

# **AN EVALUATION OF SERVICE QUALITY FROM VISITORS' PERSPECTIVES: THE CASE OF NIAH NATIONAL PARK IN SARAWAK**

**Abas Said\***

*Universiti Malaysia Sarawak*

**Ahmad Shuib**

*Universiti Putra Malaysia*

**Norazirah Ayob**

*Universiti Malaysia Sarawak*

**Fazlina Yaakub**

*Universiti Malaysia Sarawak*

## **ABSTRACT**

This study assessed the quality of services in Niah National Park (NNP) located in Sarawak, a major ecotourism destination in Malaysia. The ECOSERV instrument developed by Khan in 2003 was modified to measure visitors' expectations and perceptions on services quality. Self-administered questionnaires were handed out to registered park visitors and collected back upon completion. The findings had revealed negative service gaps (differences between visitors' perceptions and expectations) pattern in almost all sixteen attributes and all six dimensions of services. This indicated that the levels of service quality in NNP are not meeting visitors' expectations, especially on the dimension of ecotangibles. In order to enhance visitors' satisfaction, there is a need to address deficiency in the quality of services in the NNP. This is to avoid a decline in competitive advantage of NNP as an ecotourism attraction and not to hamper visitors' experience and also to ensure continuous support to conserve the park's rich biodiversity and natural resources.

**Keywords:** ecotourism; service quality; visitors' expectations; visitors' perceptions and satisfaction

## **1. INTRODUCTION**

Sarawak's tropical rainforest has been recognized worldwide for its richness in biodiversity (Whitmore 1984; Primack & Hall, 1992; Taylor, et al., 1994). Basically, national parks, wildlife sanctuaries and nature reserves are established in Sarawak to conserve its rich biodiversity and protect environmental services. Besides, national parks and nature reserves are presently

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\* Corresponding author: Abas Said, Faculty of Resource Science and Technology, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia. Phone: +6082582966. Fax: +6082583160. Email: [sabas@frst.unimas.my](mailto:sabas@frst.unimas.my).

managed/administered to provide recreational opportunities and as ecotourism attractions to benefit local communities as well as to contribute to its economy. To date, Sarawak has established 18 national parks and 3 nature reserves managed by Sarawak Forestry Corporation. With increasing demand for ecotourism, Sarawak has also earmarked these national parks as its major ecotourism attractions to benefit local community and boost the state economy. Consequently, these national parks are faced with greater challenges and the national park authority is confronted with increasing responsibilities to meet goals desired. Apart from advocating protection and conservation of nature and enhancing the environmental services, the national park authority is also responsible to generate revenue for the economy, to benefit and protect local communities while at the same time enhancing visitors' experience and satisfaction. Thus in nature-based tourism such as ecotourism, service quality is considered a critical issue because overall satisfaction with an attraction and provision of high service quality is park management's ultimate goal.

In business sector, quality services have always been considered crucial for the firms' competitive advantage. Parasuraman, Zeithaml, and Berry (1985, 1988) argued that service agencies always need to deliver high quality services in order to enhance their customer satisfaction as a way to differentiate themselves from their competitors and seek competitive advantage. Similarly, in the tourism sector service quality is gaining tremendous attention (Augustyn & Ho, 1998; Lam & Zhang, 1998; Khan & Su, 2003; Atilgan, Akinci & Aksoy, 2003; Pawitra & Tan, 2003; Juwaheer, 2004; Hudson, Hudson & Miller, 2004; Lau, Akbar, & Yong, 2005; Lau, Akbar & Yong, 2005) but research effort is still lacking (Fick & Ritchie, 1991; Khan, 2003; Hudson, Hudson & Miller, 2004; Eng & Niininen, 2005). Better understanding on quality of service is considered as a critical factor to enhance tourism sector success (Augustyn & Ho, 1998; Fick & Ritchie, 1991; Atilgan, Akinci & Aksoy, 2003; Khan, 2003; Hudson, Hudson & Miller, 2004). Besides, in tourism sector, providing quality facilities and services is likely to ensure satisfaction of visitors and possibility of getting return visits or repurchase (Hudson, Hudson & Miller, 2004; Tak, Wan & Ho, 2006).

In order to provide quality service and satisfaction to the customers, knowledge of what constitute and influence service quality and satisfaction are considered very essential. Thus, Meng, Tepanon, and Uysal (2008) considered measuring visitor satisfaction as vital role in marketing tourism related products and services as it is linked to destination selection, consumption and repeat purchase (Juwaheer, 2004). Besides, determining service quality and satisfaction are needed in deciding appropriate strategies on policy and operation (Juwaheer & Ross, 2003). Hence, this study was designed and carried out to evaluate service quality of the NNP from the perspective of the park visitors. The first objective of this study is to examine visitors' expectations and perceptions of the service quality. The second objective of this study is to investigate the gap between visitors' expectations and perceptions. The third objective of this study is to examine visitors' satisfaction with quality of services and overall satisfaction of visit to NNP.

## 2. LITERATURE REVIEW

### 2.1. *Service Quality and Satisfaction*

Both service quality and satisfaction are acknowledged as critical concepts concerning customers. The concepts of service quality, satisfaction and its measurement have received much attention from researchers (Oliver, 1980, 1981; Gronoos, 1982; Parasuraman, et al., 1985; 1988; 1991; 1994; MacKay & Crompton, 1990; Crompton, MacKay & Fesenmaier, 1991; Cronin & Taylor, 1992; Brown, Cheeschil, & Peter, 1993; Oh & Parks, 1997; Bigne, et al., 2003; Millan & Esteban, 2004). Although, the concepts of service quality and customer satisfaction differed, but several studies have indicated that both concepts are significantly correlated (Oh & Parks, 1997). Parasuraman, et al., (1985) defined service quality as the degree and direction of discrepancy between customers' perception and expectation. Gronoos (1982) suggested that perceived quality is the outcome of a comparative evaluation process as reflected in the differences between expected and perceive service. Meanwhile, satisfaction is defined as 'judgment a product, or service feature, or the product or service itself, provides a pleasurable level of consumption – related fulfillment, including levels of under or over fulfillment' (Oliver 1997 cited in Meng, Tepanon, & Uysal, 2008).

Meng, Tepanon and Uysal (2008), noted nine theories in the literature on customer satisfaction including (1) expectancy disconfirmation; (2) assimilation or cognitive dissonance; (3) contrast; (4) assimilation contrast; (5) equity; (6) attribution; (7) comparison level; (8) generalized negativity and (9) value percept. Of which Oliver's (1980) expectancy-disconfirmation paradigm is widely accepted. In the expectation-disconfirmation model, satisfaction is determined by comparing the expectations of performance and the actual performance. In the tourism industry, service quality is acknowledged as essential in building competitive advantage and to achieve success (Fick & Ritchie, 1991; Augustyn & Ho, 1998; Atiligan, Akinci & Aksoy, 2003; Hudson, Hudson & Miller, 2004; Tak, Wan & Ho, 2007). The service-quality measurement in the tourism sector has become a popular research subject. Among the research instruments developed and adopted to measure service quality and satisfaction in tourism industry include SERVQUAL (Mackay & Crompton, 1988; Mackay & Crompton, 1990; Fick & Ritchie, 1991; Lam & Zhang, 1999; Pawitra & Tan, 2003; Atiligan, Akinci & Aksoy, 2003; Hudson, Hudson & Miller, 2004, Juwaheer, 2004), REQUAL (Crompton, et al. 1991), SERVPERF (Cronin & Taylor, 1994; Hudson, Hudson & Miller, 2004), HOLSTAT (Tribe & Snaith, 1998), DINESERV (Stevens, Knutson & Patton, 1995); LODGESERV (Knutson, Stevens & Patton 1995); Importance-Performance Analysis (IPA) (Hudson, Hudson & Miller, 2004).

### 2.2. *SERVQUAL in Tourism*

Service quality is dependent on the difference between expectation and performance along the quality dimensions. In this paradigm, it implies that feeling of satisfaction appear when consumers compare perceptions of a service/product's performance to their expectations. Parasuraman et al., (1985) proposed that level of service quality could be assessed on the

difference between expectation and performance along the quality dimensions. Hence, if the actual performance matches initial expectations, then the result is confirmed. Meanwhile, if the perceived performance exceeds consumer expectation (a positive disconfirmation), the consumer is satisfied. On the other hand, if perceived performance falls short of expectations (a negative disconfirmation is revealed) then the consumer is dissatisfied. With this understanding, Parasuraman et al., (1985) developed the GAPS model, and the subsequent SERVQUAL model (Parasuraman et al., 1988) with the GAP framework to measure service quality in service sector. The SERVQUAL model comprised of 22 items (attributes) for measuring service quality along five (5) dimensions including *reliability, responsiveness, assurance, empathy & tangibles* (Parasuraman et al., 1988 & 1991).

MacKay and Crompton (1988) were the pioneer researchers who adopted the SERVQUAL model to measure to measure tourists' leisure satisfaction in public and private sectors, and this eventually led to growing interest in satisfaction research. MacKay and Crompton (1990) continued their research to evaluate the suitability of applying the SERVQUAL model to leisure research that is aimed at evaluating the reliability and validity of the construct of the SERVQUAL model. Fick & Ritchie (1991) utilized SERVQUAL instrument to measure four major sectors related to tourism industry. Based on the findings, they concluded that SERVQUAL instrument has the ability to facilitate multiservice segments comparisons thus benefiting the tourism sector. Lam and Zhang (1999) also utilized SERVQUAL instrument in a study on service quality of travel agents in Hong Kong. This study suggested that overall satisfaction are related to five factors, namely, responsiveness and assurance, reliability, empathy, tangibility and resources and corporate image. Another application of the SERVQUAL model was reported by Akama and Kieti (2003), who studied tourist satisfaction with Kenya's wildlife safari using an adapted SERVQUAL instrument. Despite, presumed reduction in the quality of product, deteriorating security and poor infrastructure in Kenya, the authors concluded that tourists to Tsavo West National had satisfactory experience. In other studies, modified version of the SERVQUAL approach were used by Juwaheer (2004) and Lau, Akbar and Yong, (2005) to assess service quality and satisfaction on hotels in Mauritius and Malaysia respectively. The authors reported that the adapted SERVQUAL models are suitable for use by managers in the hospitality industry.

Meanwhile, Pawitra and Tan (2003) used an integrated approach incorporating SERVQUAL, Kano's model & quality function deployment (QFD) to evaluate tourist satisfaction in Singapore. The integrated approach considered to be an effective tool to enhance the usefulness SERVQUAL through classification strength of product/service attributes (Kano model) and suggesting areas of improvement (QFD). In assessing service quality in the tourism industry, Atilgan, Akinci and Aksoy (2003) employed a combination of SERVQUAL and correspondence analysis (CA). This study concluded that combination of SERVQUAL and CA are useful in determining perceptions on service performance and in visualizing firm's competitive advantages and disadvantages with respect to their service dimension.

As indicated in previous research, the measurement of service quality can be developed to take into account the different attributes of activities. Subsequently, adapted versions of the SERVQUAL model were used as alternatives to evaluate service quality in several other studies

relevant to tourism, namely MacKay and Crompton (1990) developed RECQUAL for the public recreation sector; Knutson, Stevens, and Patton (1995) utilized LODGESERV for the lodging industry; Stevens, Knutson, and Patton (1995) suggested DINESERV for the restaurants; Tribe and Snaith (1998) engaged HOLSAT to measure the holiday satisfaction of tourists visiting Varadero, Cuba. Cronin and Taylor (1994) suggested the use of performance-based instrument (SERVPERF) in determining satisfaction. The authors considered the SERVPERF scale to be efficient in comparison to SERVQUAL. Hudson, Hudson and Miller (2004) conducted a study to measure service quality in the tourism industry using three instruments namely; IPA, SERVQUAL & SERVPERF. The findings suggested that combination of the three scales, namely, IPA, SERVQUAL & SERVPERF are considered equally acceptable in measuring service quality in tourism industry.

### 2.3. ECOSERV

SERVQUAL model is considered a basic skeleton which require adaption to meet the needs of a particular sector (Parasuraman, et al., 1985). An alternative approach or modified SERVQUAL is needed, as motivations, educations, participation and behavior of ecotourists differ from mass tourists (Khan, 2003; Khan & Su (2003). ECOSERV scale is an adapted version of the SERVQUAL scale developed by Khan (2003) and proposed to be applied to specifically measure service quality in natural areas such as ecotourism destinations. The ECOSERV instrument consists of 30 attributes and grouped into six (6) service dimensions (Khan 2003). It incorporated with changes four (4) service dimensions (*assurance, reliability, responsiveness and empathy*) from the SERVQUAL model. However, the tangibles dimension were further spilt into two (2) sub-dimensions and named as ecotangibles and tangibles (refer to Table 1).

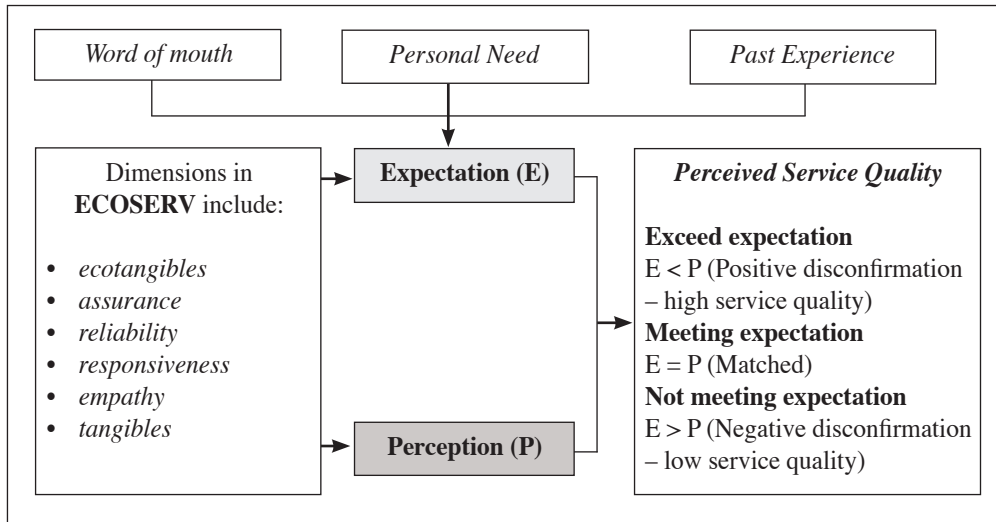
**Table 1:** Six Major Dimensions in ECOSERV Scale

<b>ECOSERV dimensions</b>	<b>Brief description</b>
<i>Ecotangibles</i>	Physical facilities and equipment that are safe and appropriate to the environment.
<i>Assurance</i>	Knowledge and courtesy of the employees and their ability to convey trust and confidence, and provide necessary information.
<i>Reliability</i>	Ability to perform the promised service dependably and accurately.
<i>Responsiveness</i>	Willingness to help customers and provide prompt service.
<i>Empathy</i>	Caring, individualized attention the firm provides its customers.
<i>Tangibles</i>	Physical facilities, equipment, and appearance of the personnel that reflects local influence.

**Source:** Khan (2003)

The conceptual framework provided in Figure 1 is adapted as the reference to undertake this study. The service quality expectations and perceptions are determined using the ECOSERV instrument developed by Khan (2003). The degree of service quality is evaluated from differences in visitor service quality expectations and perceptions.

**Figure 1:** Conceptual Framework of Study (Adapted from Parasuraman et al., 1985)



#### 2.4. Ecotourism

Ecotourism is defined as tourism that is environmentally sound and socially acceptable, contributing both to local economies & the conservation of protected areas while educating the traveler about local nature and culture (e.g., Fennell, 1999; Weaver, 2002; Cater 2004). This differentiates ecotourism from other forms of tourism. This definition is consistent with the definition of the term as first introduced by Cellabalos-Lascurain, from Mexico, the Special Advisor on Ecotourism to IUCN, in the late 1980s. His definition encompasses three aspects including: (a) it involves *travelling to and visiting natural and relatively undisturbed area, with an objective of seeing, studying and admiring the feature of the landscape, flora and fauna, as well as any cultural aspects ...;*(b) *it involves the local people in the process so they can have socio-economic benefits;* and (c) *it has minimum impact on the environment.*” There have been many other definitions on ecotourism. As an example, The International Ecotourism Society, based in USA, defines ecotourism as ‘*responsible travel to natural areas that conserves the environment and improves the well-being of the local people*’.

WTO (2004) suggests that the fastest growing segment of the world’s tourism is the nature-based tourism including ecotourism. Ecotourism sector contributes about 20% of the world travel market and growing rapidly (15% to 30% per year). It is also important because

ecotourism is a potential strategy to support conservation of natural ecosystems while, at the same time, promoting sustainable development. Five major benefits are associated with ecotourism. Firstly, as an industry, it provides employment, revenue and income. Many nations are jumping onto the bandwagon to establish and develop ecotourism due to the expanding market and its economic potential. The development of ecotourism is seen worldwide, for examples, in Costa Rica, Ecuador, Australia, Thailand and many others. Secondly, ecotourism encourages protection and conservation of natural areas and resources to reduce pressure on remaining natural areas and resources. To date, Sarawak has nineteen national parks with a total area of about 300,000 hectares to cater growing ecotourists. Thirdly, ecotourism provides local residents with the opportunities to escape from poverty and improve their quality of life by enhancing local participation. Fourthly, building of relevant infrastructure and improved access to social benefits ecotourism benefits local residents with. For example, Mulu has enjoyed quality and good infrastructures and facilities due to its ecotourism potentials. Lastly, ecotourism assists to educate and increase awareness of public and visitors on conservation of natural areas and ecosystems. Hence, ecotourism is only limited as a strategy to support conservation of natural ecosystems but more importantly consistent with the concept of sustainable development.

In Sarawak, the tourism sector has been identified as a key sector to boost its economic development. The Sarawak Second Tourism Master Plan for the period 1993 to 2010 identifies culture, adventure and nature (or CAN) as the major tourism products. In 1996, the Malaysian National Ecotourism Plan was compiled to assist development of ecotourism in both federal and state governments including Sarawak (Ministry of Culture, Arts and Tourism, 1996). The Sarawak government regards national parks, wildlife sanctuaries and nature reserves as valuable resources for tourism and is working to make them more relevant. Three of the national parks in Sarawak are already on the international radar:

- i) Bako National Park is the oldest national park in Sarawak, and is easily accessible from Kuching. Bako's greatest attractions are the 25 distinct types of vegetation form and seven complete ecosystems.
- ii) Mulu National Park is a world heritage site which is not only rich in flora and fauna diversity, but also in diversity of landforms of outstanding beauty. Beneath the forest canopy in these limestone areas are some of the world most impressive caves.
- iii) Niah National Park is of historical significant. Here lies the oldest human remains in South East Asia (dated 40,000 years ago) and the famous Painted Cave.

In the light of the above discussion, this study was initially proposed to determine the level of service quality perceived by the eco-visitors visiting the NNP in Sarawak. Specifically, the study assessed visitors' expectation and perception of service quality and their level of satisfaction of the NNP. This study utilized a modified measurement scale adapted from ECOSERV developed by Khan (2003).

### 3. METHODOLOGY

#### 3.1. The study area

This study was conducted in the NNP, located about 109 kilometers southwest of Miri in Sarawak. The NNP was established in 1975, covering an area of 3138 hectares. Its major attractions include the Niah Great Cave, the famous Painted Cave, the rich tropical rainforests, limestone hills and an Iban longhouse located near the park boundary. The Niah Great Cave is an important prehistoric site which recorded human life 40,000 years ago. The Painted Cave has rock paintings little human-like figures drawn in red haematite dating 1,200 years. The caves are also well-known for the birds' nest (Swiftlet) industry. The NNP is part of Sarawak's national park system managed by Sarawak Forestry Corporation. It is one of the popular national parks in Sarawak and attracting a significant volume of visitors annually. Table 2 shows the trend of visitors' arrivals in NNP for the last 25 years to participate in recreation and experience nature.

**Table 2:** Annual Arrival of Visitors in Niah National Park (NNP)

<b>Year</b>	<b>No. of Visitors</b>	<b>Year</b>	<b>No. of Visitors</b>
1986	2,166	1999	16,770
1987	2,035	2000	14,330
1988	1,990	2001	15,624
1989	6,167	2002	17,678
1990	15,684	2003	14,721
1991	14,798	2004	15,201
1992	18,299	2005	18,096
1993	16,956	2006	18,396
1994	19,743	2007	18,761
1995	25,414	2008	21,471
1996	18,191	2009	22,444
1997	16,154	2010	27,293
1998	12,791		

*Source:* Sarawak Forest Department and Sarawak Forestry Corporation.

#### 3.2. Sample Design

In this exploratory study, the respondents were conveniently sampled using on-site intercept method. This non-probability method is often used during preliminary research efforts to get a gross estimate of the results, without incurring the cost or time required to select a random sample (Saunders, Lewis & Thornhill, 2003). The questionnaire was administered upon registration at the park office. The survey was conducted between May-June 2008. Visitors who were visiting the NNP at the time of the survey were considered to be the target population. The questionnaire was made available in both English and Malay language. In total, 80 sets of questionnaires were returned and later used for data analysis. Using non-probability sampling,



the sample size is dependent on the research questions and objectives, and on the available resources. This study is an exploratory study with the main objective being to investigate the gap between expectation and perception, there is no intention of making inference based on the results. As Guest et al. (2006) and Creswell (2007) have suggested for a study which focuses on understanding the commonalities within a fairly homogeneous group, a sample size of between 25 to 30 may well serve the purpose.

### **3.3. Questionnaire Design**

A survey questionnaire was designed to examine the level of service quality in the park from visitors' perspectives. The survey questionnaire consisted of four (4) sections. The first section of the questionnaire consisted of questions on respondents' demographic characteristics, including gender, age and educational level. The second section contained questions asking respondents their expectations visiting the park. The third section contained questions pertaining to respondents' perceptions of their experience at the park. In this study the ECOSERV instrument was modified incorporating only sixteen items from the six (6) major service dimensions (*ecotangibles, tangibles, assurance, reliability, responsiveness and empathy*) into the questionnaire. The expectations and perceptions of visitors were measured using a 7-point Likert scale ranging from (1) *strong disagreement or strongly disagree* to (7) *strong agreement or strongly agree* for expectations. The fourth section contained three additional questions to determine respondents' overall level of satisfaction, intention to make return visits and likelihood of respondents to recommend the park to others. Here, assessments were made based on 7-point scale ranging from (1) as *low* to (7) as *high*.

### **3.4. Data Analysis**

The Cronbach's Alpha values were determined to test the reliability of instrument used. A higher (closer to 1.0) value of the Cronbach's Alpha implied a more reliable data. In this study, simple frequencies were performed on the tourists' demographic profile. Mean rating was used to rank the respondents' expectations and perceptions in relations to the sixteen attributes and six dimensions on service quality identified. In this study, we applied the disconfirmation approach comparing expectations and perception of the services received (Oliver, 1980; Bigne et al. 2001) to measure "satisfaction". Hence, the level of service quality of the NNP would be determined from the gap analysis by comparing the differences between the scores of respondent perceptions and expectation (P – E) on the sixteen service quality items and six dimensions. Paired-sampled t-tests were employed to test the differences between expectations and perceptions of visitors on the service quality attribute(s) and dimension(s) identified. The subsequent sections provided discussion of findings obtained in this study.

## **4. RESULTS AND DISCUSSION**

### **4.1. Data Reliability**

The Cronbach's Alpha test was applied to determine the reliability of the data collected. The Cronbach's Alpha values for the expectations and perceptions attributes were 0.93 and 0.82 respectively. The resultant scale was found to be internally reliable as the values exceeded the minimum standard of 0.70 suggested by Nunnally (1978).

#### 4.2. Demographic Characteristics of the Respondents

As seen in Table 3, 53.7% of the respondents were male, and 46.3% were female. Most of the respondents (95.5%) were Malaysians. A large majority of respondents (71.2%) were 25 years old and below and very few were in the age group of 36 years old and above. In terms of educational background, highest proportion (41.3) of respondents had secondary school education, followed by diploma holders (33.8%) and 18.8% with bachelor degree. Almost two-third of respondents (65.5%) were students, while 16.3% worked in private sectors and 8.8% were government employees.

**Table 3:** Demographic Profiles of Niah National Park Visitors

<b>Gender</b>	<b>%</b>
Male	46.3
Female	53.7
<b>Age</b>	<b>%</b>
25 & below	71.2
26 – 35	12.5
36 – 45	7.5
46 – 55	2.5
Above 55	6.3
<b>Origin</b>	<b>%</b>
Malaysia	95.0
Foreign countries	5.0
<b>Education Level</b>	<b>%</b>
Primary school	1.3
Secondary school	41.3
Diploma	33.8
Bachelor	18.8
Masters & above	5.0
<b>Occupation</b>	<b>%</b>
Student	65.5
Private sector	16.3
Government agencies	8.8
Self-employed	1.3
Housewife	1.3
Retiree	6.3
Unemployed	1.3

#### 4.3. Visitors Expectations and Perceptions of Service Quality of the Niah National Park

Visitors' expectation scores for the sixteen attributes were mostly high ranged between 5.40 to 6.43. The results showed that visitors had highest expectations for "facilities to be environmental save" (mean = 6.44), followed by "employees will always be willing to help"

(mean = 6.34) and “*facilities to be kept in a clean setting*” (mean = 6.31). The three attributes that had lowest expectations scores were “*employee to be smartly dress*” (mean = 5.40), “*convenient operating hours*” (mean = 5.71) and “*employees to give service by certain time*” (mean = 5.73). This indicated that visitors had relatively high expectations for the 16 attributes assessed.

Overall mean expectation score of the sixteen attributes of services was 6.05 (Table 4). In three previous studies conducted on ecotourists to a park in the United States (Khan, 2003), Cheju Island in Korea (Khan and Su, 2003) and Gunung Gading National Park in Malaysia (Abas, Nor-Emel & Ayob, 2009), visitors’ expectations scores on service quality were 5.57, 4.26 and 5.42 respectively. It seemed that visitors’ expectations on services in NNP were found to be relatively higher in comparison to previous studies that utilized similar ECOSERV instrument.

Meanwhile, as shown in Table 4, visitors’ perception scores on the sixteen attributes of services were found somewhat lower than the expectation scores. The perception scores on the sixteen attributes of services were mostly moderately high ranged between 4.80 and 5.49. The mean score of the sixteen attributes of services was 5.22 (Table 4). Visitors had highest perception score on service attribute related to “*feeling save during transaction*” (mean = 5.49), followed by “*convenient operating hours*” (mean = 5.46) and “*employees to provide necessary information*” (mean = 5.45). In contrast, the three service attributes that had lowest perception

**Table 4:** Mean and differences between perception and expectation for attributes

No.	Attributes	Expectations means (SD)	Perceptions means (SD)	Gap Mean (Q = P-E)	t-value
1	Facilities appropriate to the environment	6.06 (1.24)	4.80 (1.66)	- 1.26	5.879**
2	Facilities to be environmentally safe	6.44 (1.04)	5.09 (1.63)	- 1.35	6.505**
3	Feel safe during transaction	6.15 (1.14)	5.49 (1.21)	- 0.66	3.707**
4	Employees to provide necessary information	6.10 (1.21)	5.45 (1.28)	- 0.65	3.975**
5	Employees have a knowledge to answer	6.14 (1.09)	5.36 (1.35)	- 0.78	5.284**
6	Employees install confidence to customer	5.90 (1.29)	5.11 (1.48)	- 0.79	4.208**
7	Employees to be consistently courteous	6.19 (1.19)	5.31 (1.52)	- 0.88	4.410**
8	Employees to give service by certain time	5.73 (1.36)	4.80 (1.49)	- 0.93	4.547**
9	Employees to give sincere interest in solving problem	6.15 (1.27)	5.23 (1.41)	- 0.92	2.833**
10	Employees will always be willing to help	6.34 (1.18)	5.29 (1.41)	- 1.05	6.444**
11	Employees will tell exactly time of the service	6.08 (1.26)	5.24 (1.41)	- 0.84	5.279**
12	Convenient operating hours	5.71 (1.40)	5.46 (1.25)	- 0.25	1.355
13	Employees will understand specific needs	5.97 (1.12)	5.36 (1.35)	- 0.61	3.561**
14	Facilities to be visually appealing	6.14 (1.31)	5.06 (1.57)	- 1.07	5.005**
15	Employees to be smartly dress	5.40 (1.58)	4.98 (1.53)	- 0.42	1.797
16	Facilities to be kept in a clean setting	6.31 (1.21)	4.90 (1.65)	- 1.41	6.364**
	Overall Mean	6.05 (0.88)	5.22 (1.04)	-0.83	7.207**

**Notes:** -ve gap implies expectation > perception; implies dissatisfaction; implies service quality < expectation. 0 gap implies expectation = perception; implies satisfaction; +ve gap implies expectation < perception; implies more satisfaction; implies service quality > expectation. Level of significance for t-test: \* p < 0.05 (two-tailed test) & \*\* p < 0.01 (two-tailed test)

scores were “*facilities appropriate to the environment*” (mean = 4.80), “*employees to give service by certain time*” (mean = 4.80), and “*facilities to be kept in a clean setting*” (mean = 4.90). In addition, it should also be mentioned that all expectations and perceptions scores of the sixteen service quality attributes had relatively high standard deviation (>1). This indicated relatively high discriminatory power in all the service quality attributes.

Table 5 revealed the visitors' expectations and perceptions scores of the six (6) dimensions of service quality as identified in the ECOSERV instrument. Overall mean scores for expectations and perceptions on the service quality dimensions were 5.97 and 5.16 respectively. The service dimension with the highest expectations score was *ecotangibles* (mean = 6.25), followed by *responsiveness* (mean = 6.21) and *assurance* (mean = 6.09). In contrast, the three highest perception scores of service dimensions were *empathy* (mean = 5.41), followed by *assurance* (mean = 5.34) and *responsiveness* (mean = 5.26). The two (2) service dimensions which registered lowest score on perception were *ecotangibles* (mean = 4.94) and *tangibles* (mean = 4.98).

**Table 5:** Mean and differences between perception and expectation for dimensions

Dimensions	Expectations mean (E)	Std dev (SD)	Perceptions mean (P)	Std dev (SD)	Gap Mean (Q = P-E)	t-value
<i>Ecotangibles</i>	6.25	1.01	4.94	1.56	-1.31	-6.714**
<i>Assurance</i>	6.09	0.97	5.34	1.04	-0.75	-6.027**
<i>Reliability</i>	5.94	1.18	5.01	1.26	-0.93	-5.265**
<i>Responsiveness</i>	6.21	1.14	5.26	1.31	-0.94	-6.555**
<i>Empathy</i>	5.84	1.10	5.41	1.19	-0.43	-2.819**
<i>Tangibles</i>	5.95	1.07	4.98	1.31	-0.97	-5.553**
<i>Overall mean</i>	5.97	0.85	5.16	0.98	-0.81	-8.330**

**Notes:** Level of significance for t-test: \* p < 0.05 (two-tailed test) & \*\* p < 0.01 (two-tailed test)

#### 4.4. Service Gaps at the Niah National Park (NNP)

As noted in Table 4 and 5, visitors' perception scores in general were found to be lower in comparison to their expectation scores. Accordingly, the service gaps (differences between perceptions and expectations) of the sixteen service quality attributes on the six service dimensions of the NNP were found to be negative (E > P). In other words, the level of service quality of the park was revealed to be at unsatisfactory level. This discrepancy indicates that the service quality expectations of visitors are not met along all dimensions of service quality measured. It clearly shows weaknesses in quality of product and services in NNP from visitor perspectives. It appears the management could possibly concentrate more attention on conservation than on service quality dimensions seek by visitors. Hence, the park management needs to address problems along all dimensions in order to improve its quality of service. The paired-samples t-tests employed found statistically significant in the negative gaps between expectations and perceptions on mean score of sixteen service attributes and six service dimensions measured in this study. There were significance difference in negative gaps between perceptions and expectations of all service dimensions and all service attributes except *convenient operating hours* and *employees to be smartly dress*.

Most importantly, the park management needs to provide greater attention to the three attributes that had biggest service gaps, implying greater degree of dissatisfaction on attributes performance. They need to make sure *the facilities are to be kept in a clean setting* (service gap = -1.41), *environmentally safe* (service gap = -1.35), and *appropriate to the environment* (service gap = -1.26). This findings show consistent relatively greater gaps (higher score on expectations as compared to perceptions) on cleanliness and environmental attributes. In addition, the result of this study also unveiled that the ECOSERV dimension, *ecotangibles* (service gap = -1.31) had the biggest service gap among all dimensions studied. Ecotourists are supposed to travel seeking for pristine environments and interested in conservation of the natural resources (Khan, 2003). Therefore, the greater degree of dissatisfaction on environmental related attributes revealed in this study is not surprising. From a managerial perspective, it would seem vital for the park management to strengthen their focus especially in enhancing service quality attributes appropriate to environmental issues in NNP.

Despite short falls in the quality of services, the NNP visitors are still satisfied (mean = 5.53) when asked to reveal their overall satisfaction level regarding their visits. This could be due to the presence of rich physical attributes and landscapes in the park. In fact, it should also be noted that NNP offers unique opportunities in pristine natural environment including the rich tropical rainforests, limestone caves formation, and important prehistoric site. Similarly, visitors seemed positive, when ask potential of re-visiting the park in future (mean = 4.99) and supportive about recommending NNP to others (mean = 5.65). Obviously, this means that NNP is still considered important and respectable among visitors and should continue to become a preferred ecotourism destination in Sarawak. As a highly promising ecotourism attraction, NNP first and foremost must continue conserving its rich biodiversity and protecting its environment.

## 5. CONCLUSION AND IMPLICATIONS

This study revealed that visitors to NNP rated higher expectations on service quality than their perceptions on service quality. The results of this study highlighted the major aspects of service quality that need to be addressed by the park management. In general, the visitors rated the level of service quality of the NNP as not meeting the expectations of the visitors, as shown by negative gaps (difference in scores between service quality perceptions and expectations of service attributes and dimensions). In this regard, the study evidently identified major weaknesses in quality of product and services especially with respect environmental perspectives. Despite the reduction of quality of services of NNP, visitors were still satisfied with their overall experience and had positive future intentions. These might due to the presence of attractive and unique natural resources (e.g., tropical forests) and features (e.g., caves) and historical sites. In Sarawak, national parks are established for environmental conservation and protection as well as to meet growing needs of tourists and recreationists seeking for unique and diverse natural attractions.

The findings suggested the needs for the park management to improve and upgrade their existing services so as to enhance visitors' eco-experience. With increasing competition among attractions, there is always a need for the responsible authorities (i.e. park management, and other stakeholders) to address service quality deficiency in order to maintain sustainability

of a park as a major ecotourism destination and to greater public support toward effort in conservation. Indeed, addressing deficiency of service quality of the park such as pertaining to environmental safety/security can potentially enhance visitors' experience and satisfaction. Besides, matching visitors' expectations on services requires a sound understanding on needs of visitors, in this case meeting the *ecotangibles* and *tangibles* needs of the visitors.

This study acknowledged weaknesses in the sampling and sample size. According visitors' statistics, on average 70% of visitors to the NNP were Malaysians and remaining 30% were foreigners during the period 2000-2008 (personal communication, Sarawak Forestry Corporation). In this study, it is noted 95% of the survey respondents were Malaysians and only 5% were foreigners, implying over-representation of domestic visitors in the sample. The underrepresentation of foreign visitors may suggest a potential bias and limitation in this study. Hence, a research study in future with a larger sample size and better representation of the park visitors' population would definitely provide greater knowledge and understanding about ecotourists behavior.

Another limitation is the variation of measurement items used in the study in context of NNP, Malaysia compared to the original measurement of ECOSERVE scale developed by Khan (2003). The ECOSERV scale was tested by Khan (2003) to measure ecotourists' quality in the United States and in Cheju Island in Korea (Khan & Su, 2003). For this study, both service quality expectations and perceptions are measured to evaluate the degree of service quality (satisfaction/dissatisfaction) from the gap analysis. Instead of thirty attributes, current study only adapted sixteen items across the six (6) major service dimensions (*ecotangibles*, *tangibles*, *assurance*, *reliability*, *responsiveness* and *empathy*). Hence, the findings might not really be comparable to the studies of Khan (2003) and (Khan & Su, 2003). Scores of service quality expectation in this study are slightly higher or comparable the study by Khan (2003) in the United States. In contrast, Cheju Island, Korea (Khan & Su, 2003) study recorded lower scores for all dimensions of service quality expectations than this study. In addition, the differences in service quality expectations are also influenced by other attributes such as visitors' personality, motivation, past experiences, knowledge, and intrinsic rewards (Ryan and Cessford, 2003; Swarbrooke and Horner, 1999). For, NNP in Malaysia might attract different type of visitors from Khan (2003) and (Khan & Su, 2003). Thus, future research study might consider including all ECOSERV's attributes and take note differences on various variables such as visitors' personality, motivation, past experiences, knowledge, and intrinsic rewards in the conceptualization of model.

#### ACKNOWLEDGEMENT

This project is funded by a research grant (FRGS/04(01)/614/2006(47) provided the Ministry of Higher Education, Malaysia. We would like to thank the Forest Department Sarawak and Sarawak Forest Corporation for the permit and permission to conduct this study in Niah National Park. Our special gratitude also goes to our colleagues and staff of Universiti Malaysia Sarawak (UNIMAS) for their assistance, support and cooperation during the duration of this study.

## REFERENCES

- Abas, S., Nor-Emel, F. J., & Ayob, N. (2009). An Assessment of Quality Service in National Parks: A case study of Gading National Park. *The ICFAI Journal of Environmental Economics*, 7(2), 74-88.
- Akama, J. S., & Kieti, D. M. (2003). Measuring tourist satisfaction with Kenya's wildlife safari: a case study of Tsavo West National Park. *Tourism Management*, 24(1), 73-81.
- Atilgan, E., Akinci, S., & Aksoy, S. (2003). Mapping service quality in the tourism industry. *Managing Service Quality*, 13(5), 412-422.
- Augustyn, M., & Ho, S. K. (1998). Service quality and tourism. *Journal of Travel Research*, 37(1), 71-81.
- Bigne, J. E., Martinez, C., Miquel, M. J., & Andreu, L. (2003). SERVQUAL reliability & validity in travel agencies. *Annals of Tourism Research*, 30(1), 258-262.
- Brown, T. J., Cheeschil, C. A. J., & Peter, J. P. (1993). Improving and measurement of service quality. *Journal of Retailing*, 69(1), 127-129.
- Cater, E. (2004). Ecotourism: theory and practice. In Lew, A., Hall, C. M., & Williams, A. M. (Eds.) *A Companion to Tourism*. UK: Blackwell Publishing.
- Creswell, J. (2007). *Qualitative Inquiry and Research Design: Choosing among Five Approaches*. (2<sup>nd</sup> Ed.) Thousand Oaks, CA: Sage.
- Crompton, J. L., MacKay, K. J., & Fesenmaier, D. R. (1991). Identifying dimensions of service quality in public recreation. *Journal of Park and Recreation Administration*, 9(3), 1-13.
- Cronin, J. J., & Taylor, S. A. (1992). Measuring service quality: a re-examination and extension. *Journal of Marketing*, 56, 55-68.
- Cronin, J. J., & Taylor, S. A. (1994). SERVPERF versus SERVQUAL: reconciling performance-based and perception-minus expectations measurement of service quality. *Journal of Marketing*, 58, 125-131.
- Eng, T. Y., & Niininen, O. (2005). An integrative approach to diagnosing service quality in public parks. *Journal of Services Marketing*, 19(2), 70-80.
- Fennell, D. A. (1999). *Ecotourism: an introduction*. New York: Rutledge.
- Fick, G. R., & Ritchie, J. R. B. (1991). Measuring service quality in the travel and tourism industry. *Journal of Travel Research*, 30(2), 2-9.

- Forest Department Sarawak (2012): Visitors Statistics to National Parks, Nature Reserves and Wildlife Centres. Retrieved March 15, 2012 from [www.forestry.sarawak.gov.my/](http://www.forestry.sarawak.gov.my/).
- Gronoos, C. (1982). A service quality model and its marketing implications. *European Journal of Marketing*, 18(4), 36-44.
- Guest, G., Bunce, A., & Johnson, L (2006). How many interviews are enough? An experiment with data saturation and validity. *Field Methods*, 18, 59-82.
- Hudson, S., Hudson, P., & Miller, G. R. (2004). The measurement of service quality in the tour operating sector: A methodological comparison. *Journal of Travel Research*, 42(Feb), 305-312.
- Juwaheer, T. D. (2004). Exploring international tourists' perception of hotel operations by using a modified SERQUAL approach – a case study of Mauritius. *Managing Service Quality*, 14(5), 350-364.
- Juwaheer, T. D., & Ross, D. L. (2003). A study of hotel quest perceptions in Mauritius. *International Journal of Contemporary Hospitality Management*, 15(2), 105-115.
- Khan, M. M. (2003). ECOSERV: Ecotourists' quality expectations. *Annals of Tourism Research*, 30(1), 109-124.
- Khan, M. M., & Su, K. D. (2003). Service quality expectations of travelers visiting Cheju Island in Korea. *Journal of Ecotourism*, 2(2), 114-125.
- Knutson, B., Steven, P., Wullaert, C., & Patton, M. (1995). DINESERV: Measuring service quality in quick services, causal/theme & fine dining restaurants. *Journal of Hospitality & Leisure Marketing*, 3(2), 35-44.
- Lam, T. & Zhang, H. Q. (1999). Service quality of travel agents: the case of travel agents in Hong Kong. *Tourism Management*, 20, 341-349.
- Lau, P. M., Akbar, A. K., & Yong, D. G. F. (2005). Service quality: A study of the luxury hotels in Malaysia. *The Journal of American Academy of Business*, 7(2), 46-55.
- MacKay, K. J., & Crompton, J. L. (1988). A conceptual model of consumer evaluation of recreation service quality. *Leisure Studies*, 7, 41-49.
- MacKay, K. J., & Crompton, J. L. (1990). Measuring the quality of recreation services. *Journal of Park and Recreation Administration*, 8(3), 47-57.
- Meng, F., Tepanon, Y., & Uysal, M. (2008). Measuring tourist satisfaction by attribute and motivation: The case of nature-based resort. *Journal of Vacation Marketing*, 14(1), 41-56.



- Millan, A., & Esteban, A. (2004). Development of a multiple scale- item scale for measuring customer satisfaction in travel agencies services. *Tourism Management*, 25, 533-546.
- Ministry of Culture, Arts and Tourism. (1996). *The National Ecotourism Plan*, Part 1-7, Executive Summary, prepared by WWF-Malaysia.
- Nunnally, J. C. (1978). *Psychometric Theory*. New York: McGraw-Hill.
- Oh, H., & Parks, S. C. (1997). Customer satisfaction and service quality: A critical review of the literature and research implications for the hospitality industry. *Hospitality Research Journal*, 20(3), 35-36.
- Oliver, R. A. (1981). What is customer satisfaction? *The Wharton Magazine*, 5, 36-41.
- Oliver, R. A., (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, 19, 491-504.
- Parasuraman, A., Zeithaml, V., & Berry, L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49(4), 41-50.
- Parasuraman, A., Zeithaml, V., & Berry, L. (1988). SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12-37.
- Parasuraman, A., Zeithaml, V., & Berry, L. (1991). Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing*, 67(4), 421-450.
- Parasuraman, A., Zeithaml, V., & Berry, L. (1994). Reassessment of expectations as a comparison standard in measuring service quality: implications for further research. *Journal of Marketing*, 58, 111-124.
- Pawitra, T. A., & Tan, K. C. (2003). Tourist satisfaction in Singapore – a perspective from Indonesian tourists. *Managing Service Quality*, 13(5), 399-411.
- Primack, R. B., & Hall, P. (1992). Biodiversity and forest change in Malaysian Borneo. *BioScience*, 42(11), 829-837.
- Ryan, C., & Cessford, G. (2003). Developing a visitor satisfaction methodology, quality gaps, crowding and some results. *Current Issues in Tourism*, 6(6), 458-460.
- Sarawak Forestry Corporation (2012). *National Parks and Reserves*. Retrieved February 29, 2012 from <http://www.sarawakforestry.com/htm/snp-np.html>.
- Saunders, M.N.K., Lewis, P. & Thornhill, A. (2003). *Research Methods for Business Students* (3<sup>rd</sup> Ed.). Upper Saddle River, NJ: Prentice Hall.

- Stevens, P., Knutson, B., & Patton, M. (1995). DINESERV: A tool for measuring service quality. *Cornell Hotel & Restaurant Administration Quarterly*, 6(2), 56-60.
- Swarbrooke, J., & Horner, S. (1999). *Consumer Behavior in Tourism*. Oxford, UK: Butterworth Heinemann.
- Tak, K. H., Wan, D., & Ho, A. (2006). Tourists' satisfaction, recommendation and revisiting Singapore. *Tourism Management*, 28, 965-975.
- Taylor, D. M., Horton, D., Parnwell, M. J. G., & Marsden, T. K. (1994). The degradation of rainforests in Sarawak, East Malaysia and its implications on future management policies, *Geoforum*, 25(3), 351-369.
- Tribe, J., & Snaith, T. (1998). "From SERQUAL to HOLSTAT: Holiday Satisfaction in Varadero, Cuba", *Tourism Management*, 19(1), 25-34.
- Weaver (2002). *Ecotourism*. Australia: John Wiley and Sons.
- Whitmore, T. C. (1984). *Tropical Rain Forests of the Far East*. New York: Oxford University Press.
- World Tourism Organization. (2004). *Tourism Highlights*, Madrid, Spain.