

## SOCIAL CARRYING CAPACITY OF ECOTOURISM NATIONAL PARK KUALA TAHAN

Mohd Muzzammil Ismail<sup>1</sup>, Mastura Jaafar<sup>2</sup>, , Diana Mohamad<sup>3</sup>, and Mohd Amirul Nizam Paijo<sup>2</sup>

<sup>1</sup>*School of Government, UUM, Kedah, Malaysia*

<sup>1,2,3</sup> *School of Housing, Building and Planning, USM, Pulau Pinang, Malaysia*

---

**Abstract** Increasing recreational activities in National Park potentially affect the recreational quality. Carrying capacities for protected area such as National Park are highly essential factor for tourism management. The use of carrying capacity as predominant method synthetically presented in this study is focused on National Park Kuala Tahan, Pahang (NPKT). This study explores the concept of social carrying capacity (SCC) where concentration on the factors of individuals which park visitors becomes uncomfortable - satisfaction perception. For the SCC, 300 interviews were conducted at the study area exploring social attributes of tourism development and collected data subjected to a series of descriptive analysis methods. Output from factor analysis and mean scores confirmed that the ecotourism potentially provides a sustainable approach to tourism development in Malaysia. This study identifies the positives and negatives social effects of ecotourism development in NPKT from the perspectives of tourist's satisfaction.

**Keyword:** *social carrying capacity; tourist satisfaction; social effect*

---

### INTRODUCTION

The concept of social carrying capacity (SCC) connotes as a term that measures the maximum level of use (number of activities) able to be absorbed by a destination that associates with tolerance of host community and experiences quality of tourists in an area (Saveriades, 2000). As claimed by Ecotourism Society cited by Cochrane (1996), ecotourism has been viewed as responsible tourism travel to nature destination which positively impacts on environment and host community through conservation and socioeconomic welfare improvement. The sustainability of ecotourism conception in managing crisis situation is not much done only than economic benefits, it is vital on social aspect, specifically tourists well-being, security and safety, locals values and traditional customs, and unique visitation experiences whilst engaging with nature activities (Weaver, 2008; Dahan et al, 2010).

Problems in protected and conservation areas such as national park became dramatically important where harsh detrimental for instances visitation congestion, crowding, originality identity and pollution start to appear. Growth in the number of visitors is one of the crucial problems in protected areas. National

park facing with risk of increasing demand, falling public appropriations and receding focus on their conservation functions (Brandt & Holmes, 2011). Malaysia has valuable potential in tourism related with nature and ecotourism. As mentioned by Khalifah and Tahir (1997), where Malaysia are among the oldest and diversity in ecosystem of tropical rainforests in the world. Ecotourism grows at rate of 30% per year and has creates the recreational values of forest recreation areas (Siow et al, 2011). WWF Malaysia has estimates that from ecotourism sector, this country earned RM655 millions annually from its tourism activities. The research has been conducted purposely in order to evaluate how the level of tourism development has affected SCC in the study area. It tends to analysis the factors that impact the level of carrying capacity in social perspective for NPKT. National Park Kuala Tahan

National Park Kuala Tahan is located in Jerantut, Pahang and was claimed to be home to one of the oldest tropical rain forest in the world. It was established since 1938/1939 known as King Gorge V National Park. It covers an area of 2,477 sq. km with number of local population reported were about 2166 peoples. There were the nomadic people known as "Orang Asli" who live nearby this national park.

The park is bordered by villages whose inhabitants have been traditionally dependent on the forest for their livelihood. When the park, with its natural resources, was proclaimed a totally protected area the inhabitants of the villages at the fringes of the park lost an important source to earn supplementary incomes. However, the process of development of the tourism sector in the park has brought about alternative opportunities for the local people living near the park to earn their living. The increasing number of tourist since 2009 until 2012 is about 3.2% (from 84,095 to 86,797) before decrease for 5.6% to 81,922 in 2014. It has been recorded that the trend and visiting pattern are changing. It appears that the international tourists are the dominant groups that have visited this area contrast with Malaysian visitors visited this park.

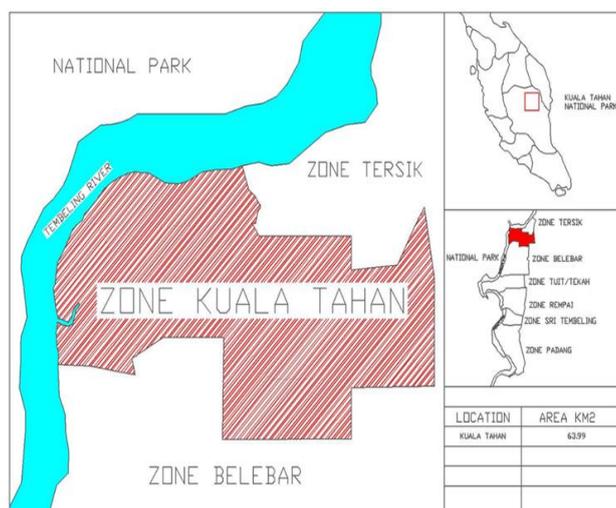


Figure 1: Study area location map

## SOCIAL CARRYING CAPACITY MEASURES

Likewise, tourist arrival is a common problem for social issue in tourist's destination. Rothman (1978) found that increase in visitors number often will makes congestion or overcrowding in tourist destination especially during peak season. This potentially curtailed locals routine activities and reflect their welcome towards visitors. As a result of tourism growth and popularity of a destination, pressures on environmental and local resources could lead to adverse effects and the sustainability aspects are in question. A study at Pulau Payar Marine Park by Lim (1998), emphasize that increase in visitors number would affect the comfortability of recreational in the area.

In term of tourism image and identity, revival of arts, local culture and crafts could be facilitating by tourism (Jashveer et al, 2011). This agreed by

Kim's (2002) study on the tourism development effects that indicate growth of tourism potentially contributes to the local culture preservation. In his study, he proposed three measurement of tourism identity; encouragement of various cultural activities, support on locals culture, preservation efforts of traditional identity and increased pride of local tradition among locals. Similarly, tourism development risk being catalyst for cultural clashes as well. Kreag (2001) argues that tourism can help preservation of cultural identity of local communities through excessive demand of tourists towards historical and cultural exhibits.

In addition, according to Nillahut (2010), tourism can result in ethical or moral problems as reflects to the quality of life, well-being and safety issues. Problems such as alcoholism, drugs, prostitution, and crimes are considered as tourism costs which degrade the well-being and social aspects in a destination. Some of the researcher had studied about all of these problems found that tourism had significant effect on a series of social problems (Park & Stokowski, 2009).

## METHODOLOGY

A survey was carried out for the tourists of NPKT to investigate their perceptions towards ecotourism effects at the national park. This likewise enabled the identification of the SCC threshold of the area and based on the findings SCC ratio was proposed for the study area. Questionnaire items primarily focus on social aspect of the community and tourism development impact according to the previous literature. The test of descriptive analysis has been used in this study. In addition, Likert Scale is used in the instrument with the scale of 5 point system, ranging from (strongly disagree = 1) to (strongly agree = 5) were used to probe responses. A total of 300 personal interviews were carried out in this study. Tourists with the minimum age of 18 to 65 years old that staying nearby the NPKT were been selected. The sampling frame was limited to the park visitors either local or international visitors.

## RESULT AND DISCUSSIONS

From the total 300 respondents (see table 1), males represented 51.7 percent and females 48.3 percent, while 62.0 percent were singles and 38 percent were married. Majority of respondents are International respondents with 41%

followed by Malays with 38%, while Chinese and Indian are 7.3% and 0.3% respectively. Regarding of age, a large number of respondents were under the category of 21 to 40 years old (71.4 percent). Majority of tourists have high income ranging from US\$ 2000 to 3000 a month (68.5 percent). These findings clearly exhibits that Malaysian rural tourism industry is capable to attract tourists from upper income category.

Regarding education background, most of the tourists have tertiary education (69.3 percent). Approximately 39.1 percent of the respondents were from Europe and those who from Malaysia recorded about 44.33 percent. This is closely followed by the tourists from Asia continent with a total of 6.6 percent of respondents. Interestingly, majority of the respondents have travelled to this National Park on the purpose of holiday/vacation (88.7 percent) and followed by education purpose (7.3 percent). In addition, a large number of respondent (53.7 percent) have travelled either with their family, friends and their colleagues. Thus, majority (88.4 percentages) of them were first time to visit the study area and majority of their travel period is between 1 to 3 days (77.8%).

**Table 1:** Respondent Demographic Profiles

Demographic Profile	Frequency	Percentage (%)
<b>Gender</b>		
Male	155	51.7
Female	145	48.3
<b>Marital Status</b>		
Single	186	63.3
Married	108	36.7
<b>Ethnics</b>		
Malay	114	38
Chinese	22	7.3
Indian	1	0.3
Others (International)	123	41
<b>Age</b>		
< 20 years	44	12.7
21 - 40 years	190	54.9
41 - 60 years	61	17.6
61 - 80 years	13	3.8
<b>Origin</b>		
Malaysia	133	44.6
Asian countries	20	5.27
Europe	120	39.1
United States	10	3.3
Others	15	5.1
<b>Travel Purposes</b>		
Visit friends and relatives	20	6.7
Business and	17	5.7

works		
Education	22	7.3
Holiday	266	88.7
Others	1	2.3
<b>Travel period</b>		
1-3 days	217	77.8
1 week	43	15.5
2-3 weeks	10	3.6

### Factor analysis

The rationale of undertaking factor analysis is to assess the variance of items studied where in detail; it is to identify the general categorization of each item. KMO of Sampling Adequacy value was recorded at .708 which significant at .000, with the total variance explained was 58.2%. As N = 300, this paper accepts factor loading of and greater than .350. From Table 2, it is learned that the studied items were generally encapsulated into three components where the component 1 measures satisfactory experiences. While component 2 looks at tourist arrival effects, component 3 addresses locals' acceptance and travel motivation.

**Table 2:** Summary of factor analysis on component of social effects in National Park Kuala Tahan.

	Component		
	1	2	3
<b>Component 1: Satisfactory experiences</b>			
Increase in tourists arrival decreases tourism experience	.805	.002	.169
High number of tourists negatively contributed to safety issue	.689	-.130	.144
Tourism negatively affects local values and traditional customs	.785	-.036	.081
Locals community is cold toward tourists	.708	.090	-.240
Quality of services is poor during peak season	.682	-.043	.108
<b>Component 2: Tourist Arrival Effect</b>			
Increase in tourists arrival influences preservation of traditional customs	-.060	.787	.169
Locals are practicing traditional customs	-.016	.626	.328
Increase in tourists arrival did not affect quality of services	-.056	.786	-.055
<b>Component 3: Locals' acceptance and travel motivation</b>			
There is an increase in tourists arrival	.024	.009	.785
Tourists were welcomed by local community	.026	.220	.800
Visitation motivation is influenced by tourism products comfortability	.086	.424	.524

## Mean Values Assessment

Most of respondents, as indicated in table 3, valued the component 1: satisfactory experiences items with moderate level. The means results for component 1 emphasized number of tourists do manipulate the quality of tourism experience ( $X = 3.48$ ) as well as services ( $X = 2.70$ ), safe environment ( $X = 4.13$ ) and the locals' acceptance towards tourists ( $X = 4.08$ ). Additionally, results suggested tourism negative influence on locals' values ( $X = 2.85$ ). Overall, it could be concluded that the relationship between tourism and satisfactory experiences is rationalism where the successfulness of tourism is produced by mediating the tourists' desires and their engagement with the destination.

Whilst, for component 2 (tourist arrival effect), results indicated most of respondent satisfied with moderate value on the items. When comparing results of components 1 and 2, it is interesting to observe an in contradiction result for traditional customs and quality of services. At this point, results might propose two things. The first would be that services offered were not operated at the maximum level. The second referred to the reality that while locals were thrilled to introduce their authentic characteristics to the visitors, the visitors' attributes were much more dominating and hence, resulted in traditional customs were being set aside. In overall, most of respondents moderately satisfy with the tourism effects accordance to social perspective.

Results of component 3 showed an associated moderate value where visitation motivation was influenced by tourism products comfortability and similarity as rated with respondents with ( $X = 2.21$ ). This study might suggest the existence of and deep penetration self-othering in today's social dimension where according to Jensen (2011), self-othering refers to active intra-group interactions despite being offered with the opportunity to engage in new networking.

**Table 3:** Visitors perceptions and potential social impacts in National Park Kuala Tahan.

	Mean	SD	C
<b>Component 1: Satisfactory Experiences</b>			
<i>Increase in tourists arrival decreases tourism experience</i>	3.48	0.660	
<i>High number of tourists negatively contributed to safety issue</i>	4.13	0.554	

<i>Tourism negatively affects local values and traditional customs</i>	2.85	0.638	
<i>Tourists experienced cold neighbourhood phenomenon due to increase in tourists' arrival</i>	4.08	0.543	
<i>Quality of services is poor during peak season</i>	2.70	0.711	
<b>Component 2: Tourist Arrival Effect</b>			
Increase in tourists arrival influences preservation of traditional customs	2.17	0.643	
Locals are practicing traditional customs	2.21	0.548	
Increase in tourists arrival did not affect quality of services	2.19	0.592	
<b>Component 3: Locals Acceptance &amp; Travel Motivation</b>			
Tourists were welcomed by local community	2.63	0.546	
There is an increase in tourists arrival	2.33	0.538	
Visitation motivation is influenced by tourism products comfortability and similarity	2.21	0.565	
<i>*Italic sentences = negative coded questions</i>			

## Scale used for the coding

SCALE	COLOR
Excellent > 3.27	
Moderate > 1.7, < 3.26	
Poor < 1.6	

## DISCUSSION AND CONCLUSION

The findings of this study implicit that ecotourism development has moderately increased visitors' number, even though in the secondary data have reveals the number of visitors slightly dropped in the past two years (2013 & 2014) however in overall the visitor number still in uptrend movement. While regarding the safety issues, number of visitors to NPKT has contributed to positive effects, and this positive effect of tourism having the highest mean scores. Therefore, the results assert the findings of previous studies (Kim, 2010; Nillahut, 2010) related with detrimental effects of tourism such as criminal offense. In addition, this study has significantly investigates the impacts of tourism on local and tradition culture. The positive effect associated in this study able to help preservation and encourages local community practicing their tradition. This relationship also indirectly facilitates the acceptance of host community in welcoming tourists as a means of preservation and at the

same time exposes their local cultures. Similarly with Kim (2012), stated that some of the variables address the issues of identity, consists of motivate various cultural activities, preservation and maintaining cultural identity. Quality of service improvement at Kuala Tahan, including accommodations, boat service, roads condition, guest service, and restaurant accrued the medium level of carrying capacity. With growth of development on ecotourism in NPKT, besides gradually increased in tourist visitation, thus quality of services must be improve and provide benefits for both of visitors and local community.

This research paper comes to conclude that SCC indicators is playing implicit function in evaluating and measuring tourism barometer that ideally be a tool for observation in tackling any impact and degradation. The data (feedback from both visitors and local community) become useful for planning and management purposes. From the results, ecotourism development in NPKT has both moderate effects (positive and negative) from the tourist satisfaction perception. However, other advanced analysis method to examine the social effects on sustainable ecotourism development might yielded precise carrying capacity as this study only evaluate according to a series of descriptive statistical (mean comparison) method. Perhaps, in future additional factors related with social aspect could be evaluated for NPKT.

#### **ACKNOWLEDGEMENTS**

This research was financially supported by Ministry of Higher Education and Universiti Sains Malaysia under the Long Term Research Grant Scheme 2011 [LRGS304/PPBGN/650571/T121]

#### **REFERENCES**

Brandt, J., & Holmes, E. (2011). Conditions for the management of carrying capacity in the parks of parks & benefits.

Cochrane, J. (1996). The sustainability of ecotourism in Indonesia. *Environmental change in South-East Asia: People, politics and sustainable development*,

237-259.

Dahan, H. M., Ahmad, N., & Ho, C. S. (2010). Crisis management at Taman Negara National Park, Kuala Tahan, Pahang, Malaysia. *International Journal of Trade, Economics and Finances*, 1(1), 24-27.

Jashveer, H., Boopen, S., & Kesseven P. (2011) TIPS Small Grant Scheme Research Paper Series 2011: Tourism development and local community. Moka: University of Mauritius.

Jensen, SQ (2011). Othering, identity formation and agency.

Khalifah, Z., & Tahir, S. (1997). Malaysia: tourism in perspective. *Tourism and economic development in Asia and Australasia*, 176-196.

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

Kreag, G. (2001), The impacts of tourism, University of Minnesota Press, Minnesota.

Lim, L.C. 1998. Carrying capacity assessment of Pulau Payar Marine Park, Malaysia - Bay of Bengal Programme. Madras, India.

Nillahut, W. (2010), Local Resident's Perception Towards Impacts From Tourism Development in Phuket, Thailand, Doctor of Philosophy, Universiti Sains Malaysia, Penang, Malaysia.

Park, M. and Stokowski, P. A. (2009), "Social disruption theory and crime in rural communities: Comparisons across three levels of tourism growth", *Tourism Management*, Vol. 30 No. 6, 905-915.

Rothman, R. A. (1978), "Residents and transients: community reaction to seasonal visitors", *Journal of Travel Research*, Vol. 16 No. 3, 8-13.

Saveriades, A. (2000). Establishing the social tourism carrying capacity for the tourist resorts of the east coast of the Republic of Cyprus. *Tourism management*, 21(2), 147-156.

Siow, M., L., Abidin, Z. Z., Nair, V., Ramachandran, S., & Shuib, A. (2011). Developing criteria and indicators for responsible rural tourism in Taman Negara National Park (TNNP), Malaysia. *Malaysian Forester*, 74(2), 143-156.

Weaver, D. (2008). *Ecotourism*. John & Wiley and Sons, Australia Ltd.