

ENVIRONMENTAL IMPACTS OF TOURISM ON LOCALS' PERCEIVED IMPORTANCE OF SUSTAINABLE TOURISM

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Since engagement of locals plays a key role in the success of any tourism development, understanding how residents perceive sustainable tourism and the ways it is influenced by their perception about environmental impacts of tourism provides researchers, administrators and service providers in tourism sector with invaluable insights. Thus, the current research vies to contribute to the knowledge concerning how local residents in Perhentian and Redang Islands in Malaysia perceive environmental impacts of tourism and the importance of sustainable tourism. Study results reveals that the highest concern about the environmental impacts of tourism was perceived for landscape, air quality, and water quality, respectively. Moreover, by investigating the causal link between perception towards six major environmental impacts of tourism and the perceived importance of sustainable tourism, it was found that only environmental impacts of tourism on air quality and landscape significantly influenced local residents' perceptions about the importance of sustainable tourism.

Keywords: *Environmental impacts, sustainable tourism, locals' perceptions, tourism development, Malaysia*

JEL Classification: *L83, M1, O1*

INTRODUCTION

Despite the numerous economic advantages of tourism, it is also a controversial part of the global sustainable development and climate



change issue, due to the increasing environmental problems caused by the tourism and its development. Further development of tourism industry is claimed to cause changes to the natural resources (Clarke, 2005). Since the concept of sustainability has its roots in environmentalism (Liu, 2003), the perceived negative environmental impacts of tourism is likely to cause local residents to oppose the conventional tourism development and encourage them to support sustainable tourism development. While earlier studies have investigated the environmental impacts of tourism (e.g., Becken, 2004; Becken, 2007; Park, and Boo, 2010), the role of the perceived environmental impacts of tourism on how local residents think about the importance of sustainable tourism has not been examined. Since many of the recent development processes engage local community, involvement of locals has been recognized as a key component of effective tourism planning (Chambers, 2002; Wates, 2000). The way local residents perceive the importance of sustainable tourism can influence future changes and plans in the local tourism sector. Hence, this paper has the following objectives:

- 1) To identify local residents' perceptions in regard to environmental impacts of tourism on two local islands in Malaysia
- 2) To examine the link between perceived environmental impacts of tourism and the perceived importance of sustainable tourism

The current study is important as it provided some contributions to the tourism research by presenting data about the environmental impacts of tourism and the importance of sustainable tourism from the perception of local residents in a developing country, which tends to be underrepresented in the literature (Tosun, 2001), as majority of studies on community support for tourism have been conducted in the developed and industrialized countries (Nunkoo, and Gursoy, 2012). Moreover, sustainable development has become a buzzword in development studies in general and in tourism research in particular. Hence, examining the link between the perceived environmental impacts of the tourism and the importance of sustainable tourism can contribute to formulating future theoretical underpinning to explain the local engagement in tourism development. Additionally, this study examined the environmental impacts of tourism by addressing six major categories affected by tourism development, namely "vegetation", "soil, sand and rock", "water quality", "air quality", "landscape", and "wildlife". Thus, a better picture of the perceived environmental impacts of tourism by the local residents was presented.

ENVIRONMENTAL IMPACTS OF TOURISM

The increasing growth of tourism industry, which is expected to reach a volume of 1.6 billion tourists worldwide by 2020, causes some negative impacts on local communities. Other than the prevailing problems of congestion, overcrowding, and noise (Adams, 2009; Bithas, and Christofakis, 2006; McDonald, 2007), tourism development also adversely influences environment which affects the quality of life for local residents. Thus, locals might have a negative impression towards tourism development. The study by Bonimy (2011) investigated the residents' perceptions of environmental impacts of tourism in city centre of Pigeon Forge, Tennessee, and revealed that despite the positive perceptions towards the impacts of tourism on public facilities and the area's appearance, tourism was perceived to have negative environmental impacts through causing poor air quality and destroying the natural environment in the region. In contrast, Andereck and Valentine and Knopf and Vogt (2005) assessed the residents' perceptions of tourism's impacts on communities and found that while individuals were aware of the certain negative impacts of tourism, especially on the community environment, most of them regarded tourism as positively affecting their local community in some other aspects.

Similarly, Perez and Nadal (2005) indicated that local residents in the Balearic Islands of Spain were cognizant of both the positive and negative effects of tourism and showed ambivalent reaction towards different development strategies in the region. Moreover, some of the other studies have also examined the effects of tourism on environment from the perspective of local residents (e.g., Chen, 2000; Chen, 2001; McGehee, and Andereck, 2004). In an attempt to explain the environmental sustainability of four tourism enterprises in South Africa, Spenceley (2005) conducted field-based evaluations and interviews with representatives of the local community. She evolved a toolkit for evaluating the sustainable tourism in the context of southern Africa. The toolkit was then used to evaluate the enterprise performance. Additionally, Amuquandoh (2010) examined the residents' perceptions of the environmental impacts of tourism in Lake Bosomtwe Basin in Ghana and found that although both positive and negative impacts of tourism development were indicated by locals, they perceived the positive impacts to be more prevalent.

In two studies in the Chinese context, Shi and Wu and He (2002) constructed a model of air quality impacts of tourism and Song and Wei and Liang (2003) investigated the CO₂ content and temperature changes

caused by visitors in a cave-tourism destination. Huang and Wall and Bao (2007) conducted a comparative review of the research on environmental impacts of tourism through investigating the English and Chinese Literatures which offers a helpful review of earlier studies conducted in those contexts.

METHODOLOGY

Research questions

This study aimed to answer the following research questions:

- 1) What is the perception of local residents about the environmental impacts of tourism?
- 2) Does perception towards environmental impacts of tourism influence the local residents' perceived importance of sustainable tourism?

Survey instrument

The required data for this study was collected through a structured questionnaire. Environmental impacts of tourism was measured in 6 key areas, including the impacts of tourism on “vegetation”, “soil, sand and rock”, “water quality”, “air quality”, “landscape”, and “wildlife”, comprising of 17 items in total. Additionally, in the current study, sustainable tourism was considered as “tourism developed and maintained in an area in such a manner and at such a scale that it remains viable over an indefinite period and does not degrade or alter the environment in any way that might prohibit the successful development and wellbeing of other activities and processes” (UN ESCAP, 2001: 49). Thus, the perceived importance of sustainable tourism (PIST) was assessed using the following item: “Development of accommodation premises and other structures of tourism should be controlled and monitored by the relevant authorities for sustainable development.” A 5-point Likert scale was applied for measuring respondents' agreement to each of the reflective items. Items of the survey were all extracted from Mathieson and Wall (1982). The nature of the items measuring environmental impacts of tourism was negative. Thus, a higher score on those items indicated a higher negative environmental impact.

Sample, data collection, and analysis

The study survey was distributed among residents in two common tourist islands in Malaysia, namely Perhentian Island and Redang Island. The Perhentian Island (known as Pulau Perhentian in the local language) is located off the northeastern coast of West Malaysia, and is a common tourist destination in Malaysia. Besides, Redang Island (known as Pulau Redang in the local language) is one of the largest islands off the east coast of Malaysia and offers numerous snorkelling and diving opportunities to tourists.

Overall, 183 local residents in Perhentian Island and 188 local residents in Redang Island took part in the study. Hence, a total of 371 responses were collected and used in analysis. There were only very few missing values, which were imputed using Expectation Maximization (EM) in SPSS, as it provides better results than other imputation techniques such as listwise, pairwise data deletion, and mean substitution (Allison, 2002; Rubin, 1978). To analyze the collected data, Partial Least Squares Structural Equation Modelling (PLS-SEM) was utilized as this technique is better suited for exploration and prediction, and is not confined with assumptions of the multivariate normality of data, skewness, multicollinearity, and specification error (Cassel and Hackl, and Westlund, 1999; Diamantopoulos, and Sigauw, 2000; Ringle and Götz and Wetzels, and Wilson, 2009). The predictive relevance of the study model was measured using the Stone-Geisser criterion (Q²) through the blindfolding procedure (Henseler and Ringle, and Sinkovics, 2009) in SmartPLS 2.0 M3 software (Ringle and Wende, and Will, 2005). The computed cross-validated redundancy values for all constructs were above the threshold value of zero, which indicated the good predictive relevance of the structural model.

The measurement and structural models were validated using confirmatory factor analysis (CFA) performed in SmartPLS 2.0 M3 (Ringle et al., 2005). This resulted in discarding one item which did not have a high loading under its respective construct. All the remaining items strongly loaded (≥ 0.65) on their corresponding factors indicating convergent validity. Moreover, there were no issues of high cross-loading (the cross-loadings of most of the items were below 0.6), demonstrating discriminant validity (Gefen, and Straub, 2005). Moreover, the square root of the average variance extracted (AVE) for each of the reflective constructs was larger than its correlation with all the other constructs, confirming the discriminant validity. Additionally, reliability of

constructs were evaluated and confirmed through measuring both Cronbach's alpha and composite reliability.

RESULTS

Demographic distribution

Majority of respondents were male, married, and aged between 25 and 59 years. Table 1 summarizes the demographic profile of the respondents.

Table 1. Demographic Summary of Respondents (N = 371)

	Frequency	Percentage
Gender		
Male	304	81.94
Female	67	18.06
Age		
15-24 years	42	11.32
25-59 years	302	81.40
60-74 years	27	7.28
Level of Education		
Not Enrolled	21	5.66
Primary School	110	29.65
High School	219	59.03
Diploma / Degree	21	5.66
Marital Status		
Single	45	12.13
Married	314	84.64
Widow / Widower	12	3.24
Race		
Malay	366	98.65
Chinese	2	0.54
German	1	0.27
Iban	1	0.27
Filipino	1	0.27

Perceived environmental impacts of tourism

Investigating the perception of local residents regarding the environmental impacts of tourism indicated that on average local residents were mostly concerned with the negative impacts of tourism on landscape, air quality, and water quality, respectively. Moreover, the least level of concern about the environmental impacts of tourism was observed for the soil, sand and rock. Table 2 provides the results of the descriptive statistics for the perceived environmental impacts of tourism by the local residents in the two investigated islands.

Table 2. Perceptions of Local Residents about the Environmental Impacts of Tourism

Construct	Mean	Standard Deviation
Impacts of Tourism on Vegetation (VEG)	3.59	0.96
Perceived Impacts of Tourism on Soil, Sand and Rock (SSR)	3.50	1.09
Perceived Impacts of Tourism on Water Quality (WQ)	3.76	0.97
Perceived Impacts of Tourism on Air Quality (AQ)	3.78	1.07
Perceived Impacts of Tourism on Landscape (LND)	3.79	0.85
Perceived Impacts of Tourism on Wildlife (WL)	3.76	1.00

Influence of perceived environmental impacts of tourism on perceived importance of sustainable tourism

This study found that among the six categories of the perceived environmental impacts of tourism, only perceived impacts of tourism on air quality and landscape significantly influenced the locals' perceptions regarding the importance of sustainable tourism. The perception towards the negative impacts of tourism on both air quality and landscape resulted in an increase in the awareness of local residents about the importance of sustainable tourism and controlling tourism development as a way to ensure the sustainable development of the community (Table 3).

Table 3. Results of PLS SEM Analysis

Relationship	Sample Mean	Path Coefficient	T Statistics
AQ → PIST	0.235	0.238	3.711 **
LND → PIST	0.319	0.318	4.087 **
SSR → PIST	-0.071	-0.072	1.119
VEG → PIST	0.051	0.051	0.692
WL → PIST	0.037	0.034	0.422
WQ → PIST	-0.025	-0.031	0.522

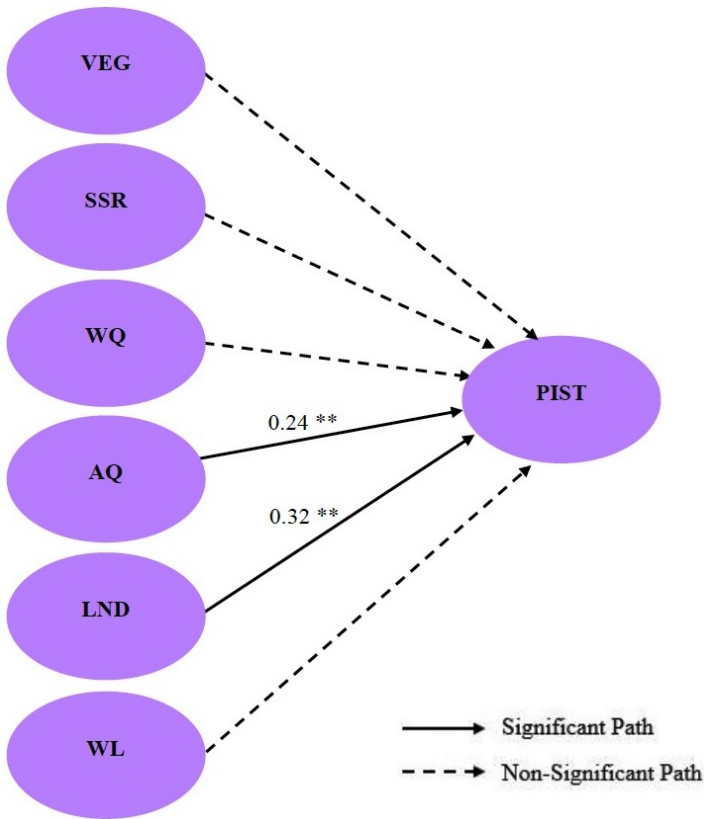
Note 1: Two-Tailed Level of Confidence: * (95%): $t \geq 1.96$; ** (99%): $t \geq 2.58$

Note 2: PIST: Perceived Importance of Sustainable Tourism

Overall, the perceived environmental impacts of tourism could explain 17.7% of the variation in the perceived importance of sustainable tourism. Additionally, among the two significant exogenous latent variables contributing to the perceived importance of sustainable tourism, perceived impacts of tourism on landscape played a more important role than perceived impacts of tourism on air quality. It was found that one unit increase in the “perceived impacts of tourism on landscape” resulted in 0.32 points increase for the endogenous latent variable “perceived importance of sustainable tourism” in a (static) *ceteris-paribus* assessment of results. Moreover, one unit increase in “perceived impacts of tourism on air quality” led to 0.24 points increase in endogenous latent variable “perceived importance of sustainable tourism” in a (static) *ceteris-paribus* assessment of results. Figure 1 shows the results of the path modelling.

Overall, it was found that the perception of local residents towards the environmental impacts of tourism could partially influence their perceived importance of sustainable tourism.

Figure 1. PLS Path Modelling Results



DISCUSSION AND CONCLUSION

Findings of this study enhanced the understanding about the perceptions of local residents about the environmental impacts of tourism. Involving the opinions of the host community is an inevitable part of any effort towards the development of sustainable tourism (Abdollahzadeh, and Sharifzadeh, 2012). Besides, environment is one of the main domains in which residents should assess the potential effects of tourism before deciding to embrace or reject it (Amuquandoh, 2010). Thus, this study can help to predict future reactions and behaviours of local residents in

the two investigated islands towards the tourism development in the region.

The findings of this study could provide insights for authorities and NGO representatives involved in protecting environment and supporting the sustainable development through shedding light on how the local residents' perception of tourism environmental impacts influences their perceived importance of sustainable tourism. Although this study showed that local residents are mostly aware of the negative environmental impacts of tourism, only the adverse impacts of tourism on the quality of the air they breathe and the natural landscape of their habitat were found to significantly influence their concern for sustainable tourism. Thus, there is a need for enhancing the local residents' awareness regarding the importance of sustainable tourism to proactively demand sustainability in tourism development projects to minimize its negative harms on the environment.

As residents are one of the major stakeholders in the tourism development process, engagement of local residents is crucial in the success of any development plan. Thus, raising awareness among local residents can enhance their advocacy level and encourage them to voice out their concerns for the negative environmental impacts of tourism which can ultimately ensure a sustainable conduct of tourism development plans and constructions.

This study was besieged by only examining the negative environmental impacts of tourism development. While other aspects of tourism impacts could also influence the perception of local residents towards the importance of sustainable tourism, the current research merely investigated the environmental impacts. Although this limits the study scope, Kuvan and Akan (2005) indicated that residents tend to develop more sensitivity to, and concern for problems originating from the negative environmental impacts of tourism than its other impacts.

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