

# The environmental impacts of tourism on community people's quality of life in Maun, Botswana

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## **Abstract**

While tourism development beautifies community environment through preservation and conservation of nature, the development is also a potential destruction of natural environment in the same community. This study investigates the relationship between environmental impacts of tourism on people's quality of life in Maun, Botswana. The questionnaire was used to collect data from 400 households who were 18 years or older and have stayed in Maun for at least a year at the time of this study. The hypothesis developed to measure the structural model was based on the social exchange theory. Analysis was carried out using the AMOS 16.0 software. The estimated standardised coefficient for the path from environmental impacts to people's quality of life is -0.18 and statistically significant ( $p < .05$ ) of which the variance explained by the model is 26%. The significant negative relationship between tourism environmental impacts and people's quality of life could be associated with the identification of the factors including drivers of environmental pollution and degradation of environment that poses health and safety problems in the community. Therefore, the implications of the findings are that tourism policymakers need a strategic plan to reduce the negative impact of environmental pollution including increased solid waste and water pollution; and public place and degradation of environment for tourism development to be sustainable.

**Keywords:** Tourism development, Environmental impacts, Quality of Life, Botswana

## **Introduction**

The potential of tourism industry became known as a result of the increased demand for touristic related goods and services (Faulkner & Tideswell, 1997). Currently, the demand for tourism and quest to diversifying various economies has aggravated the momentum of the development paradigm in various destinations including Botswana. Tourism in developing countries is one of the fundamental pillars of the development process (Zaei & Zaei, 2013). The industry has also been used to generate additional income and boost the gross domestic product (Zaei & Zaei, 2013). It is a catalyst for economic growth through creation of employment

and foreign earnings in the developing countries (Wei, Shuib, Ramachandran & Herman, 2013; Kala, 2008). For example, the development of tourism in Ghana is based on economic benefits expected at national and local levels to improve the quality of life of community people through job creation and balance regional development (Sirakaya, Teye, and Sonmez 2002). Mbaiwa (2003) investigates the socioeconomic and environmental impacts of tourism development in the Okavango Delta. The study revealed, from macroeconomic point of view, that tourism in Okavango has led to an increase in gross domestic product (GDP) and expansion of the sector has also made the sector the second largest generator of government revenue after diamonds. The significant contribution of the sector has put the sector in a strategic position for the diversification of the Botswana economy, hence reduces dependency syndrome on the production of diamonds alone (Mbaiwa, 2003). Tourism sector contributes gross domestic product, favourable balance of payments through foreign exchange earnings, such contributions are only necessary condition. The sufficient condition will be its impacts on the people quality of life in the destination areas which in turn, is a positive function of support for tourism. Mbaiwa (2003) argues that the level of poverty in destination areas has lured people to over exploit environment each day to make a living. This means that there is an indirect relationship between number of poor people and the conservation of environment. Mbaiwa (2003) also contend that, the initiative of community based tourism has led to income generation and creation of employment for the local people in the Okavango. One important point to note from that study is that, the employment created is not limited to tourism enterprises alone but also tourism related business such as wholesale and retail businesses. This can therefore be translated to mean, that the extent of employment created due to tourism activities is dependent on the degree of linkage to other sectors of the economy.

The demand for goods or services is a function of the availability and accessibility of the market for their consumption (Kolawole, 2013). Therefore, in order to generate additional profits, suppliers ought to avail the commodity and make sure it is accessible to the consumers. The development of tourism in the destination area such as Okavango has influenced the domestic economy in form of infrastructural development (Mbaiwa, 2003). Government has invested tremendously in networking good roads in Maun and the expansion of Maun International Airport (Mbaiwa, 2003) for easy accessibility to the touristic products in various destination areas. The government of Botswana has also created conducive environment to increase the number of hotels and safaris in Maun to accommodate inflow of increased tourists. The improvement on the infrastructure has resulted to a significant rural development and it has aggravated the aroma of scenic beauty of the destination. While the tourism benefits people and economies at large, the development of tourism in any destination also influences the people's way of life in general due to tourists-hosts interactions. Jurowski (1994) maintains that the lives of residents where tourism take place inevitably affected to some due to tourism impacts. Abdoreza and Somayyeh (2010) contend that expansion of tourism without controlling is a potential to damage environment in form of soil erosion, increased pollution, discharge into sea, natural habitat loss, increased pressure on endangered species and heightened vulnerability to forest fires. The pollution that industry contributes to the environment can be categorized into water (i.e., oil spillage, industrial waste, chemical for farming); air (i.e., fossil fuels, noise) and aesthetic pollution from coastal and mountainous areas. Aref and Redzaun (2009) measure the strength of the relationship between the perception towards the tourism impacts and the level of community capacity building. The study reveals a significant negative relationship between environmental impacts and community capacity building in tourism development in their study (Aref & Redzaun, 2009).

Aref Redzaun and Gills (2009) investigate the residents' perceptions on economic and environmental impacts of tourism between Old and New districts in Shiraz, Iran. Though the comparative studies between the two communities are similar, the strongest and favourable perceptions toward tourism impacts are connected to environmental, signifying how importance environmental issue in the communities. The study revealed negative impacts of increased crime rate, traffic congestion, noise and air pollution, destroy of natural environment. The expansion of tourism has the potential to destroy an environment where tourists visit. Mbaiwa (2003) also maintains that the development of tourism has created negative impacts in form of illegal roads in protected areas, noise pollution and sanitation problems. The negative impacts destroy environment and deteriorate the values of a destination. From the results of various studies like (Mbaiwa, 2003; Kala, 2008; Aref & Redzaun, 2009), the development of tourism accounts for both negative and positive in the community where tourism take place. Despite the benefits from tourism, the negative impacts inform of environment depletion have affected the quality of life of millions of people (Kala, 2008; Rabbany, Afrin, Rahman, Islam & Hoque, 2013). This study relied on subjective perspective (Eckersley, 2009), especially the cognitive component (Silva, de Keulenaer & Johnstone 2012) and it uses social exchange theory to analyse the relationship between tourism environmental impacts and people's quality of life in Maun, Botswana. The social exchange theory was used to determine the perceptions of community people due to tourism development in their community. Since social exchange theory is associated with the implications of benefits and costs accrued to various host communities, the theory can shed more light on the relationship between tourism environmental impacts and community people's quality of life in Maun.

## **Theoretical framework**

### **Tourism environmental impacts**

The physical environment and the local people play a crucial role in the development of tourism. Various environments have been beautified and some have been degraded due to the employment of the factors (i.e., land). It is empirically proven that various studies have shown both negative and positive relationship between environmental impacts and quality of life, community capacity building, support for tourism development or other dependent variables commonly used in tourism impacts and related studies. Aref (2009) reveals negative impacts of tourism in form of increase crime rate, traffic congestion, noise and air pollution, destroy of natural environment in Shiraz, Iran.

On the contrary, Mbaiwa (2003) argues that the development of tourism has also created negative impacts in form of illegal roads in protected areas, noise pollution and sanitation problems. These impacts are capable of deteriorating the value of destination, and destroy the scenic beauty of the Okavango that tourists admire (Mbaiwa, 2003).

Chen (2000) investigates the relationship between level of community loyalty and urban residents' attitude toward tourism development in three urban strata of northern Virginia, south-eastern Virginia and south-western Virginia. In general, loyal residents admit that tourism development creates more benefits than cost of the development. Concerning the non-loyal residents, they complained about the increasing cost of living and congestion due to tourism activities in the area (Chen, 2000). The inconsistencies between the attitude of urban residents and rural residents were noted in the study (Chen, 2000). When considering the result from rural/urban responses, the urban residents were concerned about social and environmental

costs. Despite their sensitivity of the rural residents about the economic benefits, they also raised their voice on the social and environmental costs of the tourism development.

### **Social exchange theory**

The social exchange theory explains attitudes people generally demonstrate when it concerns exchange of resources between two parties in the society. Ap (1992) maintains that social exchange theory is rooted from sociological theory and it explains interactions in the exchange of resources between two parties, individuals and groups. Sirakaya, Teye, and Sonmez (2002) maintain that 'social exchange theory stipulates that residents seek benefits of tourism in exchange for something estimated to equal the benefits they offer in return, such as resources provided to tourism developers, tour operators, and tourists'. The two parties involved in the exchange of resources based their evaluation on the costs and benefits incurred due to the exchange. According to this theory, people will be unhappy if the development of tourism causes destruction of the environment in the community. With the consideration of the underpinning theory of social exchange which maintains that community people will only be interested to exchange their resources with tourists if there is tendency to acquire some benefits, the present study tested the structural relation between tourism environmental impacts and people's quality of life in Maun. Social exchange theory (SET) is appropriate to understand the perceptions and attitudes of local people towards tourism development (Ap, 1992; Chen, 2000; Kaynak & Marandu, 2006; Perdue et al., 1990; Sirakaya, Teye & Sonmez, 2002; Yoon, Gursoy & Chen, 2001). The data collected relied on the subjective indicators which were used to measure quality of life by evaluating the life satisfaction perceived by the people in Maun. Therefore, the hypothesis (*conceptual*) for this study is stated as follows: *there is a significant relationship between perceived environmental impacts and community people's quality of life.*

## **Methods**

### **Study Area**

Maun village is located in the north-western part of Botswana. Maun is an administrative centre of Ngamiland. The village is a gateway to the most distinguished striking geographical endowment of Ngamiland – Okavango Delta. Okavango Delta is a large swamp and flood plain area and measuring about 16,000 square kilometers (Tlou, 1985). Because of the strategic location of the village, Maun became the seat of power of a Batawana people, an offshore of Bangwanto. In Botswana, Maun is one of the fastest growing villages with regard to population. The population of Maun reaches 55,784 in 2011 (Statistics Botswana, 2014). This site was chosen because it is a gateway to Okavango Delta where tourism activities take place continuous. Despite the volume of the tourism activities in the community, little is known about the perceptions of community people.

### **Data collection and technique used**

Assessing perceptions and attitudes of the hosts and tourists is paramount for sustainable tourism development (Ap, 1992). Data on perceptions of local people were collected in Maun using face-to face interview during the month of February, 2014. The instrument developed for data collection contained only closed ended questions and structurally divided into two including questions focusing on environmental impacts and those measuring subjective quality of life in

the community. The quality of life is measured by subjective well-being which was based on cognitive component (Silva, de Keulenaer & Johnstone 2012). Raykov, Tomer and Nesselrode (1991) state that the development of latent variables allows estimates relationships among theoretically interesting constructs that are reliable. The questionnaire was divided into three parts including environmental impacts, people's quality of life and the demographic information of the respondents in the last part of the instrument. The choice of measurement scale to use in any study is a function of the nature of the variable intending to measure, amount of available information on a given variable, and anticipated statistical techniques for the analysis (Mwanje & Botu 2001). The items used in the development of the questionnaire mirrored the works of tourism researchers such as (Lankford & Howard, 1994; Ap, 1990; Stewart and Ko, 2002; Yoon et al. 2001; Akarapong et al. 2010; Kim, 2002; Styliadis, 2013) as shown in Table 1.

Table 1 Measurement variables

Latent Constructs	Observable Variables	Measurement items
Environmental Impacts	Drivers of Environmental Pollution	Increased solid waste, Water pollution, Dust and air pollution, Noise pollution
	Conservation of Environment	Encourage conservation initiative, Beautification of Environment, Protection of environment
	Public Place and Degradation of Environment	Constructions destroy community, Reduced land allocation, Traffic congestion, Destructing natural resources
Quality of Life	Environmental well-being	Satisfied with safety, Satisfied with environment health, Satisfied with conservation, Satisfied with cleanliness

This study uses a five-point Likert scale type to enable ease of completion of the questionnaire and for the effective analysis of the household data collected from the community people in Maun. The five point Likert scale is meant to seek respondents' opinion and the items measured the perceptions of the tourism impacts and the assessment of their quality of life with regard to the environment they live. For example, the response format for the items with assigned values include 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree, were used to assess the tourism environmental impact related factors and subjective quality of life among the community people. The content validity of the items was subjected to experts' evaluation by various tourism scholars in the tertiary institutions including University of Botswana. More so, the questionnaires were pre-tested by piloting the items among 50 students of Tertiary Institutions who are origin of Maun and still residing in Maun at the time when the questionnaires were administered.

## **Sampling Design**

The representative sample of a given population is dependent on how efficient technique used in the design of a particular sample size for a research (Krejcie & Morgan, 1970). Data for this study was collected from community people who were 18 years or older and have stayed in Maun village for at least a year at the time the study was conducted. This study relied on the Enumeration Areas created by the Department of Census and Survey of the Ministry of Finance, Development and Planning for the 2011 census in Botswana. An Enumeration Area (EA) is the smallest geographic unit, which represents an average workload for an enumerator over a specified period. The average size of an EA is approximately 120-150 (households). There are 109 Enumeration Areas in the village. Out of the 109 EAs, 15 EAs were selected using Probability Proportional to Size (PPS). Anderson and Gerbing (1988) argue that, 'a sample size of 150 or more is required to attain parameter estimates that have standard errors small enough to be practical use' and such sample is sufficient to produce a converged and proper solution for models with three or more indicators per factor as the case of the present study. According to the 2011 census, Maun has the population of 55, 784 compared to 43, 776 in 2001 (Statistics Botswana, 2014). Out of the population of 55, 784, the sampling size of 378 was scientifically determined and is appropriate for this study (Krejcie and Morgan, 1970). In addition, proportionate stratified method was used to select the proposed number of households within an Enumeration Area. In the field, 400 questionnaires were administered to allow for the possibility of uncompleted and invalid questionnaires. Out the 400 questionnaires distributed in the Maun, there were 394 captured in the data set. Based on the figure captured, the response rate was 98.5% which is considered high in any research study.

## **Data analysis**

The cross-sectional data collected was analysed using structural equation modelling. Hoyle (1995) defines structural equation modelling as 'comprehensive statistical approach to testing hypothesis about relations among observed and latent variables'. The structural equation model was used in that it provides series of fit indices to assess the entire structural model (Smith & Langfield-Smith, 2004). Behjati, Pandya and Kumar (2012) maintain that the goodness of fit is the decision to ascertain the model fits into the variance-covariance matrix of the data set. The goodness of fits chosen by a researcher depends on the nature and the perspective of fits best suited the analysis (Smith & Langfield-Smith, 2004). The structural equation model depends on the underpinning theory (i.e., social exchange theory) and therefore verifies previously decided relations in the study (Karadag, 2012). The usage of the model is advantageous in that it reveals whether the various measures within a study have satisfactory psychometric properties via convergent validity, average variance extracted and discriminant validity (Fornell & Larcker, 1981). Structural equation modelling is divided into two, measurement model using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), and structural model. For the measurement model, the data were subjected to exploratory factor analysis to ascertain the dimensionality of the items used to measure each of the observed variables (Smith & Langfield-Smith, 2004) and then confirmatory factor analysis to re-assess the output from the exploratory factor analysis. Confirmatory factor analysis revalidates the uni-dimensionality of the variables (Nikmako, Azumah, Donkor & Adu-Brobbey, 2012; Hooper, Coughlan & Mullen, 2008; Ullman, 2006). This study strictly followed (Tavakol & Dennick, 2011) who recommend acceptable values of Cronbach's alpha range from 0.70 and 0.95. The study also used Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) to determine construct validity and sample adequacy respectively.

## Results and discussion

### Demographic information

While the numbers of female were 53%, 47% of the respondents were male. With regard to the age of the respondents, the age between 21-30 were 40.4%, follow by the age group 31-40 (25%), below 20 years of age (12.2%), 41-50 (11.4%), 51-60 (5.6%) and the lowest being those that were over 60 years of age with (2%). The majority of the respondents are single (74.6%), follow by married group (18.3%), widowed (2%) and divorced (1%). Most of the respondents only attained elementary school (60%), followed by those that attained vocational certificate (17.0%), Diploma (15.6) and the University graduate (7.4%). At the time of this study, while 84.1% of the respondents have stayed for more than 5 years, only 15.9% have stayed less than 5 years in the community. More so, the majority of the respondents are unemployed (55.3%), followed by those that are formally employed 28% and the category that are self employed with only 16.7%. While only 31.4% of the respondents are employed within the tourism industry, the majority 68.6% are employed in other industries.

### Results of measurement and structural models

Three latent variables were developed to measure environmental impact of tourism in Maun. The variables include drivers of environmental pollution (measured by 4 indicators), conservation of environment (measured by 3 indicators) and public place and degradation of environment (measured by 4 indicators). Table 1 shows the results of the observed variable where drivers of environmental pollution was well loaded with the Cronbach's alpha of (0.86) with variance explained of 71% and KMO of 0.79; public place and degradation of environment (0.67) with variance explained of 51.6% and KMO of 0.70; and conservation of environment (0.49) loaded poorly with variance explained of 50.7% and KMO of 0.54. The observed variable used to measure quality of life (i.e., environmental wellbeing) loaded well with the value of Cronbach's alpha value of (0.77) with variance explained of 59.9% and KMO of 0.74. The factors solutions were obtained using eigenvalues greater than 1 and the values of Bartlett's test of Sphericity for factors were all significant. This means that, the test of KMO and Bartlett test of Sphericity suggested that there was sufficient inter-item correlation with the data for performing factor analysis and adequacy of the data with model (Nkemngu, 2015; Sirakaya, Teye, Sonmez, 2002).

Table 2: Exploratory Factor Analysis for Environmental Impact and Quality of Life

Observable variables and items(questions)	Loading	Eigenvalue	Variance explained	Kaiser-Meyer-Olkin MSA	Bartlett's test of Sphericity
<b>Drivers of Environmental Pollution</b>	<b>.865*</b>	2.871	71.782%	.792	.000
Increased solid waste	.860				
Water pollution	.877				
Dust and air pollution	.903				
Noise pollution	.739				
<b>Conservation of Environment</b>	<b>.495*</b>	1.523	50.776%	.541	.000
Encourage conservation initiative	.821				
Beautification of Environment	.723				

Protection of environment	.572				
<b>Public Place and Degradation of Environment</b>	<b>.675*</b>	2.066	51.641%	.704	.000
Constructions destroy community	.776				
Reduced allocation of land	.692				
Traffic congestion	.593				
Destruction of natural resources	.796				
<b>Environmental well-being</b>	<b>.774*</b>	2.399	59.986%	.745	.000
Satisfied with safety	.761				
Satisfied with health of my environment	.860				
Satisfied with conservation	.734				
Satisfied with cleanliness	.737				

Confirmatory factor analysis (CFA) was also used to re-assess the results of exploratory factor analysis. The reliability test shows the proportion of variance accounted for in all the latent variables. The study also assessed the validity by the size of the factor loadings to determine the strength of the paths between the factors and their observed variables. The results of the confirmatory factor analysis shows convergent validity demonstrating appropriateness of the items used in this study. The result further signifies that the distribution of values in the initial measure of tourism impacts was adequate for conducting factor analysis. The overall fits of this measurement model of the tourism environmental impact construct were  $\chi^2_{(4)} = 6.24$  ( $p = .182$ ); CFI = .996; and RMSEA = 0.038 and for the people's quality of life, the overall fits of the measurement model were  $\chi^2_{(6)} = 6.506$  ( $p = .369$ ); CFI = .999; and RMSEA = 0.015. Hu and Bentle (1999) cited in Hooper, Coughlan & Mullen (2008) maintain that a value of CFI > 0.090 is needed to avoid misspecification of models. In addition, the root mean square error approximation shows more information on the number of parameters in the model (Hooper, Coughlan & Mullen, 2008) and the value below 0.08 shows a good fit. As a result, the comparative fit index of and the root mean square residual of approximation met the minimum requirement and thus it can be concluded that the overall fit is a good fit (Hoe, 2008; Stylidis, Biran, Sit & Szivas, 2014).

Table 3: Composite and validity of Environmental impacts of Tourism

Constructs and indicators	Standardized loading (Li)	Reliability (Li) <sup>2</sup>	Error variance
<b>Drivers of Environmental pollution</b>		<b>0.85*</b>	<b>0.73**</b>
Increased solid waste	0.80	0.64	0.36
Water pollution	0.91	0.82	0.18
	1.71	1.47	0.53
<b>Public place and degradation of environment</b>		<b>0.69*</b>	<b>0.43**</b>
Constructions destroy community	0.73	0.53	0.47
Reduced allocation of land	0.55	0.30	0.70
Destruction of natural resources	0.69	0.47	0.53
	1.96	1.30	1.70
<b>Environmental well-being</b>		<b>0.74*</b>	<b>0.59**</b>
Satisfied with safety	0.73	0.54	0.46
Satisfied with health condition	0.80	0.63	0.37
	1.53	1.17	0.83

Source: Authors' calculation



With regard to the structural model, the hypothesis was tested and the estimated standardised coefficient for the path from environmental impacts to people's quality of life is -0.18 and significant at ( $p < .05$ ) level. In this model the variance explained by the model is ( $R^2 = 0.26$ ) meaning that the 26% of the people's quality of life is explained by the environmental impacts of tourism in the model.

## Discussion of results

The result of this study shows a negative relationship between environmental impacts and people's quality of life. The result of the hypothesis can be substantiated because the result is significant in that tourism has been blamed for environmental damage (Kim, 2002). Although, the extant literatures on economic and socio-cultural impacts of tourism are often perceived favourably by the community people, the results of tourism environmental impacts are significantly noted negative perceived in the previous studies (Nkemngwu, 2015; Aref & Redzuan, 2009; Kim, 2002; Bauer, 1990). More so, Styliadis, Biran, Sit & Szivas (2014) hypothesised a positive relationship between the perceived environmental impact of tourism and residents' support for tourism development in Kavala, Greece. The hypothesis tested was supported meaning that the more people positively perceived environmental impacts of tourism, the greater the support for tourism development. Importantly hardly will people support tourism without potential benefits that could lead to improved living standard in their community. Similarly, Kim (2002) postulates the health and safety wellbeing as a positive function of the perception of environmental impact of tourism. The study reveals a significant negative perception between the tourism environmental impact and health and safety wellbeing. The reason given being due to tourism produce large quantities of waste products or tourist' lettering damages the beauty of the landscape which then negatively affect the satisfaction of the health and safety wellbeing.

The result was interpreted to mean, as the perceived negative tourism environmental impact increases in the community, the health and safety wellbeing decreases, hence the overall satisfaction (Kim, 2002). Furthermore, Liu and Var (1986) find that local people were not certain about the positive environmental benefits and as a result, they prefer preventing their environment to economic benefits due to tourism development in Hawaii. Mohammadi, Khalifah & Hosseini (2010) also maintain that crowded in public places, traffic congestion and noises due to tourism development have become problems in Kermanshah, in Iran. Sirakaya, Teye, & Sonmez (2002) of the opinion that support for tourism development, host community's hospitality, and tolerant for tourism-caused inconveniences including queuing, pollution and traffic congestion are parts of the bundle offers by local people for the development of tourism. The variables used to measure structural model in the present study include drivers of environmental pollution comprising of increased solid waste and water pollution, public place and degradation of environment measured by constructions destroy community, reduced allocation of land and destruction of natural resources; and environmental well-being measured by satisfaction with safety and satisfied with health condition in Maun. Therefore, result of this study is not exceptional and similar to (Nkemngwu, 2015; Styliadis & Terzidou, 2013; Silva, de Keulenaer & Johnstone, 2012; Abdoreza & Somayyeh, 2010; Mohammadi, Khalifah & Hosseini, 2010; Chen, 2000; Aref, 2009; Kim, 2002; Sirakaya, Teye, & Sonmez 2002; Bauer, 1990; Liu & Var, 1986).

Interestingly, this study also confirmed Mbaiwa (2003) who argues that tourism had started having negative environmental impacts (i.e., noise pollution and poor waste management) for a decade or so in the communities around Okavango of which Maun is the main entrant.

This study establishes that the environmental impact of tourism development is a negative function of people's quality of life in Maun. The more the development of tourism in an area, the more likely the environment is adversely affected, especially when the plan for the development is unsustainable. The constructs used to measure environmental impacts include drivers of environmental pollution (i.e., increased solid waste and water pollution); and public place and degradation of environment (i.e., constructions destroy community, reduced allocation of land and destruction of natural resources). The negative perceptions towards the environmental impacts could be translated to mean identification of problems associated with increased solid waste and water pollution; and public place and degradation of environment due to the development of tourism in Maun. Base on the result of this study, it is concluded that the more positively people perceived environmental impacts, the more positively they would perceive their quality of life being improved. Also the more negatively people perceived environment impacts due to the development of tourism, the more negatively they would perceive that their quality of life being deteriorated.

## **Conclusion**

This study uses Larker scale type to investigate the relationship between tourism environmental impacts and people's quality of life. This study finds that the perceptions of people on environmental impacts of tourism are negatively related to their perceptions of quality of life. The study establishes that the community people quality of life is a negative function of the perceived environmental impacts on the community. Notably, the extent of the changes in an environment is dependent on how sustainable that environment is considering how sound the strategies to manage it. It is also noted that, the sustainability of tourism in a community is dependent on how effective existing measures to reduce the aggregate humans' impacts on the ecosystem services (Buckley, 2012).

In Maun, the increase in the development of tourism is associated with deteriorating quality of life. Therefore, the negative relationship between quality of life and environmental impacts established in this study demonstrate the ineffectiveness of the tourism related policies to minimize the negative impacts of tourism development in the community.

As a result of the implication of negative environmental impacts on any destination, the people's quality of life will only be improved, if there are sound strategies and effective implementation of such to reduce the impacts of the tourism activities on the environment. Christie and Crompton (2001) maintain that the negative environmental externalities in form of water pollution, ecological disruption, land degradation and congestion have been associated with poorly planned tourism and such externalities impact environment in a negative way. Therefore, the formulation and implementation of pro-poor tourism policy is to discourage environmental degradation and encourage preservation of heritage sites and various activities within the tourism sector. The development of tourism in any destination needs careful planning to reduce the negative impact in form of the activities that are prone to environmental pollution including increased solid waste and water pollution, destruction of community and environment at large. The study maintains that cooperation and involvement of community people and tourism

stakeholders in the development of tourism in Maun are paramount to attain sustainable environment and growth of the industry.

In terms of knowledge development, the study has shown the magnitude and the strength of the structural relationships between environmental impact and people's quality of life. Maun is a main entrant to the Okavango Delta where the tourists visit frequently. Therefore, understanding the relevant factors that capable of affecting the development of tourism is important for the sustainability of the industry in Botswana and elsewhere. Faulkner and Tideswell (1997) note that people of different localities demonstrates different forms of attitudes. Also, the sustainable tourism related issues differ from one destination to another (Ko, 2004). Therefore, the location of a community becomes an important determinant of attitudes exhibit by the local people living in it.

The studies on residents' attitudes in various communities worldwide have uncovered a number of influencing factors and have added to the explanatory of behavioural models (Sirakaya, Teye, & Sonmez 2002). The items loaded in each of the constructs were found to be significant determinants of the environmental impacts and people's quality of life. The findings will also help the practitioners to gain better insight on how the tourism affects the community and the perceptions of people living in Maun. As a result, the policy makers and other stakeholders must carefully consider the importance of these items to develop a sustainable tourism strategies and related programmes that would positively impact people's quality of life in Maun.

## References

Abdoreza, F & Somayyeh, A. (2010). The relationship between tourism and environment. *Iranian Journal of Tourism & Hospitality*, 1(1), 37-48.

Akarapong, U., Mingsarn, K., Vicente, R., Korawan, S. & Javier, R. (2010). Factors influencing local resident support for tourism development: a structural equation model', The APTA Conference 2010 at Macau, China. July, 2010.

Aref, F. & Redzaun, M. (2009). Community leaders' perceptions toward tourism impacts and level of community building in tourism development. *Journal of Sustainable Development*, 2(3), 208-213.

Aref, F., Redzaun, M. & Gill, S. (2009). Community perceptions toward economic and environmental impacts of tourism on local communities. *Asian Social Sciences*, 5(7), 130-137.

Bauer, I. (1999). The Impact of tourism in developing countries on the health of the local host communities: the need for more research. *The Journal of Tourism Studies*, 10(1), 3-17.

Behjati, S, Pandya, S & Dileep, K.M. (2012). Application of structural equation modelling (SEM) to explain online purchasing intention – an extension of theory of planed behaviour (TPB). *Industrial Engineering Letters*, 2(6), 33-42.

Buckley, R. (2012). Sustainable tourism: research and reality. *Annals of Tourism Research*, 39(2), 528-546.

Chen, J.S. (2000). An investigation of urban residents' loyalty to tourism. *Journal of Hospitality & Tourism Research*, 24(1), 21-35.

Chritie, I.T & Crompton, D. E. (2001). Tourism in Africa. The working paper series, World Bank Group. Available at <http://www.worldbank.org/afr/wps/index.htm>

Faulker, B & Tideswell, C. (1997). A framework for monitoring community impacts of tourism. *Journal of Sustainable Tourism*, 5(1), 3-28.

Hoyle, R.H. (1995). *The structural equation modeling approach: basic concepts and fundamental issues*. in r.h hoyle (ed), *structural equation modeling concepts, issues and applications*, 1-15 Thousand Oaks, CA: Sage Publications.

Hoe, S.L. (2008). Issues and procedures in adopting structural equation modelling technique. *Journal of Applied Quantitative Methods*, 3(1), 76-83.

Hritz, N & Ross, C. (2010). The perceived impacts of sport tourism: an urban host community perspective. *Journal of Sport Management*, 24, 119-138.

Kala, N. (2008). Host perception of heritage tourism impact with special reference to the city of Jaipur. *South Asian Journal of Tourism and Heritage*, 1(1), 65-74.

Karadag, E. (2012). Basic features of structural equation modelling and path analysis with its place and importance in educational research methodology. *Bulgarian Journal of Science and Education Policy (BJSEP)*, 6(1), 194-212.

Kaynak, E & Marandu, E. (2006). Tourism Market Potential Analysis in Botswana: A Delphi A study. *Journal of Travel Research*, 45, 227-237. DOI: 10.1177/0047287506291595

Kim, K. (2002). The effects of tourism impacts upon quality of life of residents in the community. Unpublished doctoral dissertation. *Virginia Polytechnic Institute and State University*.

Ko, T.G. (2005). Development of a tourism sustainability assessment procedure: a conceptual approach. *Tourism Management*, 26(3), 431-445.

Kolawole, I.O. (2013). *Economics simplified*. Gaborone: Institute of Economic Research of Africa (IERA).

Krejcie, R.V & Morgan, D.W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30, 607-610.

- Lankford, S.V. & Howard, D.R. (1994). Developing a tourism impact attitude scale, *Annals of Tourism Research*, 21(1), 121-139.
- Liu, J & Var, T. (1986). Resident attitudes toward tourism impacts in Hawaii. *Annals of Tourism Research*, 13, 193-214.
- Mbaiwa, J.E. (2003). The socio-economic and environmental impacts of tourism development on the okavango delta, north west Botswana. *Journal of Arid Environments*, 54, 447-467.
- Mohammadi, M., Khalifah, Z & Hoseini, H. (2010). Local people perceptions toward social, economic and environmental impacts of tourism in Kermanshah (Iran). *Asian Social Science*, 6 (11), 220-224.
- Nimako, S, Azumah, F.K, Donkor, F & Adu-Brobbey, V. (2012). Confirmatory factor analysis of service quality dimensions within mobile telephone industry in Ghana. *The Electronic Journal Information Systems Evaluation*, 15(2), 197-215.
- Nkemngu, A. P. (2015). Quality of life and tourism impacts: a community perspective. *African Journal of Hospitality, Tourism and Leisure*, 4(1), 1-13.
- Perdue, R.R., Long, P.T. & Allen, L. (1990). Resident support for tourism development. *Annals of Tourism Research*, 17, 586-599.
- Perdue, R. R, Long, P. T, & Allen, L. (1987). Rural resident tourism perceptions and attitudes, *Annals of Tourism Research*, 14, 420-429.
- Rabbany, G, Afrin, S, Rahman, A, Islam, F & Hoque, F (2013). Environmental effects of tourism. *American Journal of Environment, Energy and Power Research*, 1(7). Available online at [www.ajepr.com](http://www.ajepr.com)
- Raykov, T, Tomer, A & Nesselroade, J. R. (1991). Reporting Structural equation modeling results in psychology and aging: some proposed guidelines. *Psychology and Aging*, 6(4), 499-503.
- Robertson, P and Skordis, J (2004). International trade in services and sustainable development: the case of tourism in South Africa. Ed. By Cassim, R, Jackson, W & Gavera, L. Trade Knowledge paper. *International Institute for Sustainable Development*.
- Silva, J, de Keulenaer, F & Johnstone, N. (2012). Environmental quality and life satisfaction: evidence based on micro-data, *OECD Environment Working Papers*, No. 44, OECD Publishing. Available at <http://dx.doi.org/10.1787/5k9cw678dlr0-en>
- Sirakaya, E., Teye, V & Sonmez, S. (2002). Understanding residents' support for tourism development in the central region of Ghana. *Journal of Travel Tourism*, 41(1), 57-67.

Smith, D & Langfield-Smith K. (2004), Structural equation modelling in management accounting research: critical analysis and opportunities. *Journal of Accounting Literature*, 23, 49-86.

Stylidis, D & Terzidou, M. (2013). Tourism and the economic crisis in Kavala, Greece. *Annals of Tourism Research*, Article in press. Available at [www.elsevier.com/locate/atoures](http://www.elsevier.com/locate/atoures)

Stylidis, D, Biran, A, Sit, J & Szivas, E. M. (2014). Residents' support for tourism development: The role of residents' place image and perceived tourism impacts. *Tourism Management*, 45, 260-274.

Tavakol, M & Dennick, R. (2011). Post examination analysis of objective tests. *Medical Teacher*, 33, 447-458. DOI: 10. 3109/0142159X.2011.564682

Tlou, T (1985). A history of Ngamilang 1750 – 1906. Gaborone, Botswana.

Ullman, J. B. (2006). Structural equation modelling: reviewing the basics and moving forward. *Journal of Personality Assessment*, 87(1), 35-50.

Wei, C.K., Shuib, A., Ramachandran, S. & Herman, S. (2013). Applicability of economic models in estimating tourism impacts. *Journal of Applied Economics and Business*, 1(4), 5-16.

Yoon, Y., Gursoy, D. & Chen, J.S. (2001). Validating a tourism development theory with structural equation modelling. *Tourism Management*, Vol. 22: 363-372.

Zaei, M. E. & Zaei, M. E. (2013). The impacts of tourism industry on host community. *European Journal of Tourism Hospitality and Research*, 1(2), 12-21.