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## Exploring visitors' willingness to pay to generate revenues for managing the National Elephant Conservation Center in Malaysia

Sara Kaffashi<sup>a</sup>, Mohd Rusli Yacob<sup>b,\*</sup>, Maynard S. Clark<sup>c</sup>, Alias Radam<sup>d,1</sup>, Mohd Farid Mamat<sup>e</sup>

<sup>a</sup> Faculty of Environmental Studies, Universiti Putra Malaysia, 43400 UPM, Serdang, Selangor, Malaysia

<sup>b</sup> Faculty of Environmental Studies, Universiti Putra Malaysia, 43300 UPM, Malaysia

<sup>c</sup> Department of Global Health and Population, Harvard School of Public Health, Boston, MA

<sup>d</sup> Department of Management and Marketing, Faculty of Economics and Management, Universiti Putra Malaysia, 43400 UPM, Serdang, Selangor, Malaysia

<sup>e</sup> Forest Research Institute of Malaysia, 32109 Kepong, Selangor, Malaysia

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### ABSTRACT

Financial sustainability of protected areas is one of the main challenges of management. Financial self-sufficiency is an important element in improving conservation effort in these areas. This study seeks to review best practices in recreational fee systems in different countries and to find a relevant entry fee for a wildlife sanctuary in Malaysia. The revenue of the National Elephant Conservation Center (NECC) in Kuala Gandah, Malaysia, comes from several sources, including the national government, but all these budgetary sources are strained by tighter public budgets and greater demands. The present study investigates the introduction of visitor entrance fees to supplement an otherwise inadequate budget for supporting the operational costs of the sanctuary. Factor analysis and a double-bounded contingent valuation method were combined to estimate tourists' willingness to pay (WTP) the proposed entrance fee. Factor analysis showed that respondents' motivation to support the NECC with user fees is conditioned by their direct experiences with elephants, their satisfaction with NECC's educational programs and services, and other experiences it gives to users. The WTP model considered respondents' four motivation factors with their sociodemographic characteristics. Since NECC visitors arrive from both within and outside the country, this study suggests to center managers a two-tier fee structure (residents vs. nonresidents of Malaysia), based upon mean WTP estimates. This study further suggests that revenue from such an entrance fee for NECC could support the Center's management and development costs.

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### 1. Introduction

The mission of most wildlife refuges, or sanctuaries, is to create a safe haven for particular species, to keep them as wild as they are. However, due to the IUCN definition, preservation of natural areas is important not only because of their rich biodiversity, but also because of their contribution to local people's livelihood (Fien and Tilbury, 2002; Dudley et al. 2010). Therefore, the conservation of ecosystem services, genetic material, and cultural value for purposes of tourism and consequently for poverty reduction has become an additional motive for the creation of protected areas.

While nature-based tourism is considered to be one of the fastest growing industries (UNESCO, United Nations Educational, Scientific and Cultural Organization, 2012; Bhandari and Heshmati, 2010) in developing nations, managers of ecotourism destinations are increasingly

challenged to find adequate revenue to improve their protection, maintenance, and upgrades of those natural attractions (Mansourian and Dudley, 2008). A "paper parks" phenomenon occurs when protected areas resources are so insufficient that they fail to fulfill their mission. To avoid this phenomenon, managers of natural areas seek other source of funds not from central government budgets. Donors and visitors' entry fees are the most well known alternative revenue sources for protected areas (Shahabuddin, 2009; Baral and Dhungana, 2014). However, donor financing is seldom sustainable and certain over long periods of time (Thur, 2010; Shahabuddin, 2009). Therefore, imposing an entrance fee is currently thought to be the most sustainable self-financing approach for many tourist areas (Reynisdottir et al., 2008). This extra tourist revenue then can be allocated to improve management, maintenance, and monitoring activities (Riley et al., 2006).

A 2009 FAO report concludes that a well defined entry fee can significantly help to fund protected areas. However, the entry fee amount must be evidence-based and match WTP for both domestic and foreign visitors (Shahabuddin, 2009). Earlier studies have concluded that most visitors are ready to pay to enter to frequently visited natural areas (e.g., Abala, 1987; Depondt and Green, 2006; Baral et al., 2008; Svensson et al., 2008; Reynisdottir et al., 2008; Uyarra et al., 2010;

\* Corresponding author. Tel.: +03 8946 6739; fax 03 8943 8109

E-mail addresses: [sarakafashi@gmail.com](mailto:sarakafashi@gmail.com) (S. Kaffashi), [mrusli@env.upm.edu.my](mailto:mrusli@env.upm.edu.my) (M.R. Yacob), [MClark@HSPH.harvard.edu](mailto:MClark@HSPH.harvard.edu) (M.S. Clark), [alias@putra.upm.edu.my](mailto:alias@putra.upm.edu.my) (A. Radam), [Paridms@frim.gov.my](mailto:Paridms@frim.gov.my) (M.F. Mamat).

<sup>1</sup> Tel.: +60 126843082.

Peters and Hawkins, 2009; Thur, 2010; Gupta and Mythili, 2011; Chung et al., 2011; Dhakal et al., 2012). Many studies, however, showed that visitors WTP in several cases are higher than the existing fee (such as Riley et al., 2006; Thur, 2010; Asafu-Adjaye and Tapsuwan 2008; Peters and Hawkins, 2009; Szell and Hallett IV 2013; Tyrväinen et al., 2014; Baral and Dhungana, 2014; Vincent et al., 2014). Experiences from developing countries, such as Costa Rica or India, showed that very low entrance fees are charged for some natural areas and that any small increase from that amount could substantially contribute to management revenue and well-being of the local residents (Shahabuddin, 2009). Setting pricing policy without determining consumers' WTP might forego significant revenue (UNDP, United Nations Development Programme, 2012). A willingness to pay estimate, therefore, is crucially important when instituting a user fee. By doing so, the range of imposed fees should be based upon visitors' opinions and their willingness and ability to pay rather than solely on the managers' notions of relevant fees.

In 2009, total revenue from entry fee collection from 88,401 international visitors to Malaysian natural areas was only USD 136,876 (UNDP, United Nations Development Programme, 2012), about \$1.55 each. Malaysia is a developing country with a limited budget for managing its protected areas, and entry fee collection systems could help generate revenue and improve welfare of its local peoples.

The purpose of this study is to help develop best practices in recreational fee systems across different countries and, by researching visitors' WTP, to determine a fair and appropriate entry fee for an elephant sanctuary in Malaysia. This study, therefore, measures both the level of visitors' support for conservation finance through the proposed entrance fees, and calculates potential effects on sanctuary revenues of imposing such an evidence-based fee.

## 2. Protected areas fee

The visitor fee is a broad and yet very case-specific term. The history of collecting entrance fees dates back to as early as 1908 in Mount Rainier in the USA (McDowel and Moore, 2014). Today, several national parks and protected areas around the globe charge visitors an entrance fee (Buckley, 2003). In many developing countries such as Chile, Kenya, Tanzania, Thailand, Belize, and Indonesia there are two-tiered fee systems where international visitors pay considerably higher fees than domestic visitors (UNDP, United Nations Development Programme, 2012). In other countries such as Nepal, only international visitors are charged an entry fee. Also, policies within a country may require an entrance fee for some protected areas and not charge an entry fee to others (e.g. only 4 out of 7 designated Malaysian national parks have an entry fee). Park managers might charge visitors for entering the park and for camping and other specific activities. Different actual fees may be charged visitors depending on how many visitors enter together, as in a single car or with a commercial tour. Fee revenues most often support park programs and services (protection, resource management, and recreation or information). How fee-based revenue is allocated in the budgets varies widely, also. Sometimes fees are program-specific, and sometimes they merely support general operating expenses.

The idea of charging visitors an entrance fee to visit natural attractions might seem to contradict the definition of "public good", but the large number of visitors and uncontrolled tourists result in congestion problems detrimentally impacting the environment by damaging natural resources and increasing conservation costs. The "entry fee" is sometimes called a "barrier" because those management strategies reduce visitor congestion with a fee, which presumably discourages those who value the attraction less (Lindberg, 2001; Reynisdottir et al., 2008; Ahmad, 2009; Chung et al., 2011; Watson, 2013). According to Reynisdottir et al. (2008), in the absence of visitors' fees, nonusers actually "subsidize" the users who visit attractions as "free riders". As an alternative, the notion of charging a user fee suggests that the cost burden of natural resources should be taken on by those individuals who use the resources and the services provided (Chung et al., 2011).

Another argument against imposing an entrance fee might be made when users who have already paid taxes under the national taxation system object to being "double charged" for a national treasure (Bhandari and Heshmati, 2010). However, the financial need for some supplementary system which requires that park "users pay" can be demonstrated first by observing or pointing out that establishing and enforcing an entrance fee is required wherever the revenue budgeted from public taxation is lower than that required to achieve, sustainably - over a projected period of time - the recreation and conservation goals of the park (Lindberg 2001; Mansourian and Dudley, 2008). Hence, in light of an inadequate budget that does not correspond with increased demand for public natural areas, either taxes must be increased or other non-fee tools should be implemented (Van Sickle and Eagles, 1998).

Government and park managers could collect entry fees to fully or partially recover operating costs for tourism, to generate 'reserve' revenue beyond current costs (for planning and development), to create local business or educational opportunities, or to reduce user congestion (McDowel and Moore, 2014). In many cases, combinations of objectives already exist, for example consider the case of developing countries such as Malaysia or Thailand, where, they have two-tier charging system (fee structure) for local users (minimal fees) and international visitors (premium fees) (Lindberg, 2001). In such countries, either cost recovery or profit generation may be primary goals for 'toll gating' of international visitors and educational purpose (such as student groups) for local users (Lindberg and Halpenny, 2001). In developed countries, such as Canada, Germany, or the USA, where entrance fees are the same for locals or internationals, the aim of collecting entrance fees is to partially cover operation costs, and in general being financially more self-sufficient (Lindberg and Halpenny, 2001; UNDP, United Nations Development Programme, 2012).

The amount and structure of entrance fees, and how they affect land managers, visitors, and tour operators is determined by political, social, and economic relationships between the operation and the background economy (Lindberg et al., 1998). In countries with strong central governments, authorities, and enforcement, designated fees can be collected by park agencies without considering social acceptability or economic efficiency (Buckley, 2003). In the USA, for instance, The National Park Service (NPS) Recreation Fee Program manages the collection, deposit, tracking, and spending of fees that visitors pay when they enter a national park, use park facilities and campgrounds, or participate in various park activities (McDowel and Moore, 2014). Australian National Parks are all managed independently by each state authority and therefore, maximizing profits from fee collection is each state's aim (Buckley, 2003; National Parks and Wild life Service, 2014; New South Wales National Parks and Wildlife Service, NSW, 2014). In Canada, setting user fees is consistent with the requirements of the User Fees Act and under the authority of the Parks Canada Agency Act. In 2013, Parks Canada charged more than 3,300 different user fees for various services, including entry, camping, and business licensing, such as vendors and concessions (Parks Canada, 2014).

Some nations, such as Bulgaria, Romania, and the Czech Republic, have not charged entrance fees (UNDP, United Nations Development Programme, 2012). Unfortunately, entry fees and other self-generated revenues generally fail to realize their income potential. Based on a 2012 UNDP report, in 19 countries, 60% of protected areas funding comes from the central government and only 11% come from site-based revenues including entry fees (UNDP, United Nations Development Programme, 2012).

Many countries already supplement entrance fees collected at protected areas, but airport departure taxes are collected by Belize in Central America, The Republic of Palau in the Pacific Ocean, and Macedonia in the Mediterranean. Since 1996, Belize has charged foreign visitors a "Conservation Fee" when they depart the country. The fee amount of \$3.75 per person has not changed since it was initiated 18 years ago (UNDP, United Nations Development Programme, 2012). Since 2009, the island nation of Palau has collected a \$15 "Green Fee" in

combination with a \$20 departure tax for non-Palauan passport holders. Macedonia charges a “Bed Tax” to visitors staying in or around the Protected Areas (UNDP, United Nations Development Programme, 2012).

Such fees should be considered in nations like Malaysia where a large number of tourists visit the country and where tourism to Protected Areas is underdeveloped. A UNDP study (2012) found that Malaysia and Thailand generated less revenue from the Protected Areas entry fees than from revenues generated by a \$1.00 departure tax, but Tanzania, Costa Rica, and Croatia generated more revenue by their Protected Areas entry fees than from their \$1.00 departure tax.

Consumer willingness to pay should be calculated when setting pricing so that revenue is not lost if fees could exceed the elasticity of consumer/visitor demand. For example, substantial revenue was lost when tourists realized they could enter the Iguacu National Park from Brazil for a lower fee than was charged tourists who entered through Argentina (UNDP, United Nations Development Programme, 2012). An approach to face this kind of problem is instituting regular surveys to gather and update valuable information to inform pricing policies and infrastructure decisions. Parks Canada has been studying visitor satisfaction since 1996 and Quality Service Guarantee since 1998 for all services for which visitors pay user fees (Parks Canada, 2014).

### 3. Case study National Elephant Conservation Center, Malaysia

Wildlife refuges, bird sanctuaries, coral reefs, beaches, forests, mountains, and waterfalls in Malaysia's attract ecotourists who search for rest and natural beauty in southeast Asia (Ahmad 2009). In Malaysia, tourism is the second largest industry after manufacturing for generating foreign exchange (Ahmad, 2009). Ecotourism is about 10% of Malaysia's total tourism revenue. However, Malaysia's ecotourism is far from sustainable. Protected areas are threatened by many alternative land uses with tangible economic benefits (Marker et al., 2008). Therefore, if protected areas can contribute to poverty-reduction strategies, their existence—along with their sustainable use—will be virtually guaranteed. Appropriate and well-managed nature-based tourism could be a sustainable means of applying internationally emerging values of ecological stewardship in developing countries where the costs of protecting their yet-undeveloped regions are offloaded to those who enjoy such natural areas and are willing to pay to experience them (Boo, 1990; Bhandari and Heshmati, 2010).

Malaysia's largest center is the National Elephant Conservation Center (NECC) in Kuala Gandah, which protects those elephants whose habitats are being lost to plantation development, after identifying at-risk elephants, safely and humanely subduing them, then translocating them to the preserve (Department of Wildlife and National Parks Malaysia, 2014). Within the center, visitors can participate in unique experiences with elephants. Although NECC is open to almost 160,000 domestic and foreign visitors throughout the year, no admission fee is charged. The Malaysian government has a limited budget, so competition for budgetary allocations is fierce between various sectors. NECC needs more revenue than the national government can provide, and fees could entirely replace government funding, which is already inadequate for funding other national priorities. In precarious times, it would be very prudent for NECC to try to make its entire budget independent of governmental largesse. NECC therefore needs revenue to supplement—or even totally replace—limited funding provided by the national government. Both the government budgetary allocation and revenue gap could be reduced if tourists bore more of the conservation cost burden of the natural resources they use. Moreover, the indigenous people (Suku 'Che Wong') reside in two villages, namely, Kampung Bolok Hulu and Hilir, located less than 5 km from the NECC along the main road. This revenue source also could benefit local indigenous people living adjacent to NECC by involving them in the center's activities. Accordingly, a double-bounded dichotomous choice contingent valuation method (DC-CVM) was conducted to estimate visitors' willingness to pay (WTP) the entrance fee proposed for NECC's available activities.

Results of this study can help policymakers and site managers determine whether a fee system is viable from visitors' point of view. The results also can help other natural recreational sites in Malaysia to have insights about possible method to tackle their financial issues. This study also has importance for determining possible benefits to local people from ecotourism.

#### 3.1. Study area

The National Elephant Conservation Center, Kuala Gandah, is situated about 15 km from Lanchang town within the Temerloh District of Pahang, at the center of peninsular Malaysia (Fig. 1). The NECC is located about 100 km east of the capital city, Kuala Lumpur (Daud et al., 2009). The sanctuary covers almost 5.8 ha of the Krau Game Reserve, which was established in 1923 to protect the region's wildlife species. The NECC was established in 1989, managed by the Department of Wildlife and National Parks (DWNP) of Malaysia. The aim of this center was to coordinate activities of the Elephant Relocation Team, formed in 1974. The first and largest elephant sanctuary in Malaysia, this center is in charge of locating, subduing, and then translocating elephants living outside the protected areas when their lives are endangered by humans (Department of Wildlife and National Parks Malaysia, 2014). As a result of relocation teams' efforts in past 30 years, around 700 elephants were relocated. Therefore, the population of wild elephants in Malaysia, which was experiencing tremendous decline from 500, increased to about 1200 today (Department of Wildlife and National Parks Malaysia, 2014). The center provides a habitat for trained resident elephants brought in from Thailand and Myanmar to assist in the translocation of wild and orphaned elephants from areas of conflict all over Malaysia. NECC also has responsibility for the conservation of Malaysian elephants, which belong to the species of Asian elephant, *Elephas maximus*. The biggest threat to the Malaysian elephant population is the massive clearing of rain forests (Saaban et al., 2011). The species is listed as critically endangered, with less than 40,000 population in Asia (Department of Wildlife and National Parks Malaysia, 2014). The importance of conservation of Asian elephants as one of the largest mammals in the world is to help the balance of ecosystem through protecting the niches of other species within its habitat. The Asian elephant has been under serious threat due to the loss of their habitat in favor of more financially profitable land uses, their being hunted for food, and their being removed from converted plantations and other agricultural areas surrounding forests. The aim of the translocation team is to relocate these elephants from their destroyed habitat to a protected area, preventing them from being shot by farmers or dying from starvation.

The NECC supports elephant-translocation and conservation-related research and enhances public awareness through its educational programs about Malaysian elephant conservation, which contributes broadly to elephant survival by reducing human–elephant conflicts (Saaban et al., 2011). The center is open throughout the year to ecotourists, who can enjoy unique experiences of bathing, feeding, and riding the elephants. It is because Malaysia's Department of Wildlife and National Parks helps fund the NECC that visitors currently enter the park at no cost. However, relocating each wild elephant costs NECC more than Malaysian Ringgit (RM) 40,000 per elephant, which operation is funded mostly by donations from its daily visitors (Department of Wildlife and National Parks Malaysia, 2014; Saaban et al., 2011).

## 4. Methodology

### 4.1. Contingent Valuation Method

Given that natural attractions, when offered with free access, are non-market goods, one could assess their value by estimating consumer willingness to pay (WTP) in the absence of a market. The purpose of this study is to estimate visitors' WTP a proposed entrance fee for NECC, based on their satisfaction with their experience at the center. This





Fig. 1. Location of NECC in Malaysia.  
Source: NECC website, 2011

satisfaction, or maximization of visitors' utility, is related to improvements in the center's management to benefit visitors. To secure this change, visitors agree to pay a small fee.

The Dichotomous Choice Contingent Valuation Method (DC-CVM) is the most widely accepted approach to eliciting information about respondents' WTP. The DC-CVM format can be divided into single-bounded and double-bounded formats. In the single-bounded format, respondents need only indicate their amenability to paying a proposed amount by saying "yes" or "no." Thus, respondents have the opportunity to either accept or reject proposed bid prices. In the double-bounded DC-CVM format, each survey respondent is given a series of price offers, including the initial bid and a second bid its direction (higher or lower) is dependent on the response to the first bid. Thus, the offered price will increase if the first response is "yes," and decrease if the first response is "no." Each respondent, therefore, had a choice to accept both bids or reject both bids, or to accept only one of them. Hence, double-bounded CVM, which is more efficient (i.e., has a smaller variance around parameter estimates and narrower confidence intervals around welfare estimates) than the single-bounded format for equally sized samples, was selected for this study (Kanninen, 1995; Hanemann et al., 1991; Calia and Strazzer, 2000).

#### 4.2. Factor analysis

Factor analysis has been widely used in social science literature to identify and categorize latent structure of set of variables (Treiblmaier and Filzmoser 2010). Therefore, any large set of variables which measure similar things will get factored into smaller sets of unobserved variables called 'factors' (Treiblmaier and Filzmoser 2010). Variables must be of the Interval/Ratio type in order for factor analysis to be useful. If one assumes equal space between intervals, then, according to the SPSS manual, variables which the Likert scale measures are termed 'interval variables' and correspond to empirical observations. In present study, 23 attitudinal items were collected from respondents. From 23 attitudinal items, 12 of them were related to visitors' perception and satisfaction toward attractions and activities in NECC, while 11 factors were related to satisfaction from facilities. Each item was represented using five point Likert scale from "strongly agree" to "strongly disagree". Since inclusion of visitors' perception and satisfaction is important part of WTP measure, yet inclusion of all 23 variables in WTP model is rather impractical. Hence, in present study factor analysis was applied in order to reduction of 23 attitudinal items into small number of identified

factors with capability of displaying most of the primarily observed variance (Maier, 2007). The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy of 0.86 and 0.82 for visitors activities and facilities satisfactions respectively, with Bartlett's test of Sphericity significant at the 1% level showed that our data set is suitable to run factor analysis (Hutcheson and Sofroniou, 1999; Williams et al., 2012). Correlation matrix (presented in Appendix 1) with sizable correlations among the variables indicates the suitability of variables to be included in factor analysis. Anti-image correlation matrix with all variables having values greater than 0.5, showed the factorability of the variables as well. The appropriateness of the questionnaire's items was reliability tested before the factor analysis. Exploratory factor analysis with varimax rotation was applied in SPSS software.

#### 4.3. The questionnaire

The first step in developing the questionnaire used in this study was to set up a suitable and understandable hypothetical market. The first attempt in conducting this research was to get insights and options of relevant staffs of Department of Wildlife and National Parks, Malaysia. Two focus group discussions were then conducted, involving 23 persons inside the NECC. One 9-person group included NECC managers and their staffs, while another 14-person group selected visitors and tour guides randomly. Based on the two focus group studies, expert consultations, and literature reviews, the most important aspects of NECC that needed more development and budgetary allocation were defined. Those future states of NECC that were important to visitors were identified, as well. The most important future of management was finding a sustainable finance system beyond government budgetary allocation as rescuing and relocating and other treatments are so costly. Increasing awareness toward duty of center and promoting ecotourism over mass tourism to be able to operate and manage NECC in more sustainable manner in presence of increasing number of visitors were other concerns of the management. From visitors point of view improvements in conservation related and service related attributes were used in setting up the hypothetical market. Then another important aspect of the hypothetical market which is the payment vehicle was defined (Kaffashi et al., 2012). The payment method therefore was described as an admission or entrance fee introduced to users of NECC. Introducing an entrance fee was a better replacement to the donation as it was more reliable financial contribution. The frequency of payment was upon each entrance to NECC, and all consumers needed to pay the assigned amount. Hence, in the double-bounded format, respondents' were asked whether they would be willing to pay  $X$  amount to help improve management and gain more satisfaction from their visits to NECC.

#### 4.4. Questionnaire design

The core requirement of the CVM questionnaire is respondents' clear understanding of the constructed hypothetical market. Before proceeding with the main questionnaire, a pretest of the survey was conducted using convenience sampling of 30 visitors of NECC. The pretest results were used to improve the questionnaire, specifically length of interview and clarity of questions.

The DC-CVM interview questionnaire consisted of four sections. The first probed respondents' background and personal profile. This section was designed to gain information on respondents' socioeconomic background, including questions about age, gender, occupation, educational level, race, nationality, and income level.

The second section probed characteristics of respondents' visit. Respondents were asked whether the visit was their first to NECC, and if they replied "No," they were asked how many other times they had visited NECC. The questionnaire also sought to gauge each visitor's reason for visiting, whether they were traveling alone or with a group, and if they had visited any other sanctuary similar to NECC. Respondents

were also presented with a list of current activities in NECC and asked to choose the three they most preferred.

The third section contained questions to gain information about visitors' perceptions and satisfaction on NECC activities. It included questions about attractions and activities of ex-situ conservation programs with which visitors were involved, and about the available NECC facilities and services in a five-point (Likert) scale. Visitors' ideas about crowding in NECC were also collected in this part.

The last section of the questionnaire profiled the hypothetical market. Respondents were presented with information about NECC. The scenario carefully mentioned the huge number of visitors annually, and its rate of increase. Respondents were informed that this increase has implications for the management and operation of NECC, especially in terms of their rising costs. The growing number of visitors requires further development and efficient management to guarantee sustainable resource management and visitor satisfaction. The questionnaire's scenario focused respondents' attention on the free admission to NECC, where visitors have opportunity to uniquely experience activities with elephants free of charge. Respondents were then informed that NECC management needs to cover part of its high cost by introducing some level of entrance fee. The most important aspect of the contingent valuation questionnaire was to inform respondents of the impact their WTP responses would have on the environment, given budget constraints. Respondents were told that environmental quality would be adversely affected if they refused to pay, whereas their willingness to pay for better management would result in better conservation and more enjoyable visits. This approach was taken to avoid information bias. The budget constraint reminder was included so that respondents would answer this question as realistically as possible. A careful bid selection is essential in this kind of study (Ragkos et al., 2006). Current economic theory is that pricing good higher results in reducing the willingness of potential buyers to pay for the good. Therefore, increasing or even introducing any user fee should not result in a dramatic decline, in this case, in the number of site visitors. Hence, based on focus group suggestions we considered a modest entrance fee that would minimally affect visitor numbers, especially among those visitors who are particularly price-sensitive, as in low-income groups. Based on results from the pretest, five sets of bidding prices were selected in the range from RM 1 to RM 15. Each bid amount was randomly assigned to each questionnaire prior to the questionnaire's being administered.

#### 4.5. Sampling and data collection

Based on the National Oceanic and Atmospheric Administration (NOAA) panel guidelines (Arrow et al., 1993), a closed-ended format and in-person interviews were selected for the case design of this study. Trained interviewers were given further training and supervised to familiarize themselves with the questions. The target population included both domestic and foreign visitors. The estimated mean and standard deviation of WTP from pretest was used to estimate the required sample size. Using Cochran (1977) formula, the sample size of 226 was obtained. Mitchell and Carson (2013) on their book on CVM (p.225) suggested that sample size of 200 to 2500 is appropriate for analysis. Their calculation of sample size is based on percentage of difference between true and estimated WTP and acceptable error in estimated WTP. Further, Mitchell and Carson (1989) based on their experience on reviewing several CVM studies, suggested considering a coefficient of variation of 2.0. Therefore, using their formula and tolerating the disparity of 20% between the true population mean and sample estimate, the mean sample size of 286 was estimated (Mitchell and Carson, 2013, p.225, Table 10-1). Considering this and our available budget, sample size of 310 respondents was determined for this study.

The sampling frame in the main survey comprised adult visitors of any nationality aged between 18–75 years old who had ability to pay for the trip themselves. Tour guides and those who were working for any tour operators were excluded from survey as they were paid by

related companies. A random sampling was conducted in order to select potential respondents. Every 10th visitor older than 18 years was intercepted as s/he passed by the interviewer, that person was then asked to complete the survey. If that person declined to participate, the next qualified person (who would have been the 11th qualified person to pass) was asked to participate. If that person also declined, the succeeding person (who would have been the 12th qualified person to pass) was asked to participate.

Before the survey was conducted, the study objectives were briefly explained to each respondent to prevent information bias in the CVM questions' handling. The interview process took 30–45 min per respondent.

Data was collected in November 2011, continuously from 9:00 a.m. to 6:00 pm. During the "operating period," interviews were conducted between 10:00 a.m. and 4:00 pm. The surveys were carried out simultaneously at specified locations. The chosen method was considered fair, as it ensures that all populations have an equal chance to be selected as respondents. The choice of study location also ensured that visitors experienced NECC activities before exiting from the center (Dhakal et al., 2012). This approach was taken because the satisfaction of respondents who had just enjoyed the recreational activities could help them respond more accurately, especially to the WTP question.

In total, 310 interviews from NECC visitors took place. From the total number of completed questionnaires, five were eliminated as zero response protest and one of them as incomplete questionnaire. The present study was therefore based on 304 completed questionnaires. Statistical analysis and estimation of the logit model were carried in Nlogit 5 software.

#### 4.6. Data analysis

Random utility approach developed by Hanemann's (1984) was applied to this study's DC-CVM data. It is believed that respondents will follow the logic of utility maximization when making choice. The depended variable (WTP as a latent variable) took dummy format; WTP "Yes" coded as 1 and WTP "No" coded as "0". Depend on the respondents' reaction to the first bidding price, they were presented with the second bid in higher or lower amount than first bid. Respondents' decision to say "yes" for suggested entry fee is the vector of their socio-demographic and attitudinal characteristics. Both log-normal and log-logistic models were examined in this study considering normal and logistic distribution assumptions. The Limdep code developed by Terawaki (2001) applied in this research. First the pooled model of all respondents including national and international visitors was carried out. For this pooled model a dummy variable for local and international visitors was introduced (Local), to test whether this parameter is a significant determinant of WTP. The mean and median WTP estimated from model developed by Hanemann (1984). For more information on double bounded CVM estimation methods we refer readers to Hanemann (1984) and Hanemann et al. (1991).

## 5. Results and discussion

### 5.1. Respondents' sociodemographic profile

Results of the sociodemographic characteristics of respondents are presented in Table 3. These show that 56.3% of respondents were male. From the standpoint of respondents' age, the majority (58.5%) were young, between 18 and 35 years of age. The results also show that 81.5% of respondents were domestic visitors, while another 18.5% were international visitors. This finding is therefore consistent with the annual average percentage of international visitors to NECC, which was 25% foreign visitors during the years 2008–2011. In terms of domestic visitors, the majority were Malay (68.6%), 7.1% were Chinese, and 4.2% were Indians. The rest (20.06%) were from other ethnic groups. From an educational standpoint, most respondents (60.5%) had a university degree, 34.3% had only a secondary school degree, and 5.1%

**Table 1**  
Factor structure of Visitor's perception toward attractions and activities in NECC.

|   | Component          |                         |
|---|--------------------|-------------------------|
|   | F1:NECC Experience | F2: Elephant Experience |
| –Video and interpretation programs about conservation efforts at NECC has increased my awareness toward wildlife conservation | <b>.749</b>        | .185                    |
| –Interactive program at NECC provides environmental education experience  | <b>.701</b>        | .218                    |
| –Provision of wild life related recreational activities makes NECC as an effective ecotourism attraction                      | <b>.690</b>        |                         |
| –Nature and elephant Observation activities at NECC attract my attention  | <b>.690</b>        | .149                    |
| –Interactive program at NECC provides the interaction between the visitors and wildlife                                       | <b>.678</b>        | .307                    |
| –NECC has important role in promoting conservation  | <b>.651</b>        | .054                    |
| –I am satisfied with the activities and the experiences offered at NECC   | <b>.619</b>        | .289                    |
| –Elephant riding makes me closer to the wildlife  | .119               | <b>.897</b>             |
| –Elephant bathing gives me an opportunity to interact with wildlife   | .204               | <b>.844</b>             |
| –Elephant feeding gives me an opportunity to interact with this wildlife  | .366               | <b>.615</b>             |

had primary school level degree. Among the respondents the percentage of 57.6% were married, 41.1% were single, and only 1.2% were widows or widowers. Self-employed individuals and private-sector employees were almost equal: 23.6% and 23.3%, respectively. About 43.9% of the total respondents were working in the governmental sector. The rest were students. From the stand point of respondents' income, the average was RM 4197.77. However, since foreign visitors' income in exchange was relatively high, by eliminating foreign respondents from the overall sample, the mean domestic visitor's income was estimated to be RM 2629.95. Local Malaysian household averages RM 4025 per month. Approximately 60% of households earn a RM 3500 or less (Muhammad-Sukki et al. 2012). The income levels measured in this study were lower than those the Malaysian government reported in 2012. The underlying reason for this finding is that people generally are uncomfortable revealing their actual income. Respondents also were asked about the frequency of their visits to the NECC and the factors motivating their visit. Most respondents (72.1%) said that the current visit was their first to the NECC; 27.9% of respondents had visited the center before. Uniqueness, attractions, and experiences to be gained by the visitors were the major factors drawing visitors to the center. From the total number who had been to the NECC before, 44.1% were visiting the center for the second time; respondents who had traveled to it more than three or four times were 19.7% and 10.4%, respectively. Respondents who had traveled there more than five times also showed a relatively high percentage: 25.5%. This information shows that the NECC provides interesting experiences for visitors that draw them back repeatedly.

**Table 2**  
Factor structure of visitors' satisfaction from facilities.

|                                 | Component    |                |
|---------------------------------|--------------|----------------|
|                                 | F1:Education | F2: Facilities |
| –Exhibition Hall                | <b>.802</b>  | .215           |
| –Information counter            | <b>.778</b>  | .004           |
| –Interpretation place           | <b>.655</b>  | .257           |
| –Slide show room                | <b>.542</b>  | .449           |
| –Riding elephant place          | .154         | <b>.820</b>    |
| –Toilets                        | .031         | <b>.792</b>    |
| –Open space (in front of stage) | .344         | <b>.531</b>    |
| –Interpretation boards/signs    | .420         | <b>.515</b>    |



**Table 3**  
Socio-economic profile of respondents.

| Variable                      | Frequency |       | Mean    | St. Deviation |
|-------------------------------|-----------|-------|---------|---------------|
|                               | Number    | (%)   |         |               |
| Gender                        |           |       | 0.56    | 0.49          |
| male                          | 174       | 56.31 |         |               |
| female                        | 135       | 43.69 |         |               |
| Age                           |           |       | 28.22   | 9.24          |
| 18–25 years                   | 78        | 25.24 |         |               |
| 26–30 years                   | 73        | 23.62 |         |               |
| 31–35 years                   | 30        | 9.71  |         |               |
| 36–40 years                   | 38        | 12.30 |         |               |
| 41–49 years                   | 42        | 13.59 |         |               |
| more than 50 years            | 48        | 15.53 |         |               |
| Citizenship                   |           |       | 0.18    | 0.39          |
| Malaysian                     | 247       | 79.94 |         |               |
| other                         | 57        | 20.06 |         |               |
| Race                          |           |       | 1.66    | 1.15          |
| Malay                         | 222       | 71.84 |         |               |
| Chinese                       | 22        | 7.12  |         |               |
| Indian                        | 13        | 4.21  |         |               |
| other                         | 52        | 16.83 |         |               |
| Level of education            |           |       | 14.77   | 3.04          |
| primary                       | 16        | 5.18  |         |               |
| secondary school              | 106       | 34.30 |         |               |
| higher education              | 187       | 60.52 |         |               |
| Marital status                |           |       | 0.57    | 0.49          |
| single                        | 127       | 41.10 |         |               |
| married                       | 178       | 57.61 |         |               |
| widow/widower                 | 4         | 1.29  |         |               |
| Employment                    |           |       | 3.21    | 1.26          |
| student                       | 27        | 9.24  |         |               |
| government sector             | 73        | 43.91 |         |               |
| private sector                | 72        | 23.30 |         |               |
| self employed                 | 63        | 23.6  |         |               |
| Income (myr)                  |           |       | 4161.06 | 4916.35       |
| Average annual visit          |           |       | 0.74    | 0.46          |
| 1 time only (first time)      | 223       | 72.17 |         |               |
| 2 times                       | 38        | 44.19 |         |               |
| 3 times                       | 17        | 19.77 |         |               |
| 4 times                       | 9         | 10.47 |         |               |
| 5 times and more              | 22        | 25.58 |         |               |
| Group tours visit             |           |       | 0.86    | 0.46          |
| alone                         | 47        | 15.21 |         |               |
| group                         | 262       | 84.79 |         |               |
| Visited similar place to NECC |           |       | 0.23    | 0.44          |
| No                            | 239       | 77.35 |         |               |
| Yes                           | 70        | 22.65 |         |               |

5.2. Perception on respondents' visit characteristics and satisfaction

In this research, an attempt was also made to determine key factors influencing respondents to visit NECC. Factors were measured on a three-point scale of “not important”, “important”, and “very important”. The results showed the factor, “opportunity to see the elephants”, to be a very important element drawing visitors to the NECC, with a probability of 53.4%. The NECC factor, “as an ecotourism destination”, was underlined to be the second most important factor influencing respondents to visit the center (43.4%), while the factor, “opportunity to ride elephants”, was selected only by 31.4%.

The activities that attracted respondents during visits to NECC in Kuala Gandah are presented in Table 4. Nine factors were presented to respondents, who were required to select three choices each for their first, second, and third priority. The results indicate that the most important factors of respondents' three choices for their first priority are: (1) being impressed by the elephants' behavior (52.4%), (2) learning about elephants (21.0%), and (3) being interested by the provided activities (12.3%). Visitors' second and third priorities are also presented in Table 4.

In the research of visitors' involvement in NECC activities, factors involving interaction with the wildlife were the most important terms of having a new experience and satisfaction to visitors. Through these activities, visitors also can increase their appreciation of wildlife. Six main

**Table 4**  
Activities which attracted the respondents during their visit.

| Statement                                 | Option 1 (%) |
|---|--------------|
| Impressed with the behavior of elephants  | 52.43        |
| Learned more about elephants              | 21.04        |
| Impressed by the activities provided      | 12.30        |
| Gained knowledge of elephant conservation | 7.12         |
| Learned more about elephant management    | 1.62         |
| Followed travel group                     | 0.97         |
| Enjoyed nature                            | 4.53         |
| Spent their leisure time                  | 0.00         |
| New experience                            | 0.00         |

activities based on visitors' priorities—video, riding, feeding, bathing, photography and elephants watching—were asked. The results showed that “watching the elephants” is visitors' most preferred activity (about 60%).

Visitors' perceptions were studied to evaluate their satisfaction with the basic services provided in NECC. Respondents' perceptions were measured on a five-point Likert scales, from “not satisfactory at all” to “very satisfactory”. According to Table 5, visitors are relatively satisfied with the facilities currently provided by NECC.

5.3. Results of factor analysis

The results of the exploratory factor analysis are reported in Tables 1 and 2. Using Cronbach's alpha reliability test, two items were eliminated from NECC's perception and satisfaction, and three from NECC's facilities' satisfaction attitudinal items, respectively. Hence, factor analysis was carried out using 18 items out of an initial 23 items. A principal component method with Varimax as a rotation method revealed two interpretable factors with eigenvalues greater than 1 for both attributes. The results of Table 1 shows that those variables related to NECC programs and experience in general mainly affected factor 1, while those variables related to direct experience with elephants, such as riding, feeding, and bathing them mainly affected factor 2. Table 2 shows the results of factor analysis for visitors' satisfaction from facilities and services provided in the NECC within two interpretable factors. Those variables related to educational programs mainly affected factor 1, while variables which were indicators of facilities affected factor 2. The data were then computed and entered as four attitudinal and satisfaction variables together with sociodemographic factors in estimating WTP.

5.4. Results of Contingent Valuation Method

To analyze the dichotomous choice CVM, respondents' answers to questions about bid prices were categorized as dummy variables, where Yes = 1 and No = 0. The frequency distribution of WTP for

**Table 5**  
Visitors' satisfaction from basic facilities and services provided at NECC.

| Type of facilities                   | Satisfaction level |        |        |       |        |
|--------------------------------------|--------------------|--------|--------|-------|--------|
|                                      | NS (%)             | US (%) | MS (%) | S (%) | VS (%) |
| Facilities to access to NECC         | 1.29               | 9.39   | 11.36  | 53.07 | 24.89  |
| Registration and information counter | 1.62               | 2.59   | 12.65  | 56.96 | 26.18  |
| Exhibition corner                    | 0.00               | 1.29   | 7.80   | 62.14 | 28.77  |
| Interpretation area                  | 0.32               | 0.97   | 12.65  | 58.90 | 27.15  |
| Video showing room                   | 0.32               | 2.91   | 17.51  | 48.22 | 31.04  |
| Toilet facilities                    | 1.62               | 6.80   | 19.13  | 50.16 | 22.30  |
| Riding elephant area                 | 1.29               | 2.59   | 12.65  | 57.93 | 25.53  |
| Open space                           | 0.00               | 2.27   | 8.12   | 60.19 | 29.42  |
| Interpretation boards and signage    | 1.29               | 4.85   | 20.06  | 56.31 | 17.48  |
| Souvenir shop                        | 0.00               | 2.91   | 18.77  | 57.28 | 21.04  |

NS: not satisfactory at all.  
US: unsatisfactory.  
MS: moderately satisfactory.  
S: satisfactory.  
VS: very satisfactory.

each bid price is shown in Table 6. Of respondents who faced with the WTP questions, only 13% (40) rejected it, while 87% (267) accepted it to pay. Those respondents who rejected to pay the first bid were offered with a lower bid, which 46.2% rejected and 53.8% accepted. Those respondents who agreed to pay the first bid were presented a higher bid, which 28.8% rejected and 71.2% accepted. In general, the majority of respondents were willing to pay the offered bid prices. These results are consistent with our earlier expectation that, if the price of an item or service is increase, fewer persons are willing to make the purchase. Hence, as seen from Table 6, the price set including RM 12–15–10 was not so acceptable to respondents. However, the high number of visitors who accepted paying offered bids is worrisome, suggesting a “yeah-saying” bias (Kanninen, 1995 p.122).

To capture respondents' reasons to “no–no” answers or zero WTP, they were presented with series of statements. Only those respondents who stated that “government should pay” and “I do not believe in any payment for NECC” were recognized as protest bids and excluded from the model. Other reasons, such as “however I support introduction of entry fee but I cannot afford to pay”, “payment is unnecessary for conservation”, and “I prefer to spend that money on other things”, were categorized as genuine zero answers and included in the analysis.

Results of the logit model are presented in Table 7. Since visitors' WTP may be influenced by their demographic characteristics or their attitudes, these factors must be considered when implementing a potential fee policy. Most important variables to be entered in the final model included respondents' income, gender, age, education, job, previous visits, and attitudinal characteristics obtained from factor analysis. Income, age, and education were entered into the model as continuous variables, gender and previous visit as dummy variables, while job was in the form of a categorical variable. In the overall model estimate, however, eight out of twelve variables were statistically significant predictors of WTP. Results showed that respondents' WTP is positively associated with their income, education, age, and attitudinal factors, and negatively associated with bidding price, and being a domestic or an international visitor.

Based on the summary of analytical results in Table 7, the goodness of fit of the model was determined by the pseudo- $R^2$  value of 0.25. The percentage of correct predictions was 73%. Results of this analysis indicate that the logit model is a fairly good fit.

Since this study's survey included both domestic and foreign visitors, the study was important for collecting responses and feedback from both groups of visitors. Our main objective was to gauge respondents' thinking about the NECC's development as a wildlife sanctuary and ecotourism destination in terms of its resource management and the facilities provided. Hence, the overall data were categorized as “international” and “domestic”. This data categorization was an approach to differentiate the results and ideas relating to respondents from Malaysia where currency is the Malaysian Ringgit and visitors from other countries needed to exchange their currencies. Based on this definition, data collected in this study from respondents indicated that 252 respondents were Malaysian, while 52 were from other countries. The results of this study's sample breakdown are shown in Table 7.

The second and third column of Table 7 shows that respondents' income, education, age, and their perception and satisfaction from NECC's experience in general and from the educational and awareness programs were significant and positive predictors of WTP in both domestic

and international visitors' models. For the domestic model, however, the respondents' satisfaction with NECC's facilities and services was also a significant variable in determining WTP.

The likelihood ratio test of the differences or equivalence of parameters between domestic and international visitors was conducted to see whether these models are significantly different (Loomis et al., 2005). Using the following formula and with 12 degrees of freedom, the calculated value is higher than the critical value (21.026) at the 5% significance level.

$$L = -2 [\log L_{\text{pooled}} - (\log L_{\text{local visitors}} + \log L_{\text{foreign visitors}})] = 26.02.$$

Therefore, we can conclude that there is a significant difference in WTP between local visitors and foreign tourists.

### 5.5. Willingness to pay estimates

Hanemann's (1984) method was applied in order to estimate mean WTP. The mean WTP computed from the overall model was RM 6.25 (US\$ 1.95) per person. The estimated mean WTP for domestic and foreign visitors showed a considerably higher value for foreigners. The result accorded with our expectations; specifically, a mean WTP value of RM 5.15 (US\$ 1.6) was found for domestic visitors and RM 10.26 (US\$ 3.20) for foreign visitors. It should be taken into account that the reported WTP in this study should consider as a lower bound estimate because of constraining the bid values to low amounts.

In order to test the differences between mean WTP of foreign and local visitors, a *t*-test of the two groups was taken into account. Results showed a significant difference in the mean WTP of the two groups ( $t = 9.03$ ,  $p < 0.01$ ).

Aggregate results were obtained by multiplying the estimated mean WTP for domestic and foreign visitors with the number of annual visitors. As Table 8 shows, this estimated amount could be increased by growth in the number of visitors and by imposing a larger admission fee. The findings show that the net economic value of the NECC would have been about RM 1,077,639.38 (US\$ 336,762) in 2012, from which RM 745,235.9 (US\$ 232,886) could have been collected from the domestic visitors, and RM 332,403.48 (US\$ 103,876) could have been collected from international visitors.

## 6. Discussion of the results

Our current study explored NECC's visitors' acceptance and support for a proposed entry fee. The estimated WTP amount is in the same range as for other protected areas of Malaysia. For example, in addition to NECC Kuala Gandah, no entry fee is currently charged for Malaysia's Penang National Park and the Tasek Bera Ramsar Site, while the international entrance fee to other sites, such as Taman Negara Kelantan, Taman Negara Pahang, and Taman Negara Terengganu is \$ 3.33/visitor.

Comparison of results with other countries showed that the estimated entrance fee is relatively low compared with developed countries. In the USA, for instance, many parks charge an entrance fee ranging from less than US\$ 5 to \$ 25, depending on the park (McDowel and Moore, 2014). Without a specific pass, a \$10 per car per day entrance fee is applied at many of Western Australia's major national parks; the rate for Tasmanian National Parks is \$12 per car per day (National Parks Australia, 2014). In contrast with Malaysia, developing countries such as Thailand, Nepal, Costa Rica, or Ecuador charge higher entry fees. E.g. Thailand's international visitors to Protected Areas, between 85,000 and 90,000 visits per year, are charged two to four times as much as Malaysia's international visitors are charged (UNDP, United Nations Development Programme, 2012). It is worth noting that, in countries such as Malaysia, where the number of visitors to the protected areas are much fewer than total visitors and where entrance fees are low, other approaches such as a departure green tax should be considered.

The decision to pay an entry fee mainly depends on the monetary price or cost. The bid price was found to be statistically significant at the 1% level, with the expected negative sign, implying that the bid

**Table 6**  
Distribution of “yes” responses to the bidding prices.

| Bid (RM) <sup>a</sup> | Yes–Yes (%) | Yes–No (%) | No–Yes (%) | No–No (%) |
|-----------------------|-------------|------------|------------|-----------|
| 2–4–1                 | 93.09       | 1.7        | 5.2        | –         |
| 5–7–3                 | 72.57       | 11.33      | 6.44       | 9.66      |
| 7–10–5                | 65.94       | 20.26      | 10.35      | 3.45      |
| 10–12–7               | 47.68       | 39.01      | 8.31       | 4.99      |
| 12–15–10              | 38.19       | 46.30      | 4.65       | 10.85     |

<sup>a</sup> One USD is equal to MYR 3.2 (2014 price).



**Table 7**  
Results of WTP for NECC entrance fee.

| Overall model                         |                             | Domestic visitors           |                             | International visitors     |                             |
|---------------------------------------|-----------------------------|-----------------------------|-----------------------------|----------------------------|-----------------------------|
| Variable                              | Coeff. (SE)                 | Variable                    | Coeff. (SE)                 | Variable                   | Coeff. (SE)                 |
| Constant                              | 3.96 <sup>***</sup> (1.53)  | Constant                    | 3.54 <sup>*</sup> (1.88)    | Constant                   | 3.48 (2.89)                 |
| Price                                 | -2.87 <sup>***</sup> (0.19) | Price                       | -2.90 <sup>***</sup> (0.22) | Price                      | -4.10 <sup>***</sup> (0.78) |
| Income                                | 0.09 <sup>***</sup> (0.02)  | Income                      | 0.28 <sup>***</sup> (0.05)  | Income                     | 0.10 <sup>***</sup> (0.04)  |
| Education                             | 0.09 <sup>***</sup> (0.04)  | Education                   | 0.08 <sup>*</sup> (0.04)    | Education                  | 0.08 <sup>***</sup> (0.05)  |
| Age                                   | 0.05 <sup>***</sup> (0.01)  | Age                         | 0.04 <sup>***</sup> (0.01)  | Age                        | 0.06 <sup>**</sup> (0.02)   |
| Domestic/international                | -0.77 <sup>***</sup> (0.27) | -                           | -                           | -                          | -                           |
| NECC.Experience                       | 3.36 <sup>**</sup> (1.54)   | NECC.experience             | 5.38 <sup>***</sup> (1.82)  | NECC.experience            | 6.15 <sup>***</sup> (0.90)  |
| Education.Satisfaction                | 2.61 <sup>**</sup> (1.20)   | Education.Satisfac          | 4.07 <sup>***</sup> (1.54)  | Education.Satisfac         | 4.45 <sup>***</sup> (0.94)  |
| Facilities.satisfaction               | 2.56 <sup>**</sup> (1.26)   | Facilities.satisfaction     | 3.50 <sup>**</sup> (1.50)   | Facilities.satisfaction    | 1.20 (1.83)                 |
| Elephant.experience                   | 0.14 (0.21)                 | Elephant.experience         | 0.42 (0.32)                 | Elephant.experience        | 0.51 (0.33)                 |
| Gender                                | -0.10 (0.23)                | Gender                      | -0.15 (0.26)                | Gender                     | -0.25 (0.57)                |
| Previous. visit                       | 0.29 (0.26)                 | Previous. visit             | 0.26 (0.30)                 | Previous. visit            | 0.15 (0.49)                 |
| Job                                   | 0.01 (0.10)                 | Job                         | 0.03 (0.11)                 | Job                        | 0.21 (0.25)                 |
| Mean WTP = MYR 6.25                   |                             | Mean WTP = MYR 5.15         |                             | Mean WTP = MYR 10.26       |                             |
| Median WTP = MYR 4.63                 |                             | Median WTP = MYR 4.20       |                             | Median WTP = MYR 6.18      |                             |
| Pseudo R2 = 0.25                      |                             | Pseudo R2 = 0.21            |                             | Pseudo R2 = 0.36           |                             |
| LogL = -423.47                        |                             | LogL = -319.33              |                             | LogL = -91.13              |                             |
| Number of respondents = 304           |                             | Number of respondents = 252 |                             | Number of respondents = 52 |                             |
| Percentage of right prediction = 72.7 |                             |                             |                             |                            |                             |

Note: \*\*\*, \*\*, \* ==> Significance at 1%, 5%, 10% level.

price affects WTP conversely. This means that, as the offered bid price increases, the percentage of “yes” responses to the proposed entrance fee decreases. Imposing an entrance fee on natural attractions has been widely debated because of its probable effect on low-income groups (More and Stevens, 2000). Several studies have suggested imposing moderate fees that do not negatively influence low-income persons (Bhandari and Heshmati, 2010; Kido and Seidl, 2008; Reynisdottir et al., 2008; Burns and Graefe, 2006; Isangkura, 1998). However, other studies have found natural recreational areas’ visitation to be income-inelastic, especially for foreign visitors (e.g., Loomis and Keske, 2009; Lewis et al., 2012). Household income is an important explanatory variable which normally influences WTP positively. Accordingly, in our study, income was significant at the 1% level, with the expected positive sign, indicating that the higher any household’s income relative to baseline, the more likely its members will be to pay the proposed entrance fee. It is reasonable to assume that respondents’ WTP is highly dependent on respondents’ ability to pay.

The education variable was significant at the 5% level, with the expected positive sign. This implies that more highly educated respondents were willing to pay more. Our study’s findings were therefore consistent with the findings of previous studies (e.g., Peters and Hawkins, 2009; Wang and Jia, 2012; Reynisdottir et al., 2008; Baral and Dhungana, 2014), indicating that highly educated persons are particularly supportive of nature preservation and have a higher WTP.

Respondents’ age was significant at the 1% level with positive sign. This means that older visitors were willing to pay more than younger ones.

From four attitudinal variables resulting from factor analysis and included in WTP estimation, three of them were significant. The satisfaction from NECC’s activities and experience was significant at the 5%

level with expected positive sign. The positive sign means that, the higher the respondents’ satisfaction from their visit experience, the higher their willingness to pay. The satisfaction from facilities variable was significant at the 5% level with an expected positive sign. A positive sign implies that, as quality of provided services and facilities by NECC increases and so does visitors’ satisfaction, there WTP increases as well. The satisfaction from education and awareness programs in NECC was also to be found significant at the 5% level with an expected positive sign. This is implying that, as visitors become more aware about programs of NECC, they tend to pay a higher entrance fee. However, respondent direct experience with elephants was found to be insignificant.

Persons from different countries with different socioeconomic backgrounds and attitudes toward natural attractions might have different perceptions and thus accept willingness to pay an entrance fee. Therefore, it is sensible to enter this variable as one of the WTP predictors. In our study, the variable for respondents’ nationality was significant at the 5% level with a negative sign. This means that the probability of a “yes” response to WTP questions was higher for respondents from other countries than for those from Malaysia. Comparing the income level of foreign respondents with domestic ones showed that higher income resulted from the higher value of the applicable foreign currency exchange was the reason for non-Malaysians’ greater WTP. This result is consistent with the findings of Nuvu et al. (2009) and Juutinen et al. (2011).

The gender variable had negative magnitude but was not a significant determinant of WTP. Also, in term of visitors’ job and their previous visits to the center, these variables were found to be insignificant. It means, NECC visitors’ WTP is not significantly influenced by their gender, their occupation or previous experience with NECC.

Simulations of the results gave us opportunity to predict respondents’ behavior toward entry fee increase. Simulation method in Nlogit5 was used to estimate “what-if” scenarios. This allowed us to estimate possible effects on entrance fee WTP from changing any of the variables. The variable of respondents’ income level seemed to most greatly impact their WTP for entrance fee. Correspondingly, a predicted probability of increases in likely respondents’ income was estimated, based upon both present and simulated offered bids. For this first scenario, we examined the impact of 10%, 20%, and 50% increases in income if the respondents had been faced with the same initial bids as we had offered them in our present study. The results appeared to show that the share of zero WTP to the initial bidding price would decline to 25% from the present 31% if their income were to increase by 10%. This hypothetical scenario model also predicted that the share of “No” answers to

**Table 8**  
Estimated economic value of entrance fee for NECC<sup>a</sup>.

| Year    | Local visitor | Foreign visitor | Economic value (MYR) |                         | Net economic value (MYR) |
|---------|---------------|-----------------|----------------------|-------------------------|--------------------------|
|         |               |                 | Local WTP (MYR 6.55) | Foreign WTP (MYR 10.30) |                          |
| 2010    | 142,663       | 36,008          | 734,714.45           | 369,442.08              | 1,104,156.53             |
| 2011    | 140,351       | 38,608          | 722,807.65           | 396,118.08              | 1,118,925.73             |
| 2012    | 144,706       | 32,398          | 745,235.9            | 332,403.48              | 1,077,639.38             |
| Average |               |                 | 2,202,758            | 1,097,963.64            | 3,300,721.64             |

<sup>a</sup> Data source is Department of Wildlife and National Parks (DWNP) Peninsular Malaysia annual reports.

their initial bid would be 21% under a 20% increase in income (120% of baseline income) but only 14% under a 50% increase in income (150% of baseline income).

We also tried to examine the effect of income increases together with an increase in bidding price. These scenarios would have special importance to policymakers and park managers to determine the amount of entrance fee for different time horizons based on change in population welfare. In the first scenario, the predicted probability of 10% increases in income if initial bids increase by RM 1, RM 2, and RM 3 were examined respectively. The results indicated that, under the scenario of RM1 increment, the probability of “No” answer to the initial offered bids would increase to 32% compared to a current 31%. However, this proportion will increase by 37% and 41% in response to RM 2 and RM 3 increase in bidding prices respectively. Based on Malaysian GDP growth, income increment is around 4.5% per year. Considering this, an improvement in management along with increasing awareness could be a useful tool to determine a possible future amount based on income.

## 7. Conclusion

The present study was conducted to study the best practices of users' fee in different parts of the world and then to estimate the various determinants of visitors' WTP for admission fee as an indicator of the perceived benefits of ecotourism resources' conservation. The study was conducted in Malaysia's largest elephant sanctuary: the National Elephant Conservation Center, Kuala Gandah. Tourists were asked if they would be willing to pay an entrance fee rather than entering free of charge, as they can do currently. Analysis of this study's results demonstrated without any doubt that the majority of visitors are willing to pay an admission fee to better manage the center. The significant increase in tourists' numbers in recent years requires more resources than the government can fund currently for better preservation of the NECC. An entrance fee, therefore, can be introduced as a supplemental source of funds to better fund resource management and to support the development of ecotourism at NECC.

Introducing an entrance fee is an effort to generate additional revenue beyond the government's financial limitations. Respondents' attitudinal and socioeconomic profile contains the most important explanatory variables that positively impact WTP. Those tourists with a higher level of education have a higher probability of WTP and being more aware of the importance of this kind of wildlife sanctuaries to conserve biodiversity. Tourists' income also is one of the most important WTP determinants related to affordability for the respondents. As long as people cannot afford to pay, it does not matter how much they care about environment related issues. They will resist or oppose any program introduced, possibly leading to its failure. The WTP estimate also indicated that overseas visitors are willing to pay more than locals. Therefore, center managers can use a two-tier system to apply discriminatory charging. The reasonable rate for present study can be determined by NECC management, based on the maintenance and operating cost as well as considering the perspective of the majority of visitors, to prevent disproportionate effects on low-income citizens or other social groups.

The successful management of NECC ecotourism and its development are highly dependent both on visitors' satisfaction with its resources and on their WTP. Even though current visitors seem to be satisfied with the ecotourism resources available at NECC, park management should protect these satisfaction levels and, for the sake of sustainability, work to attract increasing numbers of visitors by actively maintaining and continually improving both services and facilities. From a managerial perspective, since the operation currently relies on government funding, which depends upon the remote budgeting process, considering entry fees as one funding mechanism, among others, seems reasonable and prudent. However, considering unpredictable and unstable demands for ecotourism, entry fees should be considered “supplementary” to current funding and not a complete “replacement” (Reynisdottir et al., 2008). Therefore, adding entrance fees to current

public funding and other currently non-existent funding sources may be necessary to effectively support the NECC's entry into the ecotourism market. An entrance fee could be used to fund protecting biodiversity and ecological integrity; revenue it generates can be spent to mitigate environmental problems in the NECC, enhance public education on the center's importance, and support research and conservation projects. Resulting benefits from a stronger NECC could strengthen local communities that are able to participate in Center activities and thus can contribute to the locals' quality of life. This study's results should inform the NECC about socioeconomic characteristics and preferences of its tourist markets and amounts they consider reasonable to pay as admission fees. However, more broadly, the Malaysian government may wish to consider copying other countries' successful experiences with a departure tax.

This study's primary shortcoming is that all bidding prices were low in fear of a negative effect on the number of visitors, especially low-income visitors, which would reduce overall income. While conducting a study with a higher bid amount was suggested by Reynisdottir et al. (2008), this study did not attempt to do that. Perhaps clearer, more completely communicating with respondents about uses of their entry fees would improve their acceptance of the entry fee policy. Other study results might be more accurate if respondents could be told of entry fees at comparable tourist sites, as the WTP questions are presented. Government budget constraints resulted in a small research budget, which limited this study's sample size, so the number of international visitors was small. Further, future studies might include visitors' overall travel cost to test WTP of higher entrance fees.

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## Appendix 1. Correlation matrix of visitor's perception toward attractions and activities in NECC

|     | C1    | C2    | C4    | C5    | C6    | C8    | C9    | C10   | C11   | C12   |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C1  | 1.000 | .582  | .155  | .070  | .157  | .518  | .542  | .382  | .419  | .312  |
| C2  | .582  | 1.000 | .410  | .239  | .252  | .504  | .454  | .525  | .576  | .606  |
| C4  | .155  | .410  | 1.000 | .574  | .601  | .308  | .182  | .226  | .447  | .387  |
| C5  | .070  | .239  | .574  | 1.000 | .752  | .264  | .249  | .284  | .218  | .350  |
| C6  | .157  | .252  | .601  | .752  | 1.000 | .230  | .172  | .333  | .270  | .387  |
| C8  | .518  | .504  | .308  | .264  | .230  | 1.000 | .568  | .544  | .514  | .443  |
| C9  | .542  | .454  | .182  | .249  | .172  | .568  | 1.000 | .648  | .509  | .504  |
| C10 | .382  | .525  | .226  | .284  | .333  | .544  | .648  | 1.000 | .640  | .600  |
| C11 | .419  | .576  | .447  | .218  | .270  | .514  | .509  | .640  | 1.000 | .643  |
| C12 | .312  | .606  | .387  | .350  | .387  | .443  | .504  | .600  | .643  | 1.000 |

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