the area, leading ultimately to a smooth running of ecotourism (Lai & Nepal, 2006).

The study by Hines, Hungerford and Tomera (1987) employed a meta-analysis in an attempt to understand which variable(s) (e.g., attitude, knowledge of issue, knowledge of action strategies, locus of control, and among others) appear(s) to be the most powerful predictor of consumers' environmental behaviour. The results revealed that attitude is the most influential predictor variable of consumers' green consumption behaviour intentions. Thus, one may contend that consumers' ecotourism intention and interest are the outcome variables, which are positively related by consumers' favorable attitudes toward ecotourism.

Zhang and Lei (2011), in their attempt to assess the factors that contributed towards residents' participation intention in ecotourism management, proposed a structural relationship between their participation intention, environmental knowledge, and their attitude towards ecotourism among others. Their findings demonstrated that the residents' environmental knowledge would positively affect their attitudes towards ecotourism and that would directly and indirectly establish the intention of the participant. Similarly, Shieh, Lin, Ho and Wang (2012) used a case study analysis in order to explore the attitudes and behaviour intentions of Taoyuan, China towards pond ecotourism sustainable development. Their study analysed two dimensions of psychological philosophies namely how these influenced attitudes and behaviour intentions of ecotourists towards their choice and the results have proved to be significantly influential. In the same context, in terms of moderating effects, it was noted that in certain situations, attitudes were affected by the inclusion or exclusion of subjective norm and perceived difficulty could generate worse or better behavioural intention.

As such, given the above, the following hypothesis is proposed:

Hypothesis 1a: Ecotourism attitude will positively influence ecotourism intention.

Hypothesis 1b: Ecotourism attitude will positively influence ecotourism interest.

2.3.2 Relationship between Ecotourism Interest and Ecotourism Intention

The third relationship under scrutiny in the present pertains to the relationship between ecotourism interest and ecotourism intention. The economics literature has long recognized consumers as being rational in that they buy to satisfy their interest and needs. With respect to travelling, some tourists may look at fulfilling their "sense of belonging needs" by ensuring that they will meet new people on their travel. On the other hand, others who regard travelling as a "self-actualization need" will ensure that they learn the language of the country before travelling, or opt for ecotourism activities (Chon et al, 2000). Every individual needs differ and so will their interest.

For a long time, the sun, sea and sand concept was the centre of attention of tourists (Ayala, 1996) but over the last decade or so, there has been a radical shift in consumer interest for ecofriendly products and technologies, and ever since, the demand for nature-base travels is growing. Such a change in mindset and behavior has led tour operators and travelling agencies to accentuate their emphasis on ecotourism activities to foster for the ever growing ecotourist needs and interests. As a result, several new activities are being accommodated. From bird watching, whale watching, geological tourism (Weaver, 2001) to wildlife viewing, trekking, and visiting national park or protected area (Wight, 1996) and learning about other cultures are all important features of ecotourism activities.

Over the past decade, a new component of tourism literature has proceeded to determine the motivations of tourist to engage in different ecotourism activities and nature-based experiences[2]. Their results have provided some tentative evidence for a stronger pro-environmental behaviour in ecotourists as opposed to mass tourists. And more recently, Perkins and Grace (2009) examined a tourist's interest in visiting different holiday types and their reasons for their choices. The study found a fundamental difference between the motivations for choosing ecotourism destinations and the motivations for choosing more typical holidays. For instance, those who have selected the beach or luxury resorts reported their main motivations to be factors such as enjoying the moment, having fun, relaxing all these reasons may be considered as self-centered.

[2]See Fairweather, Maslin & Simmons, 2005; Zografos & Allcroft, 2007; Luo & Deng, 2008

On the other hand, respondents who were more interested in ecotourism perceived their holidays as opportunities to experience and travel in undisturbed nature, to learn more about nature, all in a view of protecting the environment. These results provided further evidence of a stronger pro-environmental behaviour among those interested in ecotourism experiences.

The above discussion clearly demonstrates that eco tourists intend to visit an ecotourism destination not merely because of their desire to relieve from stress but also because of their interest in viewing the wildlife, visiting undisturbed areas, learning about the environment and promoting conservation of the environment (Blamey 1997; Juric, Cornwell, and Mather 2002) also finally to quench their quest to reinforce the bonds with family and friends (Poupineau and Pouzadoux, 2013). Therefore, consumers' ecotourism interest is likely to increase their intention to participate in ecotourism activities. As such, the following hypothesis is proposed:

Hypothesis 1c: Ecotourism interest will positively influence ecotourism intention.

2.3.3 Impact of Environment Attitude on Ecotourism Attitude, Ecotourism Interest, Ecotourism Intention and Willingness to pay a premium.

As per the existing literature, there exists no standard terminology for "environment attitude". This concept has often been touted as being similar to the concepts of "environmental consciousness", "environmental awareness", and "environmental affection" (Qi et al.).Although the literal meanings are different, their core meanings are rather similar, since they all refer to values involved towards protecting the environment. Those values consist of the continuum of improving human life and society, respecting all forms of lives and ensuring that everyone has equal rights (Edwards, Davies, and Hussain 2009; Dunlap et al. 2000; Luck 2003). Moreover, in a view of categorizing environmental attitude, Kaiser et al. (1999) segregated the concept into three dimensions: environmental knowledge, environmental values, and ecological behavior intention. Lu et al. (2004) on the other hand propounded that environmental attitudes constitute of four dimensions namely environmental protection, environmental resource, environmental study, and environmental sustainability.

Environmental Attitude and Ecotourism Attitude

Knowledge and self-consciousness of environmental issues is usually considered a prerequisite to environmental concern (Zhang& Lei, 2012). Various studies have found that as individuals become increasingly aware of environmental protection, they promote positive attitude towards environmental issues (Wanga, 2013) and even refuse any short term economic behavior (Wang, 2010). Lee and Moscardo (2005) provide evidence that awareness of in-resort environmental practices and satisfying experiences in ecotourism holidays could reinforce tourists' positive attitude towards the environment. Adetola and Adediran (2014), in their study on indigenous communities' attitude towards sustainable ecotourism development in Olumirin waterfall, Nigeria, found that the majority of communities are aware of the term 'ecotourism' and that they display a positive attitude towards ecotourism activities in Olumirin. Even though Higham et al., (2004) did not completely adopt a segmentation study, but instead made use of the same scale to discern the environmental values of visitors to ecotourism operations in New Zealand, yet their results identified three main dimensions of environmental values among visitors, namely 'Balance of Nature', 'Human Nature' and 'Limits to Growth' which helped to foster the link between the ecotourists and their attitude to ecotourism.

In addition, the popularization of ecological education and environmental values should also be considered among the various tourism stakeholders. Studies that have focused on students' understanding of environmental science are associated with their environmental stances (Zhang & Lei, 2012; Tikka, Kuitunen, & Tynys, 2000); community leaders with environmental knowledge derives positively attitudes towards conservation ((Zhang & Lei, 2012); Increasing local residents' and government environmental knowledge effectively promote positive attitudes towards ecotourism and conservation of the local environment (Aipanjiguly, Jacobson, & Flamm, 2003, Zang & Lei, 2012)

Environmental Attitude and Ecotourism Interest

Zografos and Allcroft (2007), in their study delineating the likelihood of ecotourism development in Scotland through the use of a market segmentation methodology, identified four segments of values from the application of the New Ecological Paradigm (Dunlap *et al.*, 2000) on a range of anthropocentric and ecocentric values. However, their results indicated that ecotourism products

are not restricted to ecocentric segments given that biodiversity protection is prioritised by all segments at a different intensity to its importance. Additionally, the study also identified that visitor's interest for a Scottish ecotourism experience was mainly centered on biodiversity conservation and less on exhaustible resources. At the same time, providing facilities for wildlife sightseeing, hill walks and relaxation activities were also regarded as being important. Thus, environmental values can be adopted as a method to segment potential visitor groups with different trip characteristics. With the same objective of investigating the relationship between environmental attitudes and outdoor recreation interests, Bjerke et al. (2006) attempted to measure environmental attitudes using a shortened version of the New Ecological Paradigm (NEP) scale. Their results suggested that significant differences in environmental attitudes exist between appreciative and consumptive tourists.

In the same context, Uysal *et al.* (1994) study, through the application of the New Environmental Paradigm (Dunlap *et al.,* 1978) to differentiate the environmental consciousness of visitors to a US Virgin Islands National Park, demonstrated that trip instead of demographic characteristics are more related to environmental concerns. Similarly, Blamey and Braithwaite (1997) adopted the approach of segmenting the potential Australian ecotourism market based on their social values, where 17 items of the Social Values Inventory (Braithwaite & Law, 1985) were used to measure the endorsement of national greatness, reward for individual effort, economic equality, among others. Their study exemplified that social values are of utmost importance to understand ecotourists and their preferences.

Environmental Attitude and Ecotourism Intention

Researchers have also laid special emphasis on the individual’s environmental values that are highly influential in the development of ecotourism behaviour (Wood 2002; Kasim et al. 2014)) and hence important when deciding upon their holiday destinations (Hayombe et al. 2012; Zhang & Lei, 2012). Qi, Zhang and Yang used a fourth dimension model to measure environmental attitudes and to analyse its relationship with the behavior intentions of tourists in natural heritage sites. Their results from the structural equation model showed that environmental affection and knowledge had a significant and positive effect on environmental behavior intention of tourists; environmental morality also had a significant influence, though the extent of the magnitude was lower; and environmental responsibility showed no significant influence on tourists'

environmental behavior intention. In relation to behavioural intentions, those identified as ecotourists were more likely to purchase local products, conserve the local environmental quality, willing to propagate publicity about the wetlands, but also group together with local conservation associations that display a positive relation between environmental responsibility and sustainable behaviour. Likewise, Lück (2000) also suggested that environmental values are important for ecotourism travel choice and behaviour, and that ecotourist lifestyle characteristics may be significant in obtaining a better insight into these values.

In short, knowledgeable and environment conscious individuals might be more likely to show positive attitudes, interest and intention towards ecotourism. As such, harmonising and unifying the ecological link between human beings and the nature is crucial. This may also lead environment friendly individuals to be more willing to pay a premium for ecotourism products and services.

Based on the preceding discussion, the following hypotheses are developed for the proposed model:

Hypothesis 2a: Environment Attitude will positively influence consumers' ecotourism attitude.

Hypothesis 2b: Environment Attitude will positively influence consumers' ecotourism interest.

Hypothesis 2c: Environment Attitude will positively influence consumers' ecotourism intention.

Hypothesis 2d: Environment Attitude will positively influence consumers' willingness to pay a premium for ecotourism products and services.

2.3.4 Relationship between Willingness to pay a premium and Ecotourism Attitude, Ecotourism Interest, Ecotourism Intention

The last major construct included in this study pertains to consumers' willingness to pay a premium for ecotourism. Travelling involves a considerable investment and as such it involves committing a large amount of money to something reasonably unknown; thus relating to high risk taking. In this regard, the quality of the travel is usually signaled by its price and it is most unsurprising to denote that consumers view eco-friendly products as more expensive than the conventional ones (Chang, 2011, p.20). For instance, a night in an eco-lodge may be more

expensive than in a regular hotel because the lodge required a relatively higher level of investment towards construction and equipment to ensure good quality and protection of the environment.

However, even though consumers may have a strong interest and favorable attitudes towards environment values and concerns, many may not act upon these values when it comes to the purchase of relatively higher prices pro-environmental activities (Epler Wood; Holden and Sparrowhawk, 2002). The work of Young *et al*. (2009) highlighted that there existed a gap between what individual thought and said when it comes to environment concern and their real consumption habits.

Till date, there is no consensus as to whether consumers are willing to pay extra for ecotourism products and services. While some prior empirical findings revealed that consumers are willing to pay on average around 5% more for eco-friendly products (Schwartz 1990; Speer 1997), others have suggested that a group of consumers are willing to pay as much as 20% or more (Worldwide 1997). And more recently, according to a survey conducted by Pirani and Secondi (2011, p.69), approximately 75% of the respondents have argued that they were willing to pay more for eco-friendly products. However, in another survey for Belgium (2011), the same authors have found that consumers were not willing to pay more than 27% price premium. Therefore, consumers have a positive attitude towards ecological product up to a certain point and that transforming consumer attitude into purchasing behaviour is a slow process.

On the other hand, there is also evidence of the decreasing gap between attitude and behaviour theory. In Hudson and Richie's (2004) work, a strong correlation between the tourists' willingness to pay for eco-friendly skiing products and the cost of the holiday, as well as between level of income and level of environmental conscience have been identified. Similarly, Lu et al., (2014), in their study of Italian travelers found that individuals' materialistic value is negatively related to their ecotourism attitude, ecotourism interest, ecotourism intention, and willingness to pay a premium for ecotourism products and services. In addition, their findings also revealed individuals' ecotourism attitude have a positive influence on ecotourism intention, ecotourism interest, and willingness to pay a premium for ecotourism products and services. Eco-tourists choose their destination in accordance with the quality of products and services offered. They are

willing to pay extra if the product or service bring a real benefit to them and will help them protect the environment. Therefore, providing a high value product and services with the objective of protecting the environment and meeting the interest of tourism is very important.

In line with the above literature and Ajzen's (1991) classic theory of planned behavior, consumers' willingness to pay a premium for ecotourism should be positively predicted by consumers' ecotourism attitude and interest, as only those who are interested in or motivated by will be willing to pay higher premium to protect the environment In a similar vein, Peterson (1988) conceptualized "willingness to pay" as 'one's intention to pay a certain amount of money for engaging in a leisure activity or attaining any other public goods' (Lu et al. 2014). Hence, the willingness to pay a higher premium for eco-products and services directly demonstrates one's intention towards participating in ecotourism activities. As such, the last three hypotheses of proposed framework are:

Hypothesis 3a: Ecotourism attitude will positively influence consumers' willingness to pay a premium for ecotourism.

Hypothesis 3b: Ecotourism interest will positively influence consumers' willingness to pay a premium for ecotourism.

Hypothesis 3c: Consumers' willingness to pay a premium for ecotourism will positively influence ecotourism intention.

2.4. Supply Side Conditions – A Review

Globalization has changed the geography of travel and tourism. The adoption of free trade agreements, the signatories to GATS, worldwide suppliers, new supply chain with strategic alliances between hotels and tour operators, the advancement of technology, the rise of environment awareness, environment pressures, particularly climate change (Smeral, 1998) have changed the pattern of tourism destinations and the market situations. There is no doubt that the maturing, knowledgeable and discerning tourists have altered their behaviour towards environmentally friendly places where they can have real and quality life experiences with nature. The nature of the tourism impact will clearly be dependent on the type tourism, and those overseeing the tourism industry. Above all, the challenges for the industry will be to cater for the

changing needs and desires of eco tourists with their available resources while protecting the environment.

The main agents to develop tourism resources include the private sector, the public sector, NGOs, and international agencies the likes of the World Bank the United Nations Development Programme (UNDP). The motive of the private sector rests on earning economic rent and it obtains its return on investment, whilst the public sector is expected to provide for the basic services, that is, an environment which is conducive to the expansion of the tourism sector; the NGOs main interest remains the conservation of the environment and finally the international agencies provide for funding and aids for development.

Although the motives of these different agents differ, the commonality between them can be achieved since the ecosystem such as vegetation, landscape, water and wildlife are all important for maintaining the local quality of life. Quality of life attributes provide a common basis upon which tourism stakeholders can work together to conserve ecotourism resources, and promote a balance between local people and nature by supporting ecological integrity.

Specialised knowledge, local community support, legislations, financial support, a good management and planning are key ingredients for managing the environmental and social impacts of tourism against the organisations perceived economic gains. As such, it is undeniable that the supply side aspect of the tourism industry is a fundamental element which needs to be considered and it must be thoroughly planned. In this regard, the review hereunder provides a discussion as to the constraints faced by the different stakeholders of the supply-side value chain and their proposed solutions.

2.4.1. Supply- Side Constraints and their Solutions

Several studies are being presented in the literature to identify major supply-side themes and their proposed solutions which are pertinent to ecotourism.

2.4.1.1. Nexus between agriculture and tourism and green economy

Food sourcing and the tourism-agriculture nexus is essential in expanding local linkages in the tourism sector. Mao et al (2014:2) stressed that the local linkage between tourism and agriculture,

will provide local communities with the unique opportunity to make potential contribution to local development, alleviate poverty and thus improve quality of life.

Similarly, for South Africa, Rogerson (2014) argued that the comprehensive rural development programme and the rural tourism strategy is a first strategic move to link agriculture, local and tourism. For instance, in a situation where government initiatives were minimal to support rural tourism establishments, these accommodations could instead source for local food supplies. The strengthening of inter-sectoral linkages between tourism and agriculture could offer multiple opportunities for LED policy intervention in many parts of South Africa. Such opportunities would promote a greener economy since they would lead to reduction in food miles and thus a step towards a low carbon emission tourism economy.

These opportunities, however, were yet to materialise for there still exist a low synergy between the agriculture and tourism sectors. And the main reasons underpinning the critical supply-side factors that limit the extent and density of local linkages between the tourism and agriculture sectors in South Africa include the following: lack of local production of types of food demanded by tourists; lack of high-end or value-added products; price of local products is too high; local farmers did not want to change traditional production techniques; inconsistent quality of products; poor economies of scale; undercapitalization of local industries; uncertainty of future land tenure and scarcity of certain specific natural resources (Rogerson, 2014). Other limitations also included policy oversight by national and local governments (Meyer, 2007; Rogerson, 2012; Mao et al., 2014) and lack of involvement of local producers in tourism supply chains (Torres & Momsen, 2004, 2011; Rogerson, 2012; Jenkins, 2014; Mao et al., 2014).

Therefore, one could argue that linkages are crucial to foster the tourism sector and in this regard the availability of local expertise and skills is indispensable. For instance, Hawkins (2004) found that small ecotourism businesses in Bulgaria are more successful when they align themselves into partnership and regroup into competitive clusters. Similarly, Silva and McDill (2004) interviewed operators and public managers in central Pennsylvania (USA), and they identified that mutual misunderstanding usually hampered the ability of the managers to assist the operators. And finally, in order to better understand the spatial factors that positively related to business performance, Dickey and Higham (2005) laid emphasis on the advantages of using Geographic

Information Systems (GIS) technology to map commercial ecotourism operations in New Zealand.

2.4.1.2. Venues

There is the misconception that when one refers to ecotourism, then one would in most instances relate same to protected area venues. An emerging trend in ecotourism studies is, however, increasingly considering alternate areas (Weaver and Lawton). For example, Buckley (2004) found that privately owned land was considered as pivotal resource for ecotour operators in Australia, but unfortunately its role was not well understood. In addition, there is a growing interest for using private land, public land (Lawton & Weaver, 2001) and urban areas (Higham & Lück, 2002; Dodds & Joppe, 2003; Weaver, 2005) to provide ecotourism activities. The success with respect to the optimal use of space availability rests with the ecotourism operators, developers and businesses, who have to transform same to accommodate habitat for native wildlife, work on its proximity, transform it into public parks that is stress free and less crowded, provide incentives for rehabilitation and increase environmental awareness of visitors.

Mackoy and Osland (2004) for instance have argued that tourists in ecolodge rated proximity to natural resources and cost as the two main considerations for purchase behaviours and hence business success. Moreover, Osland and Mackoy (2004) also found that scientifically oriented ecolodges judged their success not only by their financial performance, but also on whether their clients have increased their awareness and knowledge after their stay at the lodge.

2.4.1.3 Lack of Guidelines

Some studies have also called for the adoption of a more holistic approach to understand the inter-linkages that exist among the ecotourism principles and particularly lay down specific guidelines under which ecotourism should be managed (Edgell, 2006: 122; Honey, 2008). Without a proper framework, management, planning and monitoring of ecotourism would be unrealizable (Davis, 1999: 520). For example, De Witt et al. (2012) have found that there were no clear guidelines regarding the management of ecotourism in their study of the South African National Parks. As such, they identified a number of factors, which in their opinion, were crucial for the promulgation of eco-tourism. These were as follows: firstly, promote responsible

ecotourism development by increasing environmental awareness, trained staff support conservation, reduce carbon footprints; ensure local community involvement and benefits and equitable access to natural, historic and cultural sites; Utilise environmentally friendly practices and promote responsible use of resources such as water and energy; adopt responsible ecotourism ethics that consist of no feeding of animals; remain inside the vehicles; no loud talking at sightings, no littering; provision of fresh organic foods to enhance responsible ecotourism experience; and most importantly, ensure transparency and accessibility to all stakeholders; compliance with legislation, credibility and adherence to policies.

2.4.1.4. Market Trends on Supply Side

In the Trade Policy Review of 2010 for Malawi, a number of supply side constraints were highlighted with respect to eco-tourism. These included amongst others: inadequate infrastructure; inadequate investment in the sector; inadequate financial resources for destination marketing; inadequate human resource; lack of direct flights from the major tourist source markets; and lack of good quality delivery in some of the hospitality units[3].

In this regard, the Government has attempted to address the challenges through strategies that had been outlined in the 2008-2013 Tourism Strategic Plan including the implementation of the National Tourism Policy. These policies provided the necessary guidelines for the development of the sector which entailed improving transportation means to tourism destinations; increasing attractiveness of national parks; and improving the local and international visibility of Malawi. Since tourism is a multi-dimensional sector, there was a need to identify the relationship among the different stakeholders and to develop the areas that can support the sustainable development and promotion of ecotourism accordingly.

Interestingly, Pope (2005), for the case of Zambia, found that there was a lack of information which hindered any attempt for tourism planning, and to be able to develop a realistic national tourism strategy. A database had to be designed to be able to collect regular basic tourism information. Additionally, Zambia's tourism sector was considered to be driven by an uncoordinated mixture of: committed, small- to medium-scale ventures that usually did not have

[3] Trade Policy Review Report by Malawi, World Trade Organisation, (2010).

a long-term business plan; and there was a complete absence of any strategy for setting up the infrastructure necessary to support the tourism sector. Similar findings were highlighted by Ahmed (2015) for Bangladesh in that some of the challenges identified included inadequate infrastructure facilities; a lack of modern and adequate recreation & tourist facilities; an underdeveloped communication system; a lack of trained human resources in the tourism sector; absence of proper tourism policies and a tourism master plan; a lack of reliable tourism statistics; difficulties related to visa and lack of investment and FDI in the sector.

Interestingly, Eplerwood, Wight and Corvetto (2003) underlined a number of constraints and shortcomings which may be shaping market trends on the supply side when they argued that:

"The supply side constraints for LDCs are the lack of rural infrastructure that limits efficient access to important wildlife viewing areas, environmental degradation, and poor government planning of tourism and ecotourism".

In Central and South America for instance, *"there seems to be a gap between community run, basic facilities, and high-end lodges. Whereas demand is in the middle, more conventional, comfortable part of the spectrum. Thus, supply and demand seem mismatched."*

"In Central America, most community-run basic facilities are simply not financially feasible for a range of reasons, from being extremely remote, to being run by NGOs, or attracting lower-paying backpacker markets….. Such lodges are so small they cannot establish the kind of relationship with the travel trade required, so they become marginalized from the conventional marketing system".

2.4.1.5. Certification and Industry view

The availing of certification by tour operators, travel study programs, and marketing specialists could reasonably be expected to positively impact on the eco-tourism sector. However, De Vicente (2004) has provided a more candid view of same in his study on Costa Rita. He argued that "*the demand side of the ecotourism market does not care about certification…the purchase decision is not significantly impacted by certification. Investment in certification has not paid off in a market way*". By contrast, on the supply side, the effect of certification has been profound. De Vicente further posited that "*there's plenty of evidence that certification has made a big*

difference in how entrepreneurs on the ground think about how to get an ecotourism business up and running, in how other tour operators have thought about how serious we are about sustainability…". All in all, he argued, certification had influenced the way the tourism industry thinks about sustainability in Costa Rica, and as such the net benefit has been positive. He went on to further propound that "*…the time has not come yet to promote certification on the demand side. Besides, we do not want to be sharing the shortcomings of certification schemes with the rest of the world. …In terms of financial performance, certification has had a neutral impact. Ecoefficiency and the financial costs associated with it have even each other out. There also bureaucratic cost…All in all, you are not making a profit but not losing money either. Essentially, you are doing it for conservation*".

3.0 Eco Tourism Policies and Regulations

The sustainable development theoretical framework evolution grew in importance between the 1970's and 1990's in the wake of a series of conferences and initiatives (United Nations, 2010). More specifically, the notion of sustainable development came to the forefront following the Brundtland Report in 1987. The latter provided the widely held classical definition of sustainable development as *"... development which meets the needs of the present without compromising the ability of future generations to meet their own needs..."* (Brundtland Commission, 1987). The purview of the report pertained to addressing the problems related to the deterioration of human environment and natural resources (oil shocks of the seventies, droughts in Africa, concerns about tropical forests and the depletion of the ozone layer amongst others) and their likely consequences. In addition, it also focused on the resulting deterioration of economic and social development (Redclift, 2006). Interestingly, the report, which provided a severe diagnosis of the state of the environment, provided strong impetus for the 1992 Rio Summit, Agenda 21, where world leaders laid out the fundamental principles related to sustainable development.

The Rio Summit 1992 constituted a huge step forward for issues related to climate change, forests and biodiversity (United Nations, 2007), providing much needed guidance to country's national strategic approach towards sustainable development. Likewise, the Earth Summit's main challenge remained the governance of the global system with respect to sustainability principles laid down by Agenda 21 (Redclift, 2006). In this respect, three seminal instruments were

established during the Rio Summit namely the UN framework Convention on Climate Change (UNFCCC); the Convention on Biological Diversity (CBD) and the non-legally binding statement of Forest Principles.

The Rio Summit paved the way for a number of crucial initiatives including the Barbados Programme of Action, which was initiated in 1994 and which related to the issue of Sustainable Development of Small Island Developing States (SIDS). The Programme of Action focused on the fourteen special cases for environment and development in SIDS, including tourism. The latter was very much on the agenda since the Programme of Action laid significant emphasis on planning to foster sustainable tourism development with particular focus on land-use, environmental impact, energy and water consumption. Additionally, *"...the fragility and interdependence of coastal zones and the unspoilt areas on which eco-tourism depends calls for careful management...*", (United Nations, 1994). Likewise, the evolution of new tourism products together with the Barbados Programme of Action, called for the identification and development of facilities to meet specific niche markets (United Nations, 1994) and an assessment of *"... the overall impact of the economic, social and ecological aspects of tourism..."* (United Nations, 1994).

In this regard, there were calls that *"...eco-tourism, linking areas of high ecological value to low-impact tourism, may present important and environmentally sustainable opportunities for tourism development in small island developing States...*", (United Nations, 1994). With respect to actions, policies and measures, either at national, regional and international level, the Programme of Action laid much concerns towards the integration of policies and planning to ensure sustainable tourism development; environmental impact assessments for all tourism projects; cater for the needs of specific niche market, particularly eco-tourism; put forward regional mechanisms in order to allow exchange of information on the development of a safe and sustainable tourism sector and assess the impact of the economic, social and ecological aspects of tourism, plan sustainable tourism and to develop eco- and cultural tourism (United Nations, 1994).

The World Summit on Sustainable Development, held in Johannesburg 2002, endorsed the Joint Programme of Implementation- JPOI, where the aim was to set off steps from the Agenda 21 and

cater for sustainable development initiatives through the economic, social and environmental pillars (UNWTO, 2012). In this regard, the World Tourism Organisation launched the ST-EP initiative, "Sustainable Tourism-Eliminating Poverty", which was primarily geared towards enhancing the Organisation's established work with respect to sustainable tourism, such as dealing with activities to eradicate poverty, bring development and create jobs for people living below the poverty line (UNWTO, 2012).

Interestingly 2012 was proclaimed as the International Year of Ecotourism, with the main purpose of "*...gathering the governments, international agencies, NGOs, tourism enterprises, representatives of local and indigenous communities, academic institutions and individuals with an interest in ecotourism, and enable them to learn from each other and identify some agreed principles and priorities for the future development and management of ecotourism..."*, (UNWTO and UNEP, 2002). In the context, a wide range of activities was organized to: support members national activities; organise regional preparatory conferences and also co-organise the World Ecotourism Summit.

Other crucial landmarks include amongst others the First International Conference on Climate Change and Tourism, held in Djerba (Tunisia) which provided a unique opportunity for tourism interests and scientists to exchange views on the consequences, opportunities and risks presented to the tourism sector in view of changes in the world's climate, (World Tourism Organisation, 2003); the international conference held in Mauritius in 2005, where members took stock of progress achieved considered the likely benefits of a more effective implementation framework with respect to sustainable development of SIDS(United Nations, 2005); the Tourism and Climate Change conference in Copenhagen 2009-'COP 15', where the focus of the meeting was centered on ensuring that environmentally and climate friendly considerations are integrated in UN Global Compacts. In addition, the COP 15 also fostered the Corporate Social Responsibility (CSR) initiatives put forward by the Danish Government and also the principles on sustainability (United Nations Conference Copenhagen, 2010); the MDGs High Level Plenary Meeting in 2010 which represented an opportunity to "*... rally and revitalise efforts..."* and at the same time to *"... galvanise new political commitment, to spur collection action to accelerate and sustain progress towards MDGs..."*; the Rio+20 Summit which defined the structure towards "*...safer, more equitable, cleaner, greener and more prosperous world for all..."* (UNWTO, 2012). The main

objective of the Rio + 20 meeting was to gain consensus among all governments and institutions on fundamental measures related to not only poverty reduction but also on securing job creation, and use of clean energy in a more sustainable and fair aspect (UNWTO, 2012); the conference held in Qatar 2012, which delineated the vital role of the tourism sector in national development strategies and how sustainable tourism contributed towards the growth and inclusive development for structural change. In this context, the conference shed light on policies and measures which developing countries could pursue to foster inclusive and sustainable growth and development.

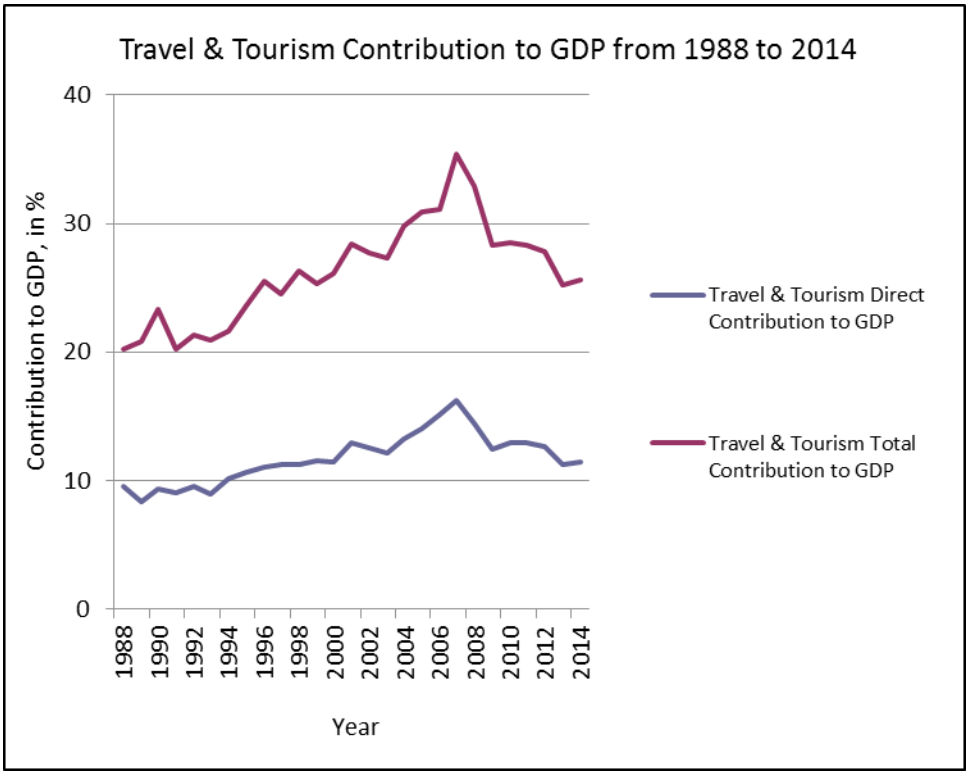
Additionally, the UN Conference on Sustainable Development -UNSCD which took place in Rio 2012 focused on two main themes: first and foremost "... *role of a green economy in the context of sustainable development and poverty reduction..."* and secondly, *"... improve the institutional framework for sustainable development"* (Kettuen and Brink, 2012). As such, the Green Economy concept has been structured to reflect the sustainable development and poverty eradication policies and as stated *"...We consider green economy in the context of sustainable development and poverty eradication as one of the important tools available for achieving sustainable development… We emphasize that it should contribute to eradicating poverty as well as sustained economic growth, enhancing social inclusion, improving human welfare and creating opportunities for employment and decent work for all, while maintaining the healthy functioning of the Earth's ecosystems..."*.

3.1 The Tourism Industry in Mauritius: Facts and Figures

Since its independence, the Mauritian economy has undergone several remarkable economic transformations with the island successfully diversifying from an agri-centric base into other sectors such as textile, tourism, financial services, sea food industry and the ICT sector. Diversification of the economy emerged as a result of the deterioration of the prevailing economic situation in the late 1970's, with rising petroleum prices and the end of the sugar sector boom. As a result, there was a pressing need to seek alternative sources of export income and various measures and policies were devised which fostered investment expansion, both at a local and an international level into alternate sectors such as textile in the first instance and later on in the tourism sector. Today, it can safely be argued that the tourism industry is one of the most important sectors contributing significantly to the GDP of the country (refer to table 1). The

government has been able to take advantage of the tropical island appeal, beautiful beaches, security and absence of tropical disease to promote Mauritius as an attractive destination.

Figure 1: % Share of Tourism in GDP, 1988 - 2014



Source: Bank of Mauritius Annual Reports (www.bom.mu)

Figure 2: % Share of Tourism in GDP, 2002 - 2011

In addition, the number of tourist arrivals since 1974 has increased by more than ten-fold with numbers rising well in excess of 850,000 as at date. Similarly, tourism has substantially increased from a low of Rs 11 million in 1974 to figures well in excess of 40 billion rupees.

Figure 3: Tourist Arrivals, 1974 – 2012

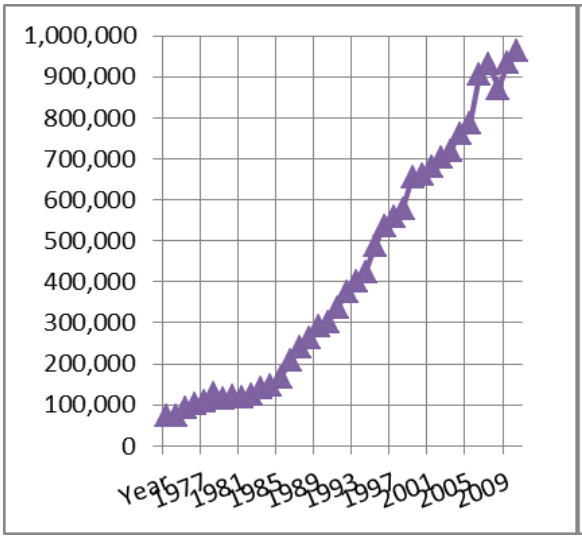
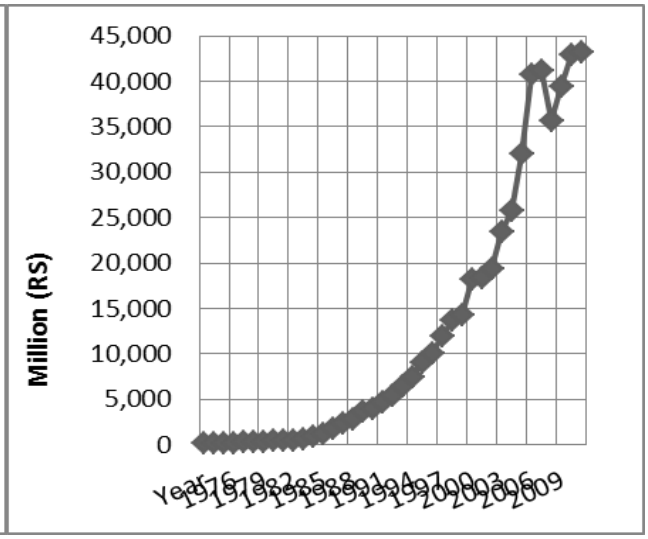


Figure 4: Tourism Receipts, 1974-2012



Source: Central Statistics Office (www.statsmauritius.gov.mu)

However, the bulk of the tourist arrival in Mauritius is highly concentrated towards the European countries. More than 50% of our tourism market is dominated by France, United Kingdom, Italy and Germany with France alone representing approximately 25% of the market share. Likewise, the Asian market is still at its embryonic stage with a share of 2.5% - 5% accounting for India alone.

3.2 Challenges Facing the Industry

Despite the increasing trend in tourist arrivals and the ever growing contribution to GDP of the tourism sector, one could argue that there are a number of challenges, both current and forecasted, which the Industry is presently and/or will face in the foreseeable future. These may be categorized as follows:

- **Climate Change**: Impacts as identified by the UNWTO are shown below.

Impact	Implications for tourism
Warmer temperatures	Altered seasonality, heat stress for tourists, cooling costs, changes in plant-wildlife-insect populations and distribution, infectious disease ranges
Increasing frequency and	Risk for tourism facilities, increased insurance costs /

Impact	Implications for tourism
intensity of extreme storms	loss of insurability, business interruption costs
Reduced precipitation and increased evaporation in some regions	Water shortages, competition over water between tourism and other sectors, desertification, increased wildfires threatening infrastructure and affecting demand
Increased frequency of heavy precipitation in some regions	Flooding damage to historic architectural and cultural assets, damage to tourism infrastructure, altered seasonality
Sea level rise	Coastal erosion, loss of beach area, higher costs to protect and maintain waterfronts
Sea surface temperatures rise	Increased coral bleaching and marine resource and aesthetics degradation in dive and snorkel destinations
Changes in terrestrial and marine biodiversity	Loss of natural attractions and species from destinations, higher risk of diseases in tropical-subtropical countries
More frequent and larger forest fires.	Loss of natural attractions; increase of flooding risk; damage to tourism infrastructure.
Soil changes (e.g., moisture levels, erosion and acidity)	Loss of archaeological assets and other natural resources, with impacts on destination attractions

Source: UNWTO (2008)

- **Infrastructure and Utilities:** Some of the issues indentified are as follows: Severe water shortage arises during periods of drought (Sept-December), with a water shortage foreseen in the future; Weaknesses in waste disposal and treatment that could undermine the country's attractiveness as a top-notch tourism destination; Constraints in road capacity and traffic congestion, particularly in the vicinity of Port Louis;

Limits in internet access which is sometimes unreliable or lacking connectivity; Adequate but comparatively high cost power supply.

- **Water Supply:** Tourism growth will result in increased water demand given the target of 2 million tourists and the development of the IRS segment. This could pose a challenge to the water sector in terms of the additional capacity required, given a scarcity of current resources notably during dry seasons or during some peak periods. However, the problem of network losses is a well-publicised issue although quantitatively, the apportionment of water to tourism is of a smaller order of magnitude than the actual network losses. The importance of reducing these losses has been recognised, with a pilot project to reduce lost water involving around 40,000 customers. The aim is to extend these efforts to the whole island with the aim of reducing lost water from 48% as of 2008 to 25% by 2015. In addition, although there has been an increasing use of desalination plants for hotels and resorts, experience elsewhere suggests that this is not insuperable at coastal locations in terms of its impact on hotel pricing structures. Given the relatively higher cost of electricity in Mauritius, it may not be the capital cost of the desalination plant that is necessarily the constraint, but the operational costs.
- **Waste Disposal:** Wastewater treatment is particularly an issue for smaller hotels, where inadequate standards of operation of treatment via septic tanks can result in environmental degradation. This suggests a need for improved levels of training in relation to the operation of these systems. There is also a need to ensure an invariably high level of operation of sewage treatment plants at the larger hotels. In addition, solid waste is a significant issue, with the Mare Chicose landfill close to saturation.
- **Land Constraints;**
- **Environmental Issues:** vulnerability due to the effects of climate change including tidal waves and surges; Deterioration of the coral reef through global warming and tourism activities such as diving and water sports; Increasing pollution and pressure on environmental assets (deforestation, depletion of non-renewable resources, pressure on marine eco-systems, vehicular traffic); Beach erosion; and coral bleaching.

3.3 Current Tourism Policies

Prior to 2000, tourism development in Mauritius was done on an ad hoc basis with no formal long-term planning for the destination. However, this was to be changed with the implementation of the National Tourism Development Plan (NTDP) in 2000, which reinforced the island's previous and current position as a high-quality and upmarket tourist destination (Deloitte & Touche, 2002). Furthermore, the Tourism Authority Act which was enacted in 2006, and further amended in 2008, made better provisions for regulating the operation of tourist enterprises and pleasure craft (boats used for fishing, water sports, etc.). In addition, insofar as hotel development projects were concerned, the Act urged hotel developers to install eco-friendly and energy saving practices such as desalination plants and recycling plants. Since 2000 there has been no other national tourism planning document for the island. In 2008, the government revised the Hotel Development Strategy (HDS), requiring hoteliers among others to strictly follow the recommendations of the Planning Policy Guidance (PPG) for coastal development. The document offers guidelines on land management, architectural design and eco-friendly practices amongst others. Other areas of intervention include tourism-related development control through EIA mechanism, control of recreational activities in the lagoon and the promotion of energy efficient and environment friendly technology in hotels amongst others. Finally, the Tourism Sector Strategy Plan (2009-2015) recommended ways and means of achieving an environmentally sound, socially acceptable and economically viable tourism development.

In addition, others measures which have been taken include the following: revamping of the tourism policy with focus on the gradual liberalization of air access; strengthening of the marketing strategy by positioning Mauritius as a cruising destination; the Mauritius Brand Strategy has been launched in October 2009 to strengthen and enhance the image of the Mauritius destination and to ensure greater visibility of the Mauritian brand worldwide; provision of professional assistance has been given to Small and Medium Enterprises under the Empowerment Programme to improve the quality of their products so that they can act as reliable suppliers for the tourism industry; measures taken to protect the environment (pollution control, sound environmental management, protection of natural resources, landscaping, etc.); encouraging promoters of new hotel projects are encouraged to use renewable energy and adopt eco-friendly practices and use, as far as practicable, energy saving devices; use of eco-friendly outboard

engines for crafts at sea are now being used to protect the marine environment; encouraging low-rise and low density hotel development to avoid the disfigurement of the coastal landscapes and the installation of permanent mooring buoys have been installed at dive sites to protect the coral from damage caused by anchors.

4.0 Methodology and Analysis

4.1. Supply Side Analysis

The objective of the present sub-section is to gauge the extent to which eco-tourism is and can be fostered in Mauritius and assess and delineate the supply-side constraints to the expansion of the eco-tourism sub-sector. In this regard, interviews were carried out with the different stakeholders of the tourism industry namely AHRIM, Ministry of Tourism and Leisure, Ministry of Environment, Sustainable Development, and Disaster and Beach Management, the Mauritius Tourism Authority, and the Association of Tourism Promoters. Questions were geared towards assessing the current eco-tourism products on offer, the pertinence and relevance of regulations and regulatory frameworks pertaining to eco-tourism, if any and delineate any constraints or problems which are hindering the promulgation of a successful eco-tourist sub-sector in Mauritius.

Unfortunately, the discussions we had with the stakeholders tend to point to the fact that there is no holistic approach to tackling the various issues related to the tourism sector. There is a dire need for a strategic plan which would delineate the various strategies to be adopted for the various sub-sectors within the tourism industry. Although the Tourism Act (2006) briefly mentions 'the promotion of sustainable development of the Tourism sector' as one of the objects of the Tourism Authority which was created under the same Act, there was no specific reference to eco-tourism per se. Furthermore, it is obvious that any holistic approach to fostering and promulgating the Tourism sector is scanty and piecemeal, let alone for the eco-tourism sub-sector.

And in this regard, the report commissioned by the Mauritius Ministry of Agro-Industry and Fisheries and carried out by the US Forest Service in 2008 entitled 'A New Vision for Sustainable Ecotourism in Mauritius' is the only study carried out on ecotourism per se. The report highlighted the need for an interactive process amongst institutions working towards

attracting ecotourists and the conservation of biodiversity. The report also noted the need to enhance the geographical character of the island to foster sustainable ecotourism and it was crucial to preserve the environment, culture, heritage and the well-being of the residents in the promulgation of same. Secondly, there were already a number of good examples of sustainable ecotourism in Mauritius including the likes of Blue Bay, Isle Aux Aigrettes, the SSR Botanical garden and Valley Ferney. But most importantly, the findings clearly argued that it was fundamental to prioritize sustainable ecotourism if the island was to achieve its target of two million visitors and it was to move beyond the image of the 3Ss. As such, it was indeed necessary for the government to balance the tourist influx with the island's conservation efforts. Interestingly, the report also catered for funding proposals and to that end, entrance fees to conservation sites, private investment, sponsorships, foundations and the establishment of a Conservation Fund were some of the funding strategies which the Government could propose to ensure the sustainability of its ecotourist sites. Unfortunately however, most of the above propositions, if not all, are yet to be implemented and the underlying reasons as to why this is the case will be discussed at length later on in the report. Furthermore, criticisms also abounded (as gathered from the interviews) as regards the sensitization of the outcomes of such a report. Most stakeholders were unaware that such a study was commissioned. Similarly, what also transpired from the various meetings is the argument that it is common practice to commission and conduct studies but the biggest issue remains one of implementation and monitoring. As such, they argued that it is crucial that the forthcoming promulgation of a new set of inland eco-tourism guidelines be widely diffused to all stakeholders to ensure proper implementation and monitoring of same.

The proposed inland eco-tourism guidelines present both a potential to cater for the new demand as well as an avenue for tourism product diversification. It proposes new avenues with potential for exploitation including land leased for shooting and fishing purposes which may prove crucial even more so in view of the scarcity of beach sites and the growing trend for eco-tourism worldwide. These guidelines promote three main criteria with respect to eco-tourism projects: be well planned, financed, managed and marketed to meet the stringent environmental and recreational requirement of ecotourism development; effectively promoting the preservation of the entire local ecosystems; and be economically viable to attract financing and be sustainable.

In addition to the above however, some stakeholders have argued that despite the absence of any overarching policy framework with respect to the sector and that any sectoral policy prescriptions are done in a piecemeal manner, there have been nevertheless a number of measures which have been adopted in an attempt to 'green' the tourism industry, some of which could be related to eco-tourism practices.

Firstly, the Environment Protection Act (2002) consolidated and reinforced the institutional and legal framework for the protection of environmental assets. As a result, hotel developers were required to submit Environmental Impact Assessment results with their application for hotel development. In addition, the Tourism Fund Act of 2006 was a first step towards social sustainability, which meant that hotel developers have had to contribute to a tourism fund to enable infrastructural development in those local communities that will be affected by such development. Hoteliers are also implementing Corporate Social Responsibility initiatives such as building schools, sponsoring employees' children for tertiary education, embellishing the environment and promoting local arts and crafts so that local communities will continue to support hotel development (Beachcomber, 2009). Government is also working to support efforts to raise the level of recycling, which have been supported by the tourism industry including via the composting of all green wastes.

As regards energy supply, both the Government and the private sector have been implementing policies and measures alike to encourage the adoption of energy-saving devices and eco-friendly practices. This includes the use of renewable energy and more particularly solar power generation when designing new hotel and bungalow projects. A proposal for these renewable energy measures is now one of the conditions of the EIA License.

In addition, a number of desalination have been installed which has helped reduce the pressure exerted by the hotels on an already stressed public water system. Furthermore, the major hotels are already operating waste treatment plants although there are still some small hotels, campement sites and commercial premises linked to the tourism industry where the waste water disposal systems are inadequate and unregulated.

Also, a greater number of hotels are moving for the Green Globe certification which can only serve to enhance the Island's image as a green destination. Similarly, the Government has already

embarked on seeking Blue Flag status for its beaches, with the Albion Beach being the first to be earmarked. Blue Flag status is awarded to those beaches that achieve excellence in water quality, environmental education and information, and adhere to international safety standards. The main objective of the Government in that endeavour is to promote inter-alia the sustainable use of the coastal resources and sound national policies on lagoon water quality, reefs, protection of the beaches and safety. Interestingly, such a process has seen the involvement of the local community with residents of Albion being major stakeholders in same.

Spatial planning of the lagoons has also become of prime importance, and the Government has already embarked on the zoning and sustainable management of the lagoon. In addition, to move towards the "greening" of the tourism industry, the Government of Mauritius is in the process of introducing an eco-label scheme for the environmental and sustainability of the sector.

The eco-labelling will be conducted through a certification programme. In this respect, the Ministry of Tourism and Leisure, in collaboration with the Mauritius Standards Bureau (MSB) and other key stakeholders of the Tourism Industry, have developed eco-label standards for the tourism industry. The eco-label standards will be applicable to the following tourism businesses: Accommodation (hotels, guesthouses, tourist residences); Restaurants; Tour operators; Tourist attractions (heritage, natural and cultural); and pleasure craft and related activities such as boathouses, scuba diving, helmet diving and parasailing.

Finally, other actions which have been undertaken include amongst others:

- Vigorous efforts to address beach erosion in sensitive areas especially along coastlines (e.g. Flic en Flac);
- Maintenance of touristic sites and the rehabilitation of some attractions with an embellishment programme at key touristic locations. Measures to achieve a greener destination via buffer zones, limits on access and constraints on the circulation of vehicles in sensitive areas are being implemented;
- Achieve green productivity – (e.g. capture solar energy, bio gas, reduce wastages).

Nonetheless, the majority of interviewees were quick to point out that there are a number of constraints limiting the expansion of an eco-tourism subsector in Mauritius. Firstly, the island's topography does not favour the expansion of inland eco-tourism. In this regard, there were calls for further fostering and promoting the 'Iles Vanilles' concept given that Islands the likes of the Seychelles and Mauritius were predominantly resorts locations whilst the topography of islands such as Reunion and Madagascar was more conducive to the fostering of an eco-tourism concept and as such tourists could be offered an experience mixing a resort with an eco-tourism option. Unfortunately, the outcome so far has delineated an opposite trend with tourists visiting the island favouring a package which includes Mauritius and Seychelles only. Such a trend clearly points to the intrinsic specificity of the island's visitors which are predominantly favouring the 3Ss concept.

In addition, whilst there was an overwhelming consensus that there was a dire need to move beyond the 3Ss, nonetheless, the same stakeholders were realistic in their assessment of the potential impact of the eco-tourism sector in that they argued that the island will always be recognized as a resort destination and that the latter will remain our core product. However, there was also the general belief that any initiative to promote an eco-tourism sub-sector will fail unless there is a change of mindset amongst the various stakeholders including promoters, policy makers and the population at large. There need to be the realization of the need for sustainable growth which includes the-long term sustainability of the tourism sector. With the aforementioned problems and challenges, it is obvious that an over-reliance on beach tourism is not sustainable in the long term and as such, an amalgamation with other types of tourism is crucial. Thus, the stakeholders argue that there is a dire need for more frequent sensitization and educational campaigns with the main aim of highlighting the importance of green and sustainable tourism concepts. Similarly, there are also claims that the sole focus of any business model in the tourism sector is return on investment. There are a number of projects including eco-lodges who have failed to take off given the very meager return on investment. However, the interviewees argue that the prevalence of sustaining the sector through the establishment and promulgation of green and eco projects, albeit the returns on investment on same being low at the onset, needs to be heightened and this calls for a change in mindset amongst investors and entrepreneurs.

More importantly though, the discussions also point to a need for greater inter-institutional communication, collaboration and coordination amongst the various tourism stakeholders to foster a greater harmonization of policy prescriptions and implementation. For instance, one interviewee argued that any proposal for a holistic plan w.r.t to the tourism sector calls for greater interaction at the highest level from which would emanate clear guidelines and responsibilities which will then be cascaded for implementation purposes. Similarly, there are arguments that the realization of sustainable eco-tourism can sometimes be challenging due the multi-jurisdictional management issues at eco-tourism sites.

But, the main deterrent or hindering element to fostering eco-tourism on the island is the lack of funding or the willingness by various stakeholders, including the Government, to invest in the protection and/or conservation and refurbishing of the eco-sites. At some point in time, a Tourism Fund was established to finance tourism and tourism related projects but unfortunately, such fund has now been integrated within the consolidated fund which entails that availing of the required funding to foster new and to sustain existing eco-sites has become even more painstaking. This is why there is the general belief that entrance fees to nature parks as well as the use of CSR funds through the establishment of Foundations dedicated solely to the protection and conservation of such sites is a viable option.

Additionally, a more cynical view was given by one interviewee in his endeavour to provide a plausible explanation to the painstakingly slow growth of our eco tourism sub sector. He argued that one of the supply side constraints inhibiting the growth of eco-tourism sites and the sustainability of the island's core assets including beaches and coral reefs is not the result of a lack of regulations pertaining to the sector, but rather due to a lack of proper monitoring of same. For instance, although the Beach Authority was created to oversee the proper management of the island's beaches, yet, no beach management plan has been devised. Additionally, there is still no accepted view as to how to combat beach erosion. At some point in time, the MID project was meant to cater for same, but however, it has been disbanded since the beginning of this year.

Finally, other supply side constraints which have been identified include amongst others: Limited area under protection and inadequate active conservation management of native ecosystems; inadequate protection for biodiversity, especially on private land; incomplete inventory with

respect to eco-sites; limited research or monitoring to support adaptive management; limited awareness of the population at large; limited development of conservation as a profitable venture; commitment to conservation not necessarily a priority for government; lack of data and information; lack of consistent guidelines and procedures; and lack of public awareness and sensitization.

4.2. Analysis of Demand Driven Factors

Survey Instrument and Data Collection

For measures of ecotourism interest, this study utilized eight items of Ecotourism Interest scale developed by Juric, Cornwell, and Mather (2002) as presented in Table 1. These eight items were measured on a seven-point Likert-type scale ranging from very important (7) to not at all important (1). As for the measurement of ecotourism attitude, five statements that were measured on the seven-point semantic differential scale were adopted from Lam and Hsu's (2006) study. As presented in Table 1, the ecotourism intention was measured by four items adopted from Lam and Hsu's (2006) study. These items were measured on a five-point Likert type scale ranging from Strongly Agree (5) to Strongly Disagree (1). Willingness to pay a premium was measured with five items that were adopted from Bang et al.'s (2000) study measuring consumers' willingness to pay more for renewable energy (Table 1). These five statements were measured on a five-point Likert-type scale ranging from strongly agree (5) to strongly disagree (1). Items to measure environmental attitudes were borrowed from Nunkoo and Gursoy (2012). The items are presented in Table 1.

The study relies on primary data collected from tourists visiting the island of Mauritius. Data collection took place between May to September 2015 at popular tourist sites located in different parts of the island. Tourists were randomly approached and were asked if they were willing to participate in the survey. The questionnaire was self-administered and was immediately collected after completion. A total of 512 usable questionnaires were collected.

Descriptive Statistics

Intention to visit an ecotourism site

Intention to visit an ecotourism site consisted of four indicators: (1) there is a likelihood that I will visit an ecotourism site in Mauritius (2) I want to visit an ecotourism site in Mauritius (3) I intend to visit an ecotourism site in Mauritius (4) I will visit an ecotourism site in Mauritius during my visit. Descriptive statistics were computed for each indicator as well as for the overall intention to visit an ecotourism site. All the items were measured on a 5 point Likert scale, where 1 represented "Strongly Disagree", 2 represented "Disagree", 3 represented "Neutral", 4 represented "Agree" and 5 represented "Strongly Agree".

Table 1 Intention to visit an Ecotourism site

	M	SD	S	K	SD (%)	D (%)	N (%)	A (%)	SA (%)
There is a high likelihood that I will visit an ecotourism site in Mauritius	4.01	.837	-.893	1.062	1.0	4.5	14.9	51.5	28.2
I want to visit an ecotourism site in Mauritius	4.05	.793	-.794	.930	.6	3.5	15.1	52.3	28.6
I intend to visit an ecotourism site in Mauritius	3.94	.808	-.745	.865	.8	4.3	18.0	53.7	23.1
I will visit an ecotourism site in Mauritius during my visit	3.98	.822	-.745	.850	1.0	3.3	19.0	50.4	26.3
Intention to visit an ecotourism	3.99	.702	-.805	1.553	-	-	-	-	-

M: Mean; SD: Standard Deviation; S: Skewness; K: Kurtosis; SD: Strongly Disagree; D: Disagree; N: Neutral; A: Agree; Strongly Agree

The skewness (-0.805) and kurtosis (1.553) values for the construct indicated that there was no issues of non-normality. The sampled tourists reported an average score of 3.99 (*SD* = 0.702) regarding their intention to visit an ecotourism site. This rating indicates that the respondents have a quite likely to visit an ecotourism site in Mauritius.

Willingness to pay for visiting ecotourism destinations

Willingness to pay was measured using five indicators: (1) How willing would you be to go on a more expensive holiday in order to reduce pollution? (2) How willing would you be to financially support ecotourism projects? (3) How willing would you be to pay more for your holiday if you knew the added cost paid for a better environment? (4) How willing would you be to pay more for your holiday today in exchange for possibly better tourism experiences in the future? (5) How willing would you be to pay more for ecotourism as opposed to "regular" tourism? All the items were measured on a 5 point Likert scale, where 1 represented "Not Willing at All", 2 represented "Somewhat Willing", 3 represented "Neutral", 4 represented "Willing" and 5 represented "Very Willing".

Table 2 Willingness to pay for visiting ecotourism destinations

	M	SD	S	K	NWA (%)	SW (%)	N (%)	W (%)	VW (%)
How willing would you be to go on a more expensive holiday in order to reduce pollution?	3.35	1.09	-.457	-.514	6.6	16.2	25.4	39.5	12.3
How willing would you be to financially support ecotourism projects?	3.44	.989	-.434	-.504	2.5	17.8	24.0	44.5	11.1
How willing would you be to pay more for your holiday if you knew the added cost paid for a better environment?	3.49	1.00	-.536	-.483	2.5	18.2	18.9	48.2	12.1
How willing would you be to pay more for your holiday today in exchange for possibly better tourism experiences in the future?	3.57	.992	-.785	.101	3.7	13.1	18.2	52.4	12.5
How willing would you be to pay more for ecotourism as opposed to "regular" tourism?	3.49	1.02	-.574	-.285	3.9	14.9	22.4	45.4	13.4
Willingness to pay for visiting ecotourism destinations	3.47	.839	-.499	-.103	-	-	-	-	-

M: Mean; SD: Standard Deviation; S: Skewness; K: Kurtosis; NWA: Not Willing at All; SW: Somewhat Willing; N: Neutral; W: Willing; VW: Very Willing

The skewness (-0.499) and kurtosis (-0.103) values for the construct indicated that there was no issues of non-normality. The sampled tourists reported an average score of 3.47 (*SD* = 0.839) regarding their willingness to pay for visiting an ecotourism. This rating indicates that the respondents have a moderate level of will to pay for visiting eco-friendly places in Mauritius.

Interest in ecotourism activities

Interest in ecotourism activities was measured using eight indicators: (1) Wilderness and undisturbed nature (2) Tropic forests and indigenous bush (3) National parks (4) Lakes and streams (5) Oceanside (6) World heritage status areas (7) Learning about nature (8) Photographing landscape and wildlife. Descriptive statistics were computed for each indicator as well as for the overall level of interest for ecotourism activities. All the items were measured on a 5 point Likert scale, where 1 represented "Not at All Important", 2 represented "Somewhat Important", 3 represented "Neutral", 4 represented "Important" and 5 represented "Very Important".

Table 3 Interest in ecotourism activities

	M	SD	S	K	NAI (%)	SI (%)	N (%)	I (%)	VI (%)
Wilderness and undisturbed nature	4.11	.962	-1.10	.770	1.4	7.6	10.2	40.4	40.4
Tropic forests and indigenous bush	4.00	.988	-.939	.335	1.6	8.8	13.0	41.7	35.0
National parks	4.12	.929	-1.11	1.066	1.6	5.5	12.1	41.5	39.3
Lakes and streams	4.08	.925	-1.11	1.123	1.6	6.3	10.8	45.3	36.1
Oceanside	4.30	.812	-1.18	1.182	.2	4.3	8.2	39.5	47.7
World heritage status areas	3.99	.969	-.884	.393	1.8	6.5	17.2	40.0	34.5
Learning about nature	4.14	.888	-1.01	.919	1.2	3.9	14.7	40.6	39.6
Photographing landscape and wildlife	4.18	.819	-.894	.639	.4	3.5	13.3	43.6	39.1
Interest in ecotourism activities	4.11	.680	-.671	.168	-	-	-	-	-

M: Mean; SD: Standard Deviation; S: Skewness; K: Kurtosis; NAI: Not at All Important; SI: Somewhat Important; N: Neutral; I: Important; VI: Very Important

The skewness (-0.671) and kurtosis (0.168) values for the construct indicated that there was no issues of non-normality. The sampled tourists reported an average score of 4.11 (*SD* = 0.680) regarding their interest in ecotourism activities. This rating indicates that the respondents believe that ecotourism activities are important, thus demonstrating a quite high level of interest towards these type of activities.

Attitude towards Ecotourism

Attitude towards ecotourism was measured using five indicators: (1) Not enjoyable: Very enjoyable (2) Negative: Positive (3) Boring: Fun (4) Unpleasant: Pleasant (5) Unfavourable: Favourable. Descriptive statistics were computed for each indicator as well as for the attitude towards ecotourism. All the items were measured on a 5 point Likert scale.

Table 4 Attitude towards Ecotoursim

	M	**SD**	**S**	**K**	**1 (%)**	**2 (%)**	**3 (%)**	**4 (%)**	**5 (%)**
Not enjoyable :Very enjoyable	4.32	.732	-.823	.170	-	1.6	11.1	41.2	46.1
Negative : Positive	4.39	.670	-.728	-.219	-	.4	9.3	41.2	49.1
Boring : Fun	4.27	.761	-.748	.050	.2	1.0	14.7	39.6	44.4
Unpleasant:Pleasant	4.35	.729	-1.049	1.392	.4	1.0	9.7	41.3	47.6
Unfavourable :Favourable	4.26	.783	-.997	1.167	.6	1.6	12.5	41.8	43.4
Attitude towards Ecotourism	4.32	.609	-.522	-.519	-	-	-	-	-

The skewness (-0.522) and kurtosis (-0.519) values for the construct indicated that there was no issues of non-normality. The sampled tourists reported an average score of 4.32 (*SD* = 0.609) regarding their attitude towards ecotourism. This rating indicates that the respondents tend to have a positive attitude towards ecotourism.

Attitude towards the Environment

Attitude towards ecotourism was measured using five indicators: (1) In competition with the natural environment: in cooperation with the natural environment. (2) Detached from the natural environment : connected to the natural environment(3) Indifferent about the natural environment: very concerned about the natural environment(4) Not at all protective of the natural environment: very protective of the natural environment(5) Superior to the environment: Inferior to the environment (6)Not at all passionate toward the environment: Very passionate toward the environment (7) Not respectful toward the natural environment: Very respectful toward the environment (8) Independent of the natural environment: Dependent on the natural environment (9) Disinterested in the natural environment: An advocate of the natural environment (10)Wanting to utilize the natural environment: Wanting to preserve the natural environment (11) Emotionless thinking about the natural environment: Nostalgic about the natural environment. Descriptive statistics were computed for each indicator as well as for the attitude towards the environment. All the items were measured on a 5 point Likert scale.

Table 5 Attitude towards the Environment

	M	SD	S	K	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)
In competition with the natural environment: in cooperation with the natural environment.	4.13	.785	-.753	.716	.6	1.8	16.1	46.9	34.6
Detached from the natural environment: connected to the natural environment.	4.22	.763	-.823	.722	.4	1.6	13.4	44.9	39.8
Indifferent about the natural environment: very concerned about the natural environment	4.19	.772	-.804	.832	.6	1.2	15.0	45.3	38.0
Not at all protective of the natural environment : very protective of the natural environment	4.12	.836	-.712	.212	.6	2.4	19.1	40.7	37.3
Superior to the environment : Inferior to the environment	3.86	.933	-.369	-.528	.8	5.5	29.9	34.3	29.5

Not at all passionate toward the environment : Very passionate toward the environment	4.10	.826	-.686	.270	.6	2.4	19.1	42.8	35.2
Not respectful toward the natural environment : Very respectful toward the environment	4.23	.778	-.812	.341	.2	2.2	13.6	42.1	41.9
Independent of the natural environment : Dependent on the natural environment	4.09	.823	-.552	-.290	.2	2.8	20.2	41.5	35.4
Disinterested in the natural environment : An advocate of the natural environment	4.07	.811	-.576	.129	.6	1.6	21.3	43.3	33.3
Wanting to utilize the natural environment : Wanting to preserve the natural environment	4.26	.777	-.807	.223	.2	1.8	14.1	40.1	43.8
Emotionless thinking about the natural environment : Nostalgic about the natural environment	3.97	.871	-.354	-.613	.4	3.0	28.2	36.3	32.1
Attitude towards the Environment	4.11	.580	-.098	-.819	-	-	-	-	-

The skewness (0.580) and kurtosis (-0.098) values for the construct indicated that there was no issues of non-normality. The sampled tourists reported an average score of 4.11 (*SD* = 0.580) regarding their attitude towards the environment. This rating indicates that the respondents tend to have a positive attitude towards the environment.

Modelling Process: Confirmatory Factor Model (Measurement Model)

The structural model and hypothesized paths were tested using the maximum likelihood method of estimation, together with the two-staged process as recommended by Anderson and Gerbing (1988) using the LISREL structural equation analysis package. Several indices to evaluate the overall fit of the measurement and structural models were used. First, chi-square statistic with its

associated *p* value was used to determine model fit. Other fit indices used were the goodness-of-fit index (GFI), non-normed-fit-index (NNFI), comparative-fit-index (CFI), incremental-fit-index (IFI), and the critical *N* statistic. Values of GFI, NNFI, CFI, and IFI range from 0 to 1 with a value close to 1 indicating a good model fit. A value of 200 or greater is also suggested as an indication for adequate model fit for the critical *N* statistics. The parsimony goodness of fit index (PGFI) and the parsimony normed fit index (PNFI) were also used to measure the parsimony of the model. Value of the PGFI and PNFI ranges from 0 to 1, with a value greater than 0.7 indicating a good model fit (for a detailed discussion of model fit indices, see Hu & Bentler, 1995; Nunkoo & Ramkissoon, 2012).

As recommended by Anderson and Gerbing (1988), a confirmatory measurement model that specifies the posited relations of the observed variables to the underlying constructs, with the construct allowed to intercorrelate freely was tested. Unidimensionality of each construct in the model was tested before the overall measurement model was evaluated (Anderson & Gerbing, 1988). Constructs with unacceptable fits were re-specified by deleting indicators that failed to preserve unidimensionality (Anderson & Gerbing, 1988). Table 1 presents the remaining items after the above steps were performed. The measurement model was then reformulated and tested using confirmatory factor analysis. The adequacy of the individual items and composites were verified by means of reliability and validity. Composite reliability, indicator reliability, and average variance extracted (AVE) were used as reliability measures. Figure 1 shows the measurement model being tested.

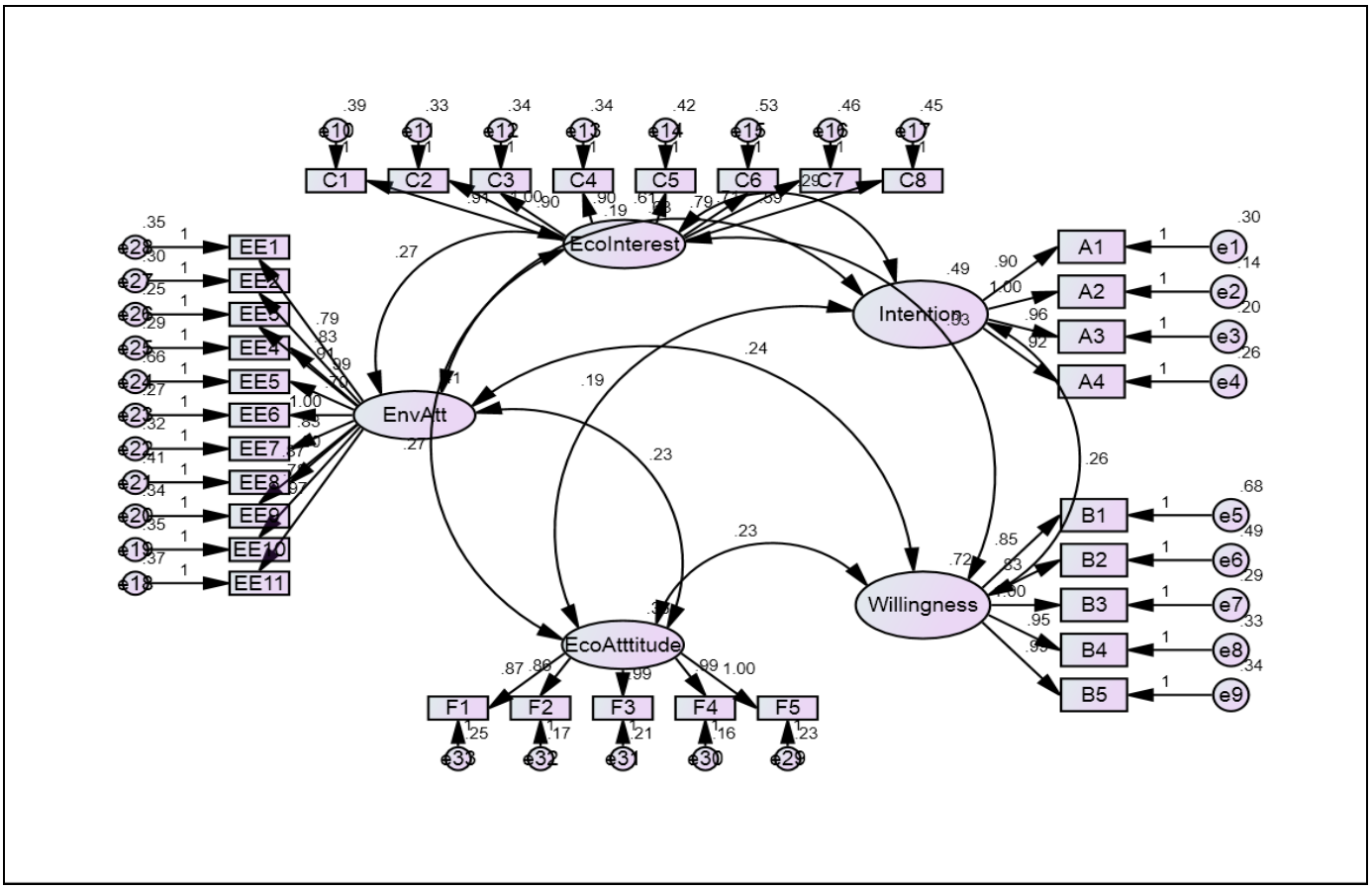


Figure 5. The Confirmatory Factor Model

Table 6 shows that the composite reliability of all constructs exceeded the acceptable level of 0.7 and the AVE for each factor exceeded the acceptable level of 50%. The measurement model was further tested for its validity by assessing discriminant and convergent validity. Discriminant validity was tested by calculating the difference between one model that allowed the correlation between the constructs (with multiple indicators) to be constrained to unity (i.e., perfectly correlated), and another model that allowed the correlations to be free (Anderson & Gerbing, 1988). This was carried out for one pair of constructs at a time. The first model was the constrained model where the correlation parameter was constrained between each pair of constructs to 1.0. The second model was the unconstrained model where the correlation parameter between two constructs was not manipulated (not fixed at 1.00). Afterwards, a $\chi 2$ difference test on the values obtained for the constrained and unconstrained models was performed (Anderson & Gerbing, 1988). Results indicated a significantly lower $\chi 2$ value for the unconstrained (free) model, indicating that discriminant validity was achieved (Anderson &

Gerbing, 1988). Convergent validity is the overlap between alternative measures that are intended to measure the same construct, but that have different sources of undesired variation (Judd, Smith, & Kidder 1991). Examining the standardized confirmatory factor analysis estimates is one commonly used method to assess convergent validity in structural equation modelling (Marsh & Grayson, 1995). Convergent validity was assessed from the measurement model by determining whether each indicator's estimated pattern coefficient on its posited underlying construct factor was significant (Anderson & Gerbing, 1988). Statistically significant large factor loadings indicate convergent validity. Results indicated that all of the estimated pattern coefficients on their posited underlying construct factors were significant at the 0.05 significance level (i.e., each had a *t* value > + 1.96), indicating that convergent validity was achieved.

Table 6 Properties of the Measurement Model

Variables and Indicators	SL	t-value	AVE
Intention to visit ecotourism sites		0.887	0.664
There is a high likelihood that I will visit an ecotourism site in Mauritius	.754	20.083	
I want to visit an ecotourism site in Mauritius	.881	-	
I intend to visit an ecotourism site in Mauritius	.831	23.238	
I will visit an ecotourism site in Mauritius during my visit	.787	21.431	
Willingness to Pay		0.879	0.595
Go on a more expensive holiday in order to reduce pollution?	.657	15.929	
Financially support ecotourism projects?	.708	17.571	
Pay more for your holiday if you knew the added cost paid for a better environment?	.843		
Pay more for your holiday today in exchange for possibly better tourism experiences in the future?	.813	21.235	
Pay more for ecotourism as opposed to "regular" tourism?	.819	21.418	
Interests in ecotourism activities		0.886	0.496
Wilderness and undisturbed nature	.770	19.222	
Tropic forests and indigenous bush	.818	-	
National parks	.775	19.381	
Lakes and streams	.784	19.704	
Oceanside	.599	14.037	
World heritage status areas	.626	14.786	
Learning about nature	.615	14.459	
Photographing landscape and wildlife	.565	13.108	
Environmental attitude		0.905	0.467

in competition with the natural environment VS in cooperation with the natural environment.	.715	16.794	
detached from the natural environment VS connected to the natural environment.	.644	14.876	
indifferent about the natural environment VS very concerned about the natural environment	.687	16.025	
not at all protective of the natural environment VS very protective of the natural environment	.622	14.307	
superior to the environment VS inferior to the environment	.683	15.922	
not at all passionate toward the environment VS very passionate toward the environment	.775		
not respectful toward the natural environment VS very respectful toward the environment	.480	10.779	
independent of the natural environment VS dependent on the natural environment	.761	18.086	
disinterested in the natural environment VS an advocate of the natural environment	.756	17.956	
wanting to utilize the natural environment VS wanting to preserve the natural environment	.698	16.344	
emotionless thinking about the natural environment VS nostalgic about the natural environment	.647	14.976	
Ecotourism attitudes		0.886	0.610
Not enjoyable VS Very enjoyable	.778	-	
Negative VS positive	.827	19.631	
Boring VS fun	.792	18.677	
Unpleasant VS pleasant	.784	18.458	
Unfavorable VC favorable	.719	16.667	

Structural Equation Model and Path Relationships

Given that the confirmatory factor model (measurement model) was both reliable and valid, the structural model was tested (Figure 2). Results indicated that the structural model exhibited good fit to the data as follows: CMIN/DF = 2.20; IFI = 0.94; TLI: 0.93; CFI = 0.94; RMSEA = 0.048.

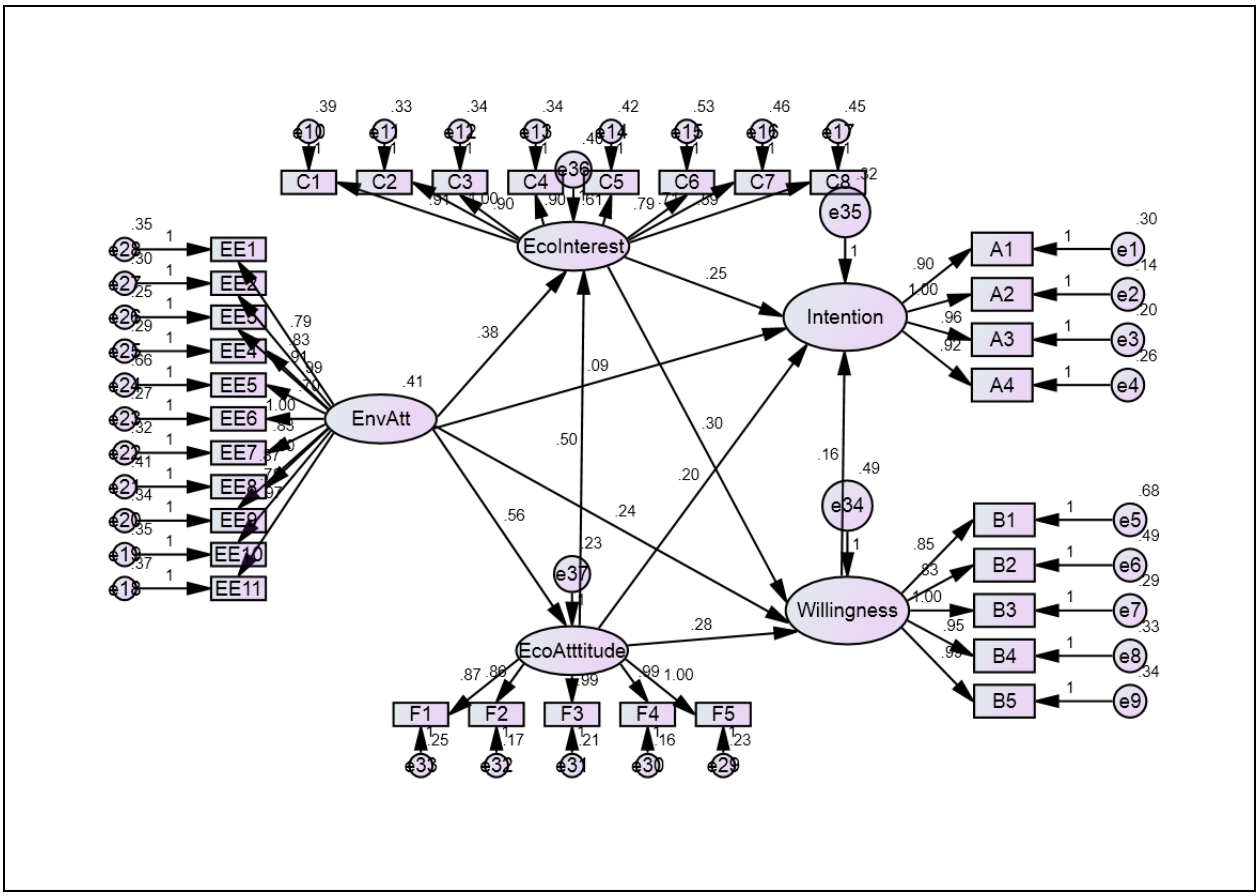


Figure 6. The structural model of the study

Results indicated that nine of the 10 hypotheses proposed were supported. Findings of the path relationships are provided in Table 7 below.

Table 7 Path Relationships

Path relationships	Values	Results
Willingness to pay → Intention	.190	Supported
Ecotourism interests → Intention	.289	Supported
Ecotourism attitudes → Intention	.169	Supported
Environmental attitudes → Intention	.081	Rejected
Ecotourism interests → Willingness to pay	.280	Supported
Ecotourism attitudes → Willingness to pay	.199	Supported
Environmental attitudes → Willingness to pay	.180	Supported
Ecotourism attitudes → Ecotourism interests	.377	Supported
Environmental attitudes → Ecotourism interests	.304	Supported

Environmental attitudes → Ecotourism attitudes	.595	Supported

As expected, the above findings reveal that consumers' ecotourism attitude would positively influence ecotourism intention, ecotourism interest, and willingness to pay a premium to participate in ecotourism activities in Mauritius. Such findings are consistent with the theory of reasoned action (Ajzen and Fishbein 1980) which indicates that attitude is an important determinant of behavioral intention, which further predicts the individual behavior. The present study has treated attitudes as individuals' particular feelings (affective) and perceptions (cognitive) towards ecotourism. Thus, similar to the work of Hines, Hungerford and Tomera (1987) consumers' ecotourism intention and interest are considered as the outcome variables, which are positively related by consumers' favorable attitudes toward ecotourism. A vast majority of the literature has also revealed that attitude is the most influential predictor variable of consumers' green consumption behaviour intentions (Hines, Hungerford and Tomera, 1987; Lai & Nepal, 2006; Vaske & Donnelly, 1999). Moreover the study supports the fact that consumers who have a favorable ecotourism attitude are willing to engage themselves in pro-environmental activities. These findings are in line with the work of Hudson and Richie's (2004) and Lu et al., (2014). It is thus reasonable to find that these three constructs are positively influenced by consumers' ecotourism attitude.

On the other hand, the result also indicates that consumers' ecotourism interest will positively predict their intention towards ecotourism. Therefore similar to Blamey (1997) and Juric, Cornwell, and Mather (2002) works, the study also found that tourists will intend to visit ecotourism destinations because of their interest in viewing the wildlife, visiting undisturbed areas and learning about the environment and nature. Therefore, consumers' ecotourism interest is likely to positively increase their intention to participate in ecotourism activities. In addition, Bang et al. (2000) is of the view that consumers who are environment conscious would have a preference for eco-friendly products and would reward environmentally and socially responsible businesses. In line with the above argument and as justified in the literature, only those who are interested in or motivated towards ecotourism destinations will be willing to pay higher premium to protect the environment. In line with the same logic, willingness to pay a higher premium for eco-products and services directly demonstrates one intention towards participating in ecotourism activities.

The results further show that environmental attitudes have positive influences on ecotourism attitude, ecotourism interest, and willingness to pay a premium for visiting ecotourism places and using eco-tourism products. Such results reflect clearly previous researchers' work on environmental attitude as being one of the roots to ensure continuum of protecting the environment (Lu et al. 2004, Kaiser et al. 1999). Even though Mauritius has long been recognized for its beautifully beach, sand and sun, the study demonstrates a quite high level of interest towards ecotourism activities. Thus respondents believed that ecotourism activities such as oceanside, visiting and photography of wildlife are important. These finding as similar to the study of Zografos and Allcroft (2007) which identified that visitor's interest for a Scottish ecotourism experience was emphasised on biodiversity conservation and low use of exhaustible resources and other activities such as wildlife sightseeing, hill walks and relaxation activities were also envisaged as being important. The study also showed that environmental values individuals promote positive attitude towards the ecotourism (Wanga, 2013). This suggests that an individual is likely to refuse his or her short term economic behaviour conflicting with his or her environmental values (Wang, 2010). The study thus confirms that rising awareness and consciousness about the environment is one of the first and major objectives to promote positive attitude and interest towards ecotourism. Individuals with high environmental values would find ecotourism activities as attractive as it perfectly match their needs and would therefore be more willing to pay a premium for ecotourism products and services. All these could explain why one's environmental attitude would positively influence his or her ecotourism attitude, interest, and willingness to pay more for ecotourism as reported in this study.

Nevertheless, the present study did not find consumers environmental attitudes to positively predict their ecotourism intention. Possible explanations for such findings might be that some of the tourists prioritized their motivation for travel in that although they were environmentally conscious, their intentions were mainly to enjoy the moment, have fun and relax in the most comfortable and luxurious resorts (Perkins and Grace 2009). Furthermore, another possible explanation may reside in the fact that there may exist significant differences in environmental attitudes between appreciative and consumptive tourists (Bjerke et al. 2006).

5.0 Conclusion and Policy Recommendations

The aim of the present study is two-fold. Firstly, through a review of the existing regulations and legal frameworks and through discussions with various sector stakeholders, delineate the various supply side factors hindering the expansion of an eco-tourism sub-sector and propose remedial measures accordingly. Secondly, through the use of the survey method, attempt to delineate the various demand driven factors fostering the behavioural intention of tourists towards eco-tourism. With respect to the second objective and using structured equation modeling, the results show that consumers' ecotourism attitude positively influence ecotourism intention, ecotourism interest, and willingness to pay a premium to participate in ecotourism activities. The results also indicate that consumers' ecotourism interest would positively predict their intention towards ecotourism. Furthermore, consumers' environmental attitudes did not positively predict ecotourism intention. As regards the supply side impediments, discussions with stakeholders reveal that the main constraints to promoting an eco-tourism sub-sector include firstly, lack of finance with respect to the fostering and conservation of eco-sites; lack of a holistic approach for the strategic orientation of the sector; lack of educational and sensitization programmes and the prioritization of return on investment when making investment decisions in the sector; the island's topography is not conducive to fostering eco-tourism; and finally a lack of inter-institutional communication, collaboration and coordination amongst the various tourism stakeholders.

The above clearly points to the need for wholesale changes with respect to the current structure and policy measures presently underpinning the eco-tourism sub-sector. Given the supply side constraints which the sector is facing currently, the following measures and courses of actions are proposed.

a. There is a clear need for a holistic approach to tourism in Mauritius which would also cater for the requirement of the eco-tourism sub-sector. For instance, with respect to eco-tourism projects, it is crucial that the Ministries overseeing the Tourism and the Environment sectors co-ordinate their actions and combine their expertise, whilst clearly delineating each Ministry's role to avoid any duplication of initiatives and to ensure policy coherence. In addition, such a plan should foster a participatory approach which would include all stakeholders including the private sector and the local community. As such, during the implementation of eco projects, a comprehensive

strategy need to be conceived and this should cover the entire range of necessary ecotourism aspects from participatory planning and product development to marketing and monitoring.

b. Closely related to the importance of integrating the local community in any eco-tourism project formulation and design is the need to educate all the tourism stakeholders as to the importance of fostering the long-term sustainability of tourism as a core product. This calls for the sensitization of all parties through educational programmes, frequent discussions and sensitization campaign which can only serve to bolster a change in mindset from one which is overtly favouring return on investment to one which also considers the element of sustainability. Additionally, training programmes should become a major component of any ecotourism project with local communities, NGOs and protected areas agencies being the main target groups.

c. Similarly, there needs to be a greater synergy with the private sector and foster private public partnerships between private companies on the one hand and the government, local communities and NGOs on the other. This is particularly important for generating the required funding for developing new and maintain existing eco sites and to ensure proper monitoring. This is even more crucial in view of the ever contracting budgetary allocation being given to these types of projects. One should remember that the Tourism Fund no longer exits and finding alternative sources of funding is crucial. In this regard, the setting up of Foundations using CSR funds and private sponsorships may prove useful. Additionally, Government should be able to take bold measures with respect to charging entrance fees to eco-sites as is the case presently for the SSR Botanical Garden. For instance, charging fees for accessing Albion Beach which has been earmarked for Blue Flag Status may be the only way forward to ensure sustainability of same. Nonetheless, one should not underscore the interplay between the strategies proposed thus far. As an example, to ensure the availing of funds, it is crucial that there is a change in mindset amongst the various stakeholders including the private sector which can only be achieved through educational programmes and through their integration at the onset in the design and implementation of any eco-tourism projects.

d. Certification has a central role to play in promoting environmental and sustainability performance and satisfying consumer demand for responsible travelling. Initiatives such as Blue Flag, Fair Trade and Green Globe certifications should be reinforced and tourism enterprises

need to continually sensitized as to the benefits thereto especially in view of the predicaments linked to environmental degradation and non-sustainability of the island's current tourism trend. In this regard, there is a need for policies geared at incentivizing hotels and other tourism businesses to become more sustainable. Comprehensive tourism development strategies need to be developed in partnership with the community and other industry stakeholders including tour operators. To that end, incentives may help leverage sustainability initiatives in resorts to develop niche travel products which may allow local communities preserve their cultural heritage whilst at the same time potentially increasing market share and profitability.

e. Discussions with stakeholders also revealed the absence of any branding exercise with respect to the island offering opportunities for eco-tourism experience. Branding of same is critical for informing prospective visitors and for meeting their expectations once they arrive. In this regard, the relevant authorities need to embark on a branding and marketing exercise of its ecotourism opportunities. One should not forget that the island does possess some unique selling points which include amongst others the Dodo, its mixed cultural heritage and its natural parks. To that end, delivering a single brand message for the entire island is fundamental in creating communication efficiencies, solidifying a good target market and enhancing overall visitor expectations; in a nutshell, developing a branding message that introduces and entices visitors and authenticates the Mauritian Brand.

6.0 References

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