Valuing Natural Resources of Ecotourism Destination in Taman Negara Sungai Relau, Pahang, Malaysia

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A B S T R A C T

Background: Ecotourism has received increased attention from tourists and recreationists as they become more environmentally sensitive. The national park is one of the most popular ecotourism destinations. However, because of users do not pay the full costs of visiting the parks and inefficiency of the market system in restricting their use, over-use and environmental degradation have resulted. The degradation of national parks might affect the sustainability of ecotourism in the future. **Objective:** This purpose of this study is to estimate the visitors' willingness to pay (WTP) for ecotourism resources conservation in Taman Negara Sungai Relau (TNSR). The application of dichotomous choice Contingent Valuation Method (CVM) was applied to determine the willingness to pay. **Results:** The results of logit regression showed that the bid amount, respondent income and education level were the most significant predictors, and influences visitors' willingness to pay at TNSR. The estimated mean WTP for entrance fee was RM 8.76 per entrance. The total value of ecotourism resources in TNSR is estimated at an average of RM 31,409.34 per year. **Conclusion:** The study reveals that visitors are willing to pay higher than the current entrance permit (RM1). Thus, the entrance permit collection may be allocated for the maintenance and conservation of TNSR ecotourism resources and to assist the TNSR management in establishing an efficient entrance permits to visitors for the sustainability of the ecotourism resource in future.

INTRODUCTION

Ecotourism has received increased attention from tourists and recreationists as they become more environmentally sensitive. Beaumont (1998) proposes that ecotourism is a subset of nature tourism, which is itself a subset of tourism, and that three principles define it: natural setting, ecological sustainability and its environmentally educative or interpretive element. Lindberg and Hawkins (1993) define ecotourism as the responsible travel to natural areas, conserving the environment and improving the welfare of the native population. Ecotourism is the observation of natural resources in their environment. Ecotourists will learn to appreciate nature in terms of environmental protection and conservation. Ecotourism has been seen as a typical form of sustainable tourism. It balances economic benefits while reducing environmental stress, Inskeep (1991). Simply stated, ecotourism can is a form of interpretive tourism that required conservation, understanding and appreciation of the environment and cultures visited. Thus, ecotourism has become popular.

Malaysia's ecotourism channels include Marine Park, Geological Park, Wetland, and National Park. The national park is one of the most popular ecotourism destinations and their ecosystems have not been disturbed by human exploitation and occupation. The purpose of the national park is to use the land within the park to protect and preserve the native and indigenous flora and fauna and to preserve objects and areas with a high aesthetic, historical and recreational value. Moreover, in addition to ecotourism activities, national parks are usually used for other activities such as research, education, legislation, and recreation.

Park entrance permits or fees are commonly used to enter natural sites and some countries such as the United States and Canada have a long tradition of admissions fees for natural parks and other protected areas (Sharpley and Sharpley, 1997). In fact, most areas in Malaysia that are reserved for nature based-tourism, including TNSR, have entrance fees or permits. Moreover, the entrance fee has been implemented to limit visitor congestion and to defray the costs of park management. In nature-based tourism, congestion is an

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important determinant of the quality of recreation. Congestion degrades the environment and shortens the national parks' lifespan. It also compromises the quality of the visit for tourists.

The recent management adoption of entrance fee in national parks is also known as the "Conservation Fee". Since 1995, all visitors to TNSR, whether domestic or international, have been charged a small entrance fee of RM1. The money from the entrance fee is used for maintenance, management, infrastructure, and conservation program in national parks. The national parks protect special biological and environmental species. However, because of open access to national park resources and failure of the market system in restricting their use, over-use and environmental degradation have resulted. The degradation of national parks might affect the sustainability of ecotourism in the future. In addition, users do not pay the full costs of visiting the national parks. Thus it is possible that the park may be subject to overuse, overcrowding and biological degradation. Overuse could place unsustainable strain on the park's social and biological carrying capacity.

In addition, human contact with the flora and fauna reduces the quality of the recreational experience. Sustainable development of the tourism and ecotourism resources implies taking actions that do not jeopardize the long-term stability of the ecological systems or the survival of the cultural landscape and forest habitat. To ensure sustainable development for the future of the ecotourism destinations in national parks, park management must take into consideration the park's ecological, economic, social, and cultural parameters. Thus, ecotourism must balance the needs and preferences of visitors with the interests of the local people and the conservation of forest biodiversity. Thus, the purpose of this paper is to estimate the willingness to pay among the visitors in Taman Negara Sungai Relau for ecotourism resources conservation using a dichotomous choice (DC) contingent valuation method (CVM).

MATERIALS AND METHODS

Study Area:

Taman Negara Sungai Relau (TNSR), the area of this study, is a second Taman Negara National Park (TNNP) entrance located on the western side of Taman Negara in Peninsular Malaysia. It is one of the entry points to Taman Negara, apart from Kuala Tahan of the Southern Side, Kuala Koh in Kelantan and Tanjong Mentong in Terengganu. The park has been open to the public since August 1993. The park office of Sungai Relau is 7 km from the small town of Merapoh, which is halfway between Kuala Lumpur and Kota Bharu, Kelantan. The nearest towns are Gua Musang, about 30 km in south of Kelantan and 100 km north of Kuala Lipis, Pahang. It also can be reached by train from Kuala Lumpur to Tumpat. Figures 1a depict the map of peninsular Malaysia and the location of TNSR.
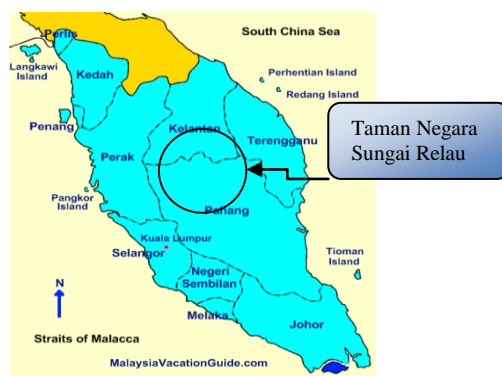

Fig. 1a: Map of Peninsular Malaysia
          Source: Malaysia Vacation Guide, 2011

Taman Negara Sungai Relau, like other parts of Taman Negara, are also noted for its biological and geological diversity. However, unlike Kuala Tahan, Sungai Relau has protected its wilderness and natural habitats by restricting the development of infrastructure. Furthermore, Sungai Relau's entrance is a popular destination for mountain climbers heading to Gunung Tahan. The route to Gunung Tahan is a mere two days as compared to the longer trek of five days from Kuala Tahan. There are also 14-km jeep trail links Sungai Relau to Kuala Juram where the foothills for climbing Gunung Tahan begins. At Sungai Relau (base camp), there is a dormitory and chalet but no restaurant. At Kuala Juram, 14 km away, there is a dormitory for the Gunung Tahan climbers. Table 1 lists the charges at TNSR. TNSR imposes five types of charges. Nevertheless, each visitor to TNSR must obtain an entrance permit, which costs RM 1.00 per entry. Other charges depend on what the visitors do inside of the park.

Table 1: *Charges of Permits and License at TNSR*

Permit and License	Charges (RM)
Entry permit	RM 1/entry
Campsite	RM 1/person and perday
Camera License	RM 5/unit
4WD to Kuala Juram	RM 12/person
Night walk	RM 15/person

Source; DWNP, 2011

Most of the visitors to TNSR receives are local, unlike those who go to the neighbor entry at Kuala Tahan. However, the number of visitors seems to have been increasing gradually although there was a decline in 2009. Visitors to TNSR are drawn by its pristine natural environment. Table 2 shows the number of visitors at Taman Negara Sungai Relau from 2006 until 2010. In general, fluctuations in the number of visitors to TNSR are attributed to many prospective visitors not being aware of the park as an ecotourism destination.

Table 2: *Number of Visitors at TNSR from 2006 – 2010*

Year	Malaysian Visitor	International Visitor	Total
2006	3737	320	4057
2007	3041	299	3340
2008	3141	305	3446
2009	2314	295	2609
2010	4035	441	4476

Source; DWNP, 2011

Contingent Valuation Method and dichotomous choice:

This study uses CVM, a standard measure of the economic value of nonmarket goods, such as recreation resources, wildlife and environmental products. The CVM commonly uses surveys to determine the society's preferences for public goods and by creating a hypothetical market. CVM questionnaires can be used to estimate willingness to pay (WTP) or willingness to accept (WTA) for charge in the provision of public goods. Ajzen and Driver (1992) have identified CVM as a way to place an amount or value on goods and services which are typically not replaced in the market place. CVM used to assign values in money to non-use values which are not traded in the market. Moreover, Contingent Valuation has been examined through analyses of the explanatory factors influencing willingness to pay for increase in entrance fees and trip costs as well as improvement in park amenities (Moran, 1994). The central concept in CVM is willingness to pay (WTP) which is the maximum amount that consumers are prepared to pay for a good or service. More specifically, WTP is the amount of money that a person is willing and able to pay to enjoy recreational facilities (McConnel, 1985). It measures whether an individual is willing to sacrifice income for goods and services, and is typically used for non-market goods (Samdin et al., 2010). Both of them evaluate in terms of monetary value (for instance, RM per person, or RM per household).

This study also uses the DC questionnaire to measure individuals' WTP in the contingent valuation surveys. Respondents are asked only to accept or reject a suggested price under a hypothetical market situation. In other words, they need only a 'yes' or 'no' answer where each respondent is offered a different price. They find it easier to make their decisions in the DC question, because they are familiar with discrete choice in market transactions (Hanemann, 1994).

Survey Method and Payment Vehicle:

In this study, a questionnaire has been designed to gather and collect primary information such as respondents' socio demographic profile, their attitudes and perceptions, and their willingness to pay for ecotourism resources. The on-site survey was manually administered to randomly selected visitors to TNSR in January and February 2012
. Face-to-face interviews were conducted in order to obtain the information. The questionnaire was developed in English and Bahasa Melayu in order to reduce the language barrier and to enable all respondents to understand what was being asked. A total of 309 respondents participated in this survey. However, nine incomplete questionnaires were not usable. Three hundred questionnaires were finally collected from the CV survey, or 97% of the total. An entrance permit was chosen in this study as a realistic and appropriate payment for users of recreation services (Foster, 1989). United States and Canada routinely charge for admission to natural parks and other protected areas.

Hypothetical Market Scenario:

Contingent markets should be established in the absence of market prices for non-market goods, such as natural resources, in order to assess their values (Sellar et al., 1986). The CV questionnaire for interviews was designed to provide respondents with adequate and accurate information about the hypothetical market situation. Then, the respondents were informed that their responses would not be used for specific pricing policies for the entrance permit of TNSR, but instead for academic research that measured the economic value of ecotourism resources (Chong, 1997). This information from the CV questionnaire was intended not only to help respondents express their thoughts as honestly as possible, but also to reduce the rate of rejection.

In CVM format, each respondent was presented with a scenario based on the current status, problems and the conservation program that would be implemented at the TNSR area. The format used was dichotomous choice single bounded single bounded, in other words, "take-it-or-leave-it". The question offered a randomly assigned monetary value to the respondents. The respondents will answer each research question based on the scenario given, their income and expenses, and the price they are willing to pay. Thus, the questionnaire has been distributed into five sets according to the bid amount.

The bid amount for questionnaire Set A is (RM3, RM5, RM2), Set B (RM5, RM7, RM3), Set C (RM7, RM9, RM5), Set D (RM10, RM12, RM7) and Set D is (RM12, RM15, RM10). Generally, if a respondent says 'yes', he or she is willing to pay for an entrance permit at the given amount to protect and sustain the ecotourism resources at TNSR. However, if the respondent answers 'no', he or she is asked to explain why by choosing a reason suggested on the questionnaire or by writing their own reason in the space provided. RM 2 is considered a minimal increase, and decreases that representing as 'reasonable' for an additional amount of conservation fee in most of Malaysia's privately run parks. The chosen bid vehicle should have a reasonable connection with the amenity it is being used to value and should be 'fair' and 'equitable' in its incidence in relation to the benefits derived for the proposed good (Garrod and Willis, 1999).

Model Specification for measuring WTP:

Theoretically, visitors' willingness to pay can be obtained by estimating demand function, where demand is based on utility maximization framework. Then, utility and preferences show how much visitors' willing to pay to enjoying the ecotourism. As a general, the common CVM model is derived from the utility maximization approach. The individual utility function can be derived as:

$$U(X, Z) \tag{1}$$

Where U is the level of utility or satisfaction generated by consuming a set of goods and services, X is a vector of market goods, and Z is a vector of environmental goods. It is assumed that the individual maximizes utility by choosing among the market goods (the level of provision of environmental goods is not subject to individual control). This utility maximization function can be written mathematically as:

$$\text{Maximize } U(X,Z), \qquad \text{Sum } P_i X_i = Y \tag{2}$$

where P_i is the price of the *ith* goods, X_i represent the quantity of the *ith* good consumed, and Y is consumers (visitors) income. The constrained optimization yields the ordinary demand function as be written below.

$$X_i = h_i(P, Z, Y), \; i = 1, 2, ..., n \tag{3}$$

Where *I* indexes the *ith* market goods. Now, the indirect utility function can be defined as:

$$v(P, Z, Y) = \omega[h(P, Z, Y), Z] \tag{4}$$

where the utility represented as a function of price, income, and also the environmental goods. Suppose that at least one element of the z vector is increased, with no decrease with any of the other elements (and no change in income or price). For the sake of simplicity, it is assumed that the only increase is in good z, when the subscript 0 and 1 indicate states before and after the increase respectively. Then it can be said that $Z^1 > Z^0$, where Z^1 is goods after increased and Z^0 is goods before increased, then:

$$\omega^1 = v(P, Z^1, Y) > \omega^0 = v^0(P, Z^0, Y) \tag{5}$$

Thus, the compensating variation (CV) measures the changes in utility which can be represented in term of the indirect utility function:

$$v(P, Z^1, Y-B) > \omega^0 = v^0(P, Z^0, Y) \tag{6}$$

The compensating variation, B is the amount of money that can be extracted from the individual after the change from Z^0 to Z^1 and will leave him or her just as well off as before the change. This compensating variation also can be considered as the WTP for the changes. Hanemann's (1984) approach is implemented to estimate respondents' WTP of individual equivalent surplus, where an individual consumer (visitors) will derive his or her utility from purchasing the preservation of natural and ecotourism resources at TNGP.

$$\omega^1 = \omega (1, Y, C) \quad \text{(i)} \quad \text{or} \quad \omega^0 = \omega (0, Y, C) \quad \text{(ii)}$$

WTP for preservation of natural/ecotourism resources will be specified by N. If respondents are willing to support the preservation of resources, then N=1; but if not, N=0. Y will represent the monetary income, and C is a vector of other variables that which will affect his/her taste and preferences. Since there are unobservable random components for an individual's utility function, utility is treated as a random variable with parametric probability distributions with means η (1, Y, C) and η (0, Y, C), and the stochastic components e_r (ε_0 and ε_1), which are independent and identically distributed as a random variable with zero means. As a result, it can be written as:

$$\omega^1 = \omega (i, Y, C) = \omega (i, Y, C) + \varepsilon_1 \qquad I = (0,1) \tag{7}$$

When considering price, visitors are asked to pay some money (C) for entry and preservation of the TNSR ecotourism areas. The visitors will pay an amount if:

$$\omega^1 = \omega (1, Y-B; C) + \varepsilon_1 > \omega (0, Y; C) + \varepsilon_0 \tag{8}$$

or otherwise, the respondent will reject the offer. Thus, respondents' response probabilities are:

$$P_1 = P_r \{\text{yes response}\} = P_r \{v (1, Y-B; C) + \varepsilon_1 > v (0, Y; C) + \varepsilon_0\} \tag{9}$$

Or $P_1 = P_r \{\text{no response}\} = 1 - P_1$

Suppose that ε_0 and ε_1 are independent and normally distributed the random variables $\eta \equiv (\varepsilon_1 - \varepsilon_0)$ and $\eta (\varepsilon_0 - \varepsilon_1)$ have similar distribution. Therefore, the probability that he or she is willing to pay can be indicated as:

$$P_1 = F\eta (\Delta v) \tag{10}$$

$F\eta$ = probability function of error
Where,

$$\Delta v = v_1 (1, Y-B; C) - v (0, Y; C) \tag{11}$$

During this stage, if the statistical binary response model is to be interpreted as the outcome of utility-maximizing choice, the argument $F\eta$ in Equation 11 must take the form of utility differences as observed in (12). This condition is analogous to the integral ability conditions in the conventional demand theory. It provides the criteria to determine whether or not a statistical model is acceptable with the utility maximization hypothesis. In addition, it offers a practical procedure for specifying the functional form for v (i, Y, C), I = 0,1 and computing the difference ωv.

Hanemann (1984) has suggested the specification of non-random component of the indirect utility function as:

$$v (i, Y; C) = \alpha_1 + \beta Y \qquad\qquad \alpha > 0, I = 0,1 \tag{12}$$

Where the vector C has been suppressed, then

$$Yv = (\alpha_0 - \alpha_1) + \beta B \tag{13}$$

And the statistical discrete choice model becomes

$$P_1 = F\eta (\alpha + \beta B) \text{ where } \alpha = (\alpha_0 - \alpha_1) \quad \text{or} \tag{14}$$

Another suggested functional form can be written as:

$$\Delta v = (i, Y; C) = \alpha_1 + \beta \ln Y, \quad \beta > 0, I = 0.1 \tag{15}$$

This gives,

$$\Delta v = (\alpha_0 - \alpha_1) + \beta \ln (1 - B/Y) \tag{16}$$

Assuming that the equivalent surplus is random with a probability distribution $[G_E(B)]$, estimation of equivalent surplus is obtained by using the expected value of E, E_{MN} where:

$$E_{MN} = \int F\eta \,(\Delta v \,(A)) \, dA \tag{17}$$

On the other hand, it can be obtained using a median value, E_{Md} with a probability distribution G_E (B) where:

$$F\eta \,(E_{Md}) = 0.5 \tag{18}$$

Estimates of the desired welfare measure can be obtained by estimating the parametric probability function $F\eta \,(\Delta v(B))$. The DC format of CVM has a binary choice dependent variable which requires a qualitative choice model. Capps and Cramer (1985) stated the probit and logit models are commonly used qualitative choice methods. The logit model is used in this research to estimate willingness to pay, because of its relative ease to compute. By using this approach, the probability of saying "YES" to a bid at different level of the independent variable is estimated as:

$$P = (1 - e^{-x})^{-1} \tag{19}$$

Where x is an estimated regression logit regression equation and P is the probability of accepting the price. Mean WTP is estimated under this probability function derived based on the methodology proposed by Cameron (1988) using the following equation:

$$\text{Mean (WTP)} = \frac{\beta_0 + (\sum \beta_2 X_2, \ldots, \beta_k X_k)}{- \beta_1} \tag{20}$$

Where
β_0 = estimated constant
$\beta_2, \ldots, \beta_k$ = estimated parameters of the coefficients
$X_2, \ldots, X_k$ = mean values of explanatory variables
β_1 = estimated the coefficient on the BID

Results:
Respondents' Demographic Profile:

A summary of respondents' socioeconomic profile is presented in Table 3. In terms of gender, most (75%) of the respondents were male. More than half of respondents are single (58.7%). Most of the respondents interviewed were from Malay races (89%), followed by Chinese (5%), Indian (2.7%) and others (3.3%). The largest percentage (47.3%) of the respondents are in the 21 – 29 years group, followed by the 30 – 39 years group (33.7%), below 20 years old (2.3%), 40 – 49 years old (9.0%) and (7.7%) of respondent are above 50 years of age. This pattern shows that ecotourism is a "youthful" activity (Ayob et al., 2002).

This study found that majority of visitors to TNSR were well educated: more than three-quarters (76.3%) are college and university students, 22.3% had completed secondary school level, 0.7% are in primary school or had never been to school. The largest percentage of respondents (46.0%) work in the private sector. The second largest percentage (27.3%) worked in the government sector, followed by students (13.0%), the self-employed (9.0%) pensioner and unemployed (1.7%) and others (1.3%).

The result of this study also found nearly all of the visitors (98.7) were local. Most of the foreign visitors came to TNSR for a specific activity such as conducting research on wildlife, education, and bird watching. Meanwhile, the local visitors tend to prefer activities such as fish feeding, camping, jungle trekking, photography. The most popular activity among visitors is hiking up Tahan Mountain, the highest mountain in Peninsular Malaysia.

The visitors' variables are recognized by the distance from destination by visitor's place. The finding shows that approximately 57.7% of respondents have traveled 101km – 300km, from home, 18.0% traveled 301km-500km, 13.0% traveled less than 100km, 8.3% traveled 501km-700km and 3.0% of tourists traveled more than 701 km. The finding implies that people from far away are more interested in the natural and ecotourism

resources at the park either because these conditions do not exist in their native countries or because they are looking for new ecotourism destinations while on vacation.

This study also asked respondents about their involvement in any environmental organizations. Membership in group such as the Ecotourism Society, World Wide Fund for Nature (WWF), Malaysian Nature Society (MNS), recreation club, non-government organization or an environmental group is assumed to influence a respondent's opinion, motivation, and willingness to pay for conservation in TNSR. However, the results showed that only 14.0% of the respondents were members of any non-government organization or environmental organization. In terms of monthly gross household income, a large percentage respondents (40.7%) earned a monthly income household income of RM 3501-RM6500. This is followed by an income group of RM 2001-RM3500 (25.3%), RM 6501-RM10000 (17.3%), RM 1000- RM 2000 (12.3%) and RM 10001 and above (4.3%). Generally, respondents' who earn higher incomes are willing to pay a higher conservation fee in order to preserve natural resources for future generations.

Table 3: *Socio-Economic Profile of Respondents*

Variable	Frequency	Percent
Gender		
Male	225	75.0
Race		
Malay	267	89.0
Indian	8	2.7
Chinese	15	5.0
Others	10	3.3
Age		
< 20	7	2.3
21 – 29	142	47.3
30 – 39	101	33.7
40 – 49	27	9.0
> 50	23	7.7
Marital Status		
Single	176	58.7
Married	124	41.3
Education Level		
Never been to school	2	0.7
Primary School	2	0.7
Secondary School	67	22.3
College	64	21.3
University	165	55.0
Occupation		
Government	82	27.3
Private employee	138	46.0
Self-employee	27	9.0
Pensioner	5	1.7
Student	39	13.0
Unemployed	5	1.7
Others	4	1.3
Nationality		
Domestic	292	98.7
International	8	1.3
Distance from destination (km)		
0 – 100	39	13.0
101 – 300	173	57.7
301 – 500	54	18.0
501 – 700	25	8.3
701 – 1000	9	3.0
Monthly Gross Household Income level		
RM 1000 – RM 2000	37	12.3
RM 2001 – RM 3500	76	25.3
RM 3501 – RM 6500	122	40.7
RM 6501 – RM 10000	52	17.3
RM 10001 – RM 30000	13	4.3
Environmental Group or Non-Government Organization (NGO)		
Yes		
No	42	14.0
	258	86.0

Source: Author Survey (2012)

Characteristic of Paying:

The researcher distributed 309 copies of the questionnaire. Even though face-to-face techniques were used for data collection, not all of the questionnaires were analyzed. Although 309 questionnaires were collected

from visitors on site, 300 copies (97%) were used for the analysis to determine the WTP; nine copies (3%) were excluded from the analysis because of respondents' failure to answer questions, incomplete responses, and inadequate demographic information. This will help to avoid selection bias. In addition, 162 (54.0%) of 300 respondents expressed a willingness to pay for the given bid, and 138 respondents (47.42%) were unwilling to pay, as indicated in Table 4.

The result presented in this study, bid price with the lower bidding price, indicate that large numbers of respondents are willing to pay for entrance permit as well as conservation fee. This result was consistent with the theoretical expectation "as the given bid is decreased, the number of respondents willing to pay increases and vice versa", which means there is a negative relationship between WTP and conservation fee. Practically, on the first bid level value of RM3 given to the respondents, approximately 30.25% of respondents were willing to pay and only 10.87% were not. When a given bid level increase to RM12, more respondents were not willing to pay (26.09%) while only a small percentage of respondent (13.58%) were willing to pay. This study proves that the characteristic of response by the visitor is consistent with the theory of willingness to pay as presented in previous literature.

Table 4: *Visitors' Willingness to Pay*

Price (RM)	Yes	No	Total
	Frequency (%)	Frequency (%)	Frequency (%)
3	49 (30.25)	15 (10.87)	64 (21.33)
5	45 (27.78)	14 (10.14)	59 (19.67)
7	20 (12.34)	42 (30.43)	62 (20.67)
10	26 (16.05)	31 (22.46)	57 (19.00)
12	22 (13.58)	36 (26.09)	58 (19.33)
Total	162 (54.00)	138 (46.00)	300 (100)

Source: Author Survey (2012)

Results of Logit Regression Model:

Based on the results summarized in Table 5, the variables used price, education and income show statistically significant, estimated based on single bounded analysis with respect to visitor's willingness to pay at TNSR. All the parameters are statistically significant, it indicates that all the variables are significant at 1% level. The goodness of fit test for the regression is given by Pseudo-R^2 with 0.1621 while the percentage of correct prediction is 69.33%. The coefficient for price is negative as expected at the value of -0.1996. Meanwhile, the education level coefficient illustrates a positive value (0.1284). For income context, income stated as a highly significant variable in the analysis at 1% of level confidence with a value of 0.0002. This analysis shows that the results are satisfactory.

The coefficient for price is negative which is shown by coefficient value of − 0.1996, implying that the higher the bid offered, the lower the probability of respondents being willing to pay. Thus, in valuing non-market benefits, willingness to pay was usually influenced by the respondent's socioeconomic background. This study found that respondents with a good education and high income are the most willing to pay for conservation of ecotourism resources at TNSR.

According to the logit regression result, income is a variable in this analysis with the value of significant level is 0.001. It means that, high-income respondents are more willing to pay a higher amount than low-income respondents were. Meanwhile, the education coefficient illustrates a positive value (0.1284) and significant at 1% level of confidence. Thus, as expected, with more years of education, the probability of accepting the bid price increases. Normally, a higher educational level is linked with better employment and higher income, thus will increase a probability of respondents' willingness to pay (Mohd Rusli et al., 2009).In this study, only local visitors were taken into account to produce the result of willingness to pay at TSNR. The amount of willingness to pay from group of foreign visitors cannot be analyzed in this study due to the very small number of respondents by visitors from other countries.

Table 5: *Parameter Estimates for Dichotomous Choice Model*

Variable	Coefficient	T- ratio	Significant
Constant	-1.4378	- 1.792	0.0731**
Price	- 0.1996	- 4.856	0.0000***
Education	0.1284	2.525	0.0116***
Income	0.0002	3.954	0.0001***
Pseudo R^2	0.1621		

Log-Likelihood	- 206.9831		
Percentage of Right Prediction	69.33		

Source: Author survey (2012)

Note: *** significant at 1% level
         ** significant at 5% level

Mean Value of WTP:

The results of WTP based on income and education are presented in Table 6 and Table 7 respectively. The result regression analysis shows that mean WTP of visitors' for entrance permit to enter TNSR is RM 8.76 per visit for all visitors. The WTP based on respondents' income of less than RM 2000 is RM 3.84, income between RM 2000 – RM 3500 is RM 5.39, while income between RM 3501 – RM 6500 is RM 8.37. Meanwhile, the respondent who obtained income level between RM 6501 – RM 10000 are willing to pay RM 12.71 and for income above than RM 10001 are willing to pay RM 27.89.

Table 6: *WTP Based on Income Level*

Respondents	Entrance Permit (RM)
Income less than RM2000	RM 3.84
Income between RM 2000 – RM 3500	RM 5.39
Income between RM 3501 – RM 6500	RM 8.37
Income between RM 6501 – RM 10000	RM 12.71
Income above than RM 10001	RM 27.89
All Sample	RM 8.76

Source: Author Survey (2012)

Meanwhile, the result of the WTP based on university education showed that the visitors without a university education are willing to pay RM 6.15, while respondents with a university education are more willing to pay RM 10.83 for entrance permit. The result proves that respondents with high income and education tended to be more willing to pay more.

Table 7: WTP based on Education Level

Respondent	Entrance Permit (RM)
Non - University Education	RM 6.15
University Education	RM 10.83
All Sample	RM 8.76

Source: Author Survey (2012)

Benefit Estimation (RM) of Conservation TNSR:

From logit regression model, based on the value of visitors' and their willingness to pay (WTP), the benefit or expected value of ecotourism resources at TNSR can be estimated. Since there is an increase in the number of arrivals, the total benefits at TNSR is expected also to increase every year. The expected benefits at TNSR are based on the number of visitors recorded by TNSR from 2006 until 2010 as presented in Table 8. Thus, the expected benefit of ecotourism can be calculated by multiplying the number of visitors per year with the mean of WTP (RM 8.76). Hence, the total value of ecotourism resources in TNSR is estimated at an average of RM 31,409.34 per year.

Table 8: *The Estimated Benefits to TNSR*

Year	Total Visitors per Year	Mean (RM)	Expected Benefits (RM)
2006	4057	8.76	35,539.76
2007	3340	8.76	29,258.40
2008	3446	8.76	30,186.96
2009	2609	8.76	22,854.84
2010	4476	8.76	39,206.76
Average per Year			31,409.34

Source: DWNP, 2011

Discussions And Conclusion:

The objective in this study is to estimate the conservation value of ecotourism resources in TNSR. The Contingent Valuation Method (CVM) has been used to estimate visitors' willingness to pay for entrance permit at TNSR. The result shows that the visitors' willingness to pay is RM 8.76 per entry per person at TNSR. Hence, this study provides some evidence that visitors are willing to pay more than the current RM 1 per entry. In order to develop and sustain the ecotourism resources at TNSR, the park management should consider increasing the cost of the entrance permit as well as a source of fund, for ecotourism development, since the minimum level of charge used currently and the permit charge has not increased for the last 10 years. The

results found that household gross income, bid price and education have the greatest influence on visitors' willingness to pay.

The future development of ecotourism at TNSR will depend on the visitors' satisfaction with the resources and their willingness to visit the park. Generally, visitors report being satisfied with the ecotourism resources at TNSR, but the management should take the responsibility to protect them by improving the facilities and services offered to the visitors. Even though the management raises the entrance fees, most visitors would still come to the park, because they enjoy it. Thus, visitors' satisfaction for the ecotourism resources at TNSR is reflective of the conditions in the park. These findings can assist the management of TNSR to take advantage of the higher entrance and conservation fees by using that revenue wisely. Because of a lack of government funding and an increase in the cost of management and operations, park authorities have had to find extra sources of revenue. Most park authorities have begun to charge fees in their parks. Protected areas cannot operate in isolation. The commitment of various groups, to conserve protected areas, is important for their survival. Partnership among stakeholders such as government, private sector, local community and experts, is therefore important to sustain the management and biodiversity of protected areas. The park management also must consider the interests of the people who visit the park. Their demographic and socioeconomic characteristic and their opinions could ensure the success of ecotourism programs. This result also should be helpful to assist the authorities for the permit system and how much they can safely raise the price of entry to the park.

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