

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/334363979>

# Estimating Peoples' Willingness To Pay For Ecotourism Resources Using Contingent Valuation Method: A Review Of Existing Literature

Article · January 2018

CITATION

1

READS

828

2 authors:



Ashif Saikia

Tezpur University

8 PUBLICATIONS 3 CITATIONS

SEE PROFILE



Chandan Goswami

Tezpur University

13 PUBLICATIONS 11 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:



Impact of User Generated Content (UGC) on Destination Image [View project](#)

## **ESTIMATING PEOPLES' WILLINGNESS TO PAY FOR ECOTOURISM RESOURCES USING CONTINGENT VALUATION METHOD: A REVIEW OF EXISTING LITERATURE**

**Ashifuddin Ahmed Saikia\***  
**Chandan Goswami\*\***

### **ABSTRACT**

*Tourism serves as an important means for generating revenues for protected areas to offset the costs of conservation and maintenance. However, protected areas witness immense pressure to economically justify their existence, especially in developing nations, and are being exposed to exploitation and environmental damages due to increased recreational demand. Thus, economic valuation of the environmental goods and services is important for policy formulation as well as for national income accounting. The national parks and other ecotourism resources usually charge very nominal entrance fee from visitors. An appropriate entrance fee mechanism helps to tackle the problem of insufficient fund as it generates more direct revenue. However, it is important to determine the attitude and willingness to pay (WTP) of people towards entry fee. Such information will guide in*

---

\* Research Scholar, Dept. of Business Administration, Tezpur University, Email ID: ashifsaikia@gmail.com

\*\* Professor, Dept. of Business Administration, Tezpur University, Email ID: chand@tezu.ernet.in

*formulating and implementing appropriate pricing strategy. WTP is a standard measure of economic value and is appropriate in situations where an agent wants to acquire a good. Contingent valuation method (CVM) is a commonly used stated preference method for valuing non-market goods and services and non-use values of environmental amenities. It is a survey based method where people state their willingness to pay (WTP) for some change in the level of environmental goods and services. The present study is an attempt to gain some insight into the contingent valuation method and peoples' willingness to pay (WTP) for ecotourism resources, mainly national parks. The study will briefly highlight the concept of willingness to pay and the contingent valuation method and review some existing literature in the field of ecotourism resources.*

**Keywords:** *Protected Areas, Environmental Goods, Stated Preference Method, Non-use Values*

## **1. INTRODUCTION**

Protected areas witness immense pressure to economically justify their existence, especially in developing nations with high demands for land and natural resources (Walpole, Goodwin & Ward 2001). Due to the increased demand and recreational pressure, national parks and other protected areas are being exposed to exploitation and environmental damages (Bal & Mohanty 2014). In developing countries like India, government policies and funding often undermine the utility or benefits derived from such resources.

The cost of maintenance and conservation in most cases is borne by the respective governments (Walpole *et al.* 2001) and most governments do not invest sufficiently for training, infrastructure or other developments needed to support nature tourism (Eagles 2002). Also, the national parks and other ecotourism resources usually charge very nominal entrance fee from visitors (Wells 1997; Walpole *et al.* 2001; Eagles 2002) leading to low level of direct revenue causing considerable financial problems for the management and development of the protected areas. Environmental accounting and valuation of natural resources is, thus, very essential for proper use and allocation of such resources for sustainable development and welfare of the society (Singha 2011; Bharali & Majumder 2012). It not only helps in cost-benefit analysis and assessing environmental damages but

also facilitates decision and policy-making for protection and conservation efforts (Lockwood & Tracy 1995; Lee & Han 2002; Singha 2011).

The total economic value of environmental amenities comprises of both use values and non-use values (also called passive or preservation values)<sup>1</sup>. The term *passive-use* value became popular in 1989 after a mandate by the U.S. Appellate Court to include such values in natural resource damage assessment (Carson 2000). Carson viewed that without the inclusion of passive use values, the pure public goods will have little or no economic value which is not economically consistent. In such a case, such goods would clearly be under-supplied. Hoyos and Mariel (2010) opined that excluding non-use values would give wrong signals to policymakers and the only methodology available to capture them was contingent valuation method (CVM).

The use of CV studies increased rapidly since the mid-1980s (Arrow, Sollow, Portney, Leamer, Radner & Schuman 1993), and is still being used by academicians and policy-makers for benefit estimation (Birdir, Unal, Birdir & Williams 2013). Bowen (1943) and Ciriacy-Wantrup (1947) were the first to propose this method to value public goods (Hoyos & Mariel 2010). However, Davis (1963) implemented it for the first time empirically in his study (Venkatachalam 2004; Yacob, Radam & Shuib 2009; Hoyos & Mariel 2010; Singha 2011). According to Hoyos and Mariel (2010, 330), “From 1992 onwards, the CVM has been consolidated as a non-market valuation method, being accepted at both an academic and a political level”. However, in developing countries like India, CV studies are still few in number (Hadker, Sharma, David & Muraleedharan 1997; Singha 2011). According to Hanemann (1994, 38), “when public valuation is the object of measurement, a well-designed contingent valuation survey is one way of consulting the relevant experts—the public itself”.

The present study is an attempt to gain some insight into the contingent valuation method and peoples’ willingness to pay (WTP) for ecotourism resources, mainly national parks. The next sections will briefly highlight the concept of willingness to pay and the contingent valuation method followed by review of some existing literature in the field of ecotourism resources.

## **2. WILLINGNESS TO PAY (WTP)**

An appropriate entrance fee mechanism helps to tackle the problem of insufficient fund as it generates more direct revenue. According to Wells (1997), setting an appropriate entry fee is critical to maximise park revenue as it is the only way to capture most of the economic value of protected area tourism. However, increasing fees drastically may have negative impact on visitation and people may object to such price hikes. In this regard, Bal & Mohanty (2014) opines that it is

important to determine the attitude and willingness to pay (WTP) of people towards entry fee. Such information will guide in formulating and implementing appropriate pricing strategy.

Carson (2000) suggested that WTP is a standard measure of economic value and is appropriate in situations where an agent wants to acquire a good. In the context of a non-marketable environmental good, Devi (2010) mentioned that WTP can either be for a gain or to prevent a loss and is fully comprised of consumer surplus. Reynisdottir, Song and Agrusa (2008) state that "WTP for a non-market good is based on the assumptions of rational choice and utility maximisation". According to Venkatachalam (2004) WTP indicates the amount of money income to be sacrificed by the consumer to gain higher level of utility or the amount to be sacrificed to prevent a loss from occurring in future.

According to Carson (2000), WTP measures a person's wish to acquire a good if the consumer doesn't have any legal entitlement to it. There is another aspect in CV studies called willingness to accept (WTA) which measures a person's willingness to voluntarily give up a good in case he has a legal entitlement to it. CV studies mostly ask for WTP because the respondents are more likely to give unrealistically high answers in case of WTA (Arrow *et al.* 1993; Yacob *et al.* 2009). Venkatachalam (2004) suggested WTP instead of WTA as the proper measure of value in CV studies.

According to Carson (2000) Mean WTP is traditionally used in benefit-cost analysis, while median WTP is a standard public choice criterion. However, mean WTP may get affected by relatively high or low responses. The presence of few large bids may considerably increase the mean value. In view of this problem, Lee & Han (2002) suggested truncated mean as a more preferable measure while Ahmad (2009) has regarded median WTP to be more popular as median is normally not adversely affected by large bids. However, it is difficult to regard any measure as the best measure and the choice depends upon the purpose of the study.

### **3. CONTINGENT VALUATION METHOD (CVM)**

Valuation of environmental goods is difficult in the sense that they are non-market commodities and are not brought or sold in the normal markets. Since a market is not available for them, it is difficult to get relevant information to put monetary value on them. Carson (2000) mentions that it is not possible to assess the value of pure public goods by traditional economic techniques. Thus, the use of non-market valuation methods to estimate the true economic value of the public parks has been suggested by economists. There are various techniques for estimating the economic benefits of national parks such as revealed preference

methods and stated preference methods (Carson 2000). However, it is difficult to measure non-use values using conventional revealed preference method (Venkatachalam 2004). Revealed preference methods are not helpful in obtaining the non-use values of environmental goods. CVM is the only approach to elicit existence benefits of environment amenity from both users and non-users (Lee and Han 2002). Also, in case of ecotourism resources, CVM is able to assess WTP for both present and hypothetical changes in recreational services. Unlike the revealed preference methods, CVM can be used for cases with multi-purpose trips or for trips with multiple destinations also.

Contingent valuation method (CVM) is a commonly used stated preference method for valuing non-market goods and services and non-use values of environmental amenities (Bateman & Langford 1997; Carson 2000; Lee & Han 2002; Venkatachalam 2004; Mmopelwa, Kgathi & Molefhe 2007; Reynisdottir *et al.* 2008; Yacob *et al.* 2009; Hoyos & Mariel 2010; Bharali & Majumder 2012; Birdir *et al.* 2013). It is a survey based method, where people are directly asked their WTP for maintenance of some environmental feature such as biodiversity. Here, a hypothetical scenario with possible future actions is offered and peoples' preferences are sought regarding those actions. The method is called 'contingent' because the survey responses are assumed to be contingent upon the presented hypothetical scenario and the information provided. (Arrow *et al.* 1993; Lee & Han 2002; Kim, Wong & Cho 2007; Reynisdottir *et al.* 2008; Samdin 2008; Hoyos and Mariel 2010). The responses to the survey help to estimate the mean and median willingness to pay (WTP). The average WTP estimates are then aggregated across the total population to derive the total estimated value (Singha 2011).

Since contingent valuation is a survey of attitudes, willingness or intentions, it is bound to be sensitive and avoiding errors completely may not be possible due to which CVM has been a subject matter to a lot of criticisms. This is because of various biases that may arise in a CV study causing over or under statement of true WTP value and creating doubt about validity and reliability of CV results<sup>2</sup>. There are other criticisms like difficulty in determining the extent of the market, difficulty in validating the results, occurrence of non-responses as well as protest zeroes and higher cost of conducting such surveys. Despite many criticisms, the supporters of the CV method argue that the problems associated with the method are mainly due to poor administration and implementation of the CV survey. Various guidelines and procedures have been developed in this regard to make CV surveys more valid and reliable. National Oceanic and Atmospheric Administration (NOAA) commissioned a Blue Ribbon Panel in 1993 to give a report on validity of CVM<sup>3</sup>. In spite of the various criticisms, the Panel concluded that closely following the

suggested guidelines will help in producing more reliable estimates in CV surveys (Arrow *et al.*, 1993; Carson, 2000; Hoyos & Mariel, 2010).

#### **4. STUDIES ON PEOPLES' WTP FOR ECOTOURISM RESOURCES**

Arrow *et al.* (1993) suggested the use of face-to-face interview instead of mail surveys for effective survey, while Carson (2000) suggested not to rule out mail or telephone survey as they are relatively cheaper although they have their drawbacks. The use of in-person interview in part has been emphasised for the fact that it helps to facilitate better understanding of the hypothetical situation by the respondents and also helps to minimise non-response. It also facilitates the use of visual materials like pictures or maps which is not possible in case of telephone surveys. When it comes to recreational services, researchers mostly approach the visitors in the site or in hotels or nearby areas of visit because it is difficult to get hold of them either through mail or telephone after they have left.

Hadker *et al.* (1997), in their study, asked the respondents to state their monthly and annual WTP for protection and conservation of Borivli National Park (BNP), India, for the next 5 years instead of a one-time payment. Also a future date for collection was also mentioned. This can help in reducing the hypothetical nature of the payment but, at the same time, may lead to strategic bias by the respondents resulting in understatement of WTP. The study also used trained interviewers and even though efforts have been taken to address different biases in the interview process, the presence of interviewer bias may still affect the study. The study revealed that people's attitude towards environment, the perceived values attributed to BNP, visitation rate and the willingness to accept financial burden of environmental improvements are important determinants of WTP. From park management perspective, the study provided encouraging results and showed high WTP of people for improvement, maintenance and preservation of BNP. Singha (2011) and Barman (2012) also used a similar payment vehicle for studying WTP of people for Kaziranga National Park (KNP) in Assam. However, the sample size taken were relatively small for reliable results in a CV study. Further, in the study by Barman (2012), the sample consisted almost entirely of non-visitors.

Lee (1997) used CVM to estimate visitors' WTP for higher entrance fee to estimate the economic value of nature-based tourism resources in Mt. Minju, South Korea. He suggested that nature-based tourism helps in sustaining the economic value of the natural resources and thus, the existence of nature-based tourism could be justified on the ground of the economic benefits as well as environmental preservation and lower leakages. Entrance fee has been chosen in many studies as it is considered to be more realistic, familiar and appropriate for users of

recreational services (Walpole *et al.* 2001; Lee and Han 2002; Kim *et al.* 2007; Reynisdottir *et al.* 2008; Samdin 2008; Yacob *et al.* 2009; Nuva, Shamsudin, Radam & Shuib 2009; Devi 2010; Hakim, Subanti & Tambunam 2011; Bharali & Mazumder 2012; Mansouri, Badehian, Adeli and Vajari 2014; Abedini, Mohamadi & Sharahi 2016).

Walpole *et al.* (2001) suggested that entrance fee as payment vehicle enhances the approximation to reality in the hypothetical scenario and the use of 'access' as the contingent factor makes it easier for respondents to interpret. They examined the visitors' WTP for increase in entrance fee in Komodo National Park and observed considerable WTP by the visitors but they also indicated that there could be resultant decrease in visitation from entrance fee hike which could negatively affect the local economy. In such a case, moderate price increase with dual pricing and partial revenue retention could be more suitable, but government support would still be important as park revenues tend to be unpredictable. Reynisdottir *et al.* (2008) estimated visitors' WTP in Gullfoss waterfall and Skaftafell National Park in Iceland and suggested that considerable amount could be generated through higher entrance fee in both the sites. The visitors showed higher WTP for Skaftafell which can be due to differences in site attributes like larger area, more recreational opportunities etc. Hakim *et al.* (2011) also observed that the value of consumer surplus exceeds the benefits of natural resources at Rawapening, Indonesia, and thus, recommended higher entrance fee for better management. However, they found that the perceptions regarding general visit attractions and preference for tourism attractions in Rawapening significantly affected the visitation rate.

Tohmo (2004) used income tax as the payment vehicle although the resource being valued was a cultural heritage. Tax as a payment vehicle can also serve to reduce the hypothetical bias as it is a fairly known and common criteria for public goods and services. But since it is a mandatory payment mechanism it may suffer from non-responses or strategic understatement. Lee & Han (2002) used both admission fee (to measure use value) and a special tax levied by government (to measure non-use/preservation value) by designing two CV scenarios for 5 National parks in South Korea.

Lee and Mjelde (2008), however, considered donations as more useful payment vehicles for small-scale public goods as survey respondents may object to mandatory payment schemes such as taxes or entrance fees. This is also supported by Bharali (2012) who used donation or voluntary payment vehicle in his study because respondents have positive feelings and attitude towards it. However, one problem in such cases is the tendency of people to overstate the

amount of WTP. Since respondents cannot be forced to pay in case of donations, the respondents have an incentive to exaggerate their WTP. Lee and Mjelde (2008) found that respondents are less likely to show WTP for a given donation amount in real setting than the hypothetical condition. Bharali (2012) also observed the CV estimates to be higher than those obtained from Zonal Travel Cost Method (ZTCM).

Also, Chaudhry & Tewari (2006), while estimating the recreational benefits of urban forestry of Chandigarh city in India, found the overall mean WTP of tourists by CVM to be very low in comparison to ZTCM. Although it may be because unlike ZTCM, the CV method can elicit non-use values also, but due to the use of an open-ended and voluntary payment vehicle, the respondents may have given higher estimates. This situation can be minimised if the survey purpose and situation is explained properly to the respondents to encourage them to elicit their true WTP. Such problems can also be avoided by using elicitation techniques like binary choice or payment cards or by specifying a future collection date.

Open ended (OE) format is more straightforward, flexible and easy to calculate (Reaves, Kramer & Holmes 1999; Togridou, Hovardas & Pantis 2006; Kamri 2013). Though, it allows convenience in responding (Venkatachalam 2004) and avoids starting point bias (Hanemann 1994; Venkatachalam 2004), this format may lead to strategic overstatement or understatement (Reaves *et al.* 1999; Venkatachalam 2004; Kamri 2013). This format may particularly be difficult for respondents when they do not have any reference or idea about the prices prevalent in the market for similar goods. Other methods evolved over time to avoid the difficulties of OE format.

Zhongmin, Guodong, Zhiqiang, Zhiyong and Loomis (2005); Kim *et al.* (2007) and Majumdar, Deng, Zhang and Pierskalla (2011) used the payment card (PC) method in their WTP study where the respondents are provided with a range of values to select from instead of an open ended question, thus, providing a range of values to respondents for guidance. However, this method may lead to range and centering bias (Reaves *et al.* 1999; Venkatachalam 2004). This can be minimised by keeping the range sufficient enough to avoid constraints for responding.

Davis (1963), Randall, Ives and Eastman (1974); Brookshire, Thayer, Schulze and d'Arge (1982), Samdin (2008) and Devi (2010) adopted the bidding method in order to obtain data from the tourists whereby the respondents are asked to say 'yes' or 'no' to a particular bid and the process is continued by increasing or decreasing the bid amount until the highest positive response is recorded. This method has been widely used in developing countries. However, it suffers from starting point bias and cannot be used for mail surveys (Venkatachalam 2004) and demands in-person interview.

Dichotomous choice (DC) format has become popular lately and has been employed in many studies (Reaves *et al.* 1999; Lee & Han 2002; Kim *et al.* 2007; Nuva *et al.* 2009; Yacob *et al.* 2009; Hakim *et al.* 2011; Mansouri *et al.* 2014). It is argued that it resembles market decisions the respondents make in their normal lives. It helps in avoiding strategic bias and is endorsed by the NOAA panel for CV studies. But it is costly and may suffer from starting point bias (Venkatachalam 2004) and lead to higher WTP compared to OE format (Togridou *et al.* 2006; Bateman, Langford, Turner, Willis & Garrod 1995). Reaves *et al.* (1999) found the DC format to have a lower response rate, higher item non-response and higher level of protest response compared to OE and PC format. Walpole *et al.* (2001), Singha (2011) and Abedini *et al.* (2016) employed a double-bounded DC form of question which is considered to be statistically more efficient than single-bounded DC format (Venkatachalam 2004).

Thus, the question still remains which method of elicitation is better over the others. It is too early to abandon one method over another due to limited research in the field. For example, although the OE format may suffer from strategic bias, the DC format can encourage starting point bias and may be statistically ineffective for small samples. Thus, the choice of question format is a lively issue and demands additional research.

The CV studies have predominantly considered adults with income for the purpose of eliciting WTP (Hadker 1997; Tohmo 2004; Singha 2011; Kamri 2013). This is because economic theory suggest strong bearing of income on spending behaviour and adults are more likely to be employed or to make more rational decisions compared to younger people. Various studies indicate negative relationship of age with WTP meaning young adults show more WTP (Chaudhry & Tewari 2006; Alvarez & Larkin 2008; Reynisdottir *et al.* 2008; Singha 2011; Mansouri *et al.* 2014; Abedini *et al.* 2016; Bharali and Majumder 2012; Mandal, Barman & Bezbaruah 2014). This may be because the younger people are more aware, have more environmental dispositions or more passive values.

WTP is observed to decrease with increase in offer price and it increases with increase in income (Lee 1997; Samdin 2008; Hakim *et al.* 2011; Mansouri *et al.* 2014). Similarly, income showed positive relationship with WTP in other studies also (Chaudhry & Tewari 2006; Togridou *et al.* 2006; Mmopelwa *et al.* 2007; Reynisdottir *et al.* 2008; Alvarez & Larkin 2008; Majumdar *et al.* 2011; Singha 2011; Bharali & Majumder 2012; Kamri 2013; Bal & Mohanty 2014; Abedini *et al.* 2016). Togridou *et al.* (2006), Mmopelwa *et al.* (2007) observed that perceived level of prices and travel cost negatively influenced WTP. Household size (Mandal *et al.* 2014; Abedini *et al.* 2016) and group size (Majumdar *et al.* 2011) were also observed to reduce WTP of visitors as these tend to increase the total cost. These

result indicate that those with higher income have more consumer surplus and budgetary constraints restricts peoples' WTP to a great extent.

Contrary to this, Bal & Mohanty (2014) found travel cost to be positively related with WTP for entrance fee suggesting that those who travel long distances incurring more expenses are either willing to pay more or their income is more. Thus, striking a balance in this regard to formulate an effective pricing policy could help considerably in increasing direct revenues without reducing visitation. However, Birdir *et al.* (2013) did not find any significant correlation between monthly income and WTP. This can be because of the reason that WTP does not always result in actual behaviour or there are other factors that influence peoples' WTP. Thus, it is equally important to study the influence of other factors affecting WTP.

Various studies found education to positively influence WTP meaning highly educated people tend to show higher WTP (Chaudhry and Tewari 2006; Alvarez and Larkin 2008, Reynisdottir *et al.* 2008; Singha 2011; Majumdar *et al.* 2011; Kamri 2013). Kamri found the effect of education to be lasting and comparatively stronger than income. Hakim *et al.* (2011) also found income and education to be significant determinants of WTP. Thus, it strengthens the need for spreading more education and information about the ecotourism and environmental resources in order to make people more aware about the importance and problems managing such resources. Awareness among the people leads to positive attitude as well as positive WTP in most cases. Togridou *et al.* (2006) also stressed the need for information sharing and awareness programme and found positive impact of information from friends/relatives and television on environmental issues. Lee & Mjelde (2007) observed that Strong environmental feelings (also, Reynisdottir *et al.* 2008; Singha 2011), familiarity with the area and perceived negative impact of development on the area positively affected WTP for preservation value.

Majumdar *et al.* (2011) found destination loyalty (the number of previous visits), to positively influence WTP for maintenance of urban forests. Reynisdottir *et al.* (2008) made somewhat similar observation that history of paying entrance fee positively affected WTP. This emphasises the importance of repeat visitors to a site. Understanding the needs and preferences of the repeat visitors can help in getting significant insights for policy making.

Some literature have found significant differences between average WTP of local respondents and foreign respondents. International visitors tend to show greater WTP than domestic visitors (Samdin, 2008; Devi, 2010; Kamri, 2013). This may be due to their higher income and awareness level. Similar observation was made by Maharana, Rai and Sharma (2000), Nam and Son (2001) and Asafu-

Adjaye and Tapsuwan (2008). However, Echeverria, Hanrahan and Solorzano (1995) found the local respondents to show higher WTP than the foreign respondents in their study despite lower income which may be because the local people valued the site more highly than the outsiders. This poses the question of whether differential pricing should be applied or not. However, charging higher prices from foreign visitors is more common and supported by increasing evidences of higher WTP by the foreign respondents. Also, since the foreign visitors do not contribute to local taxes unlike the residents, it is justified that they are charged more. In some cases, however, significant differences between the WTP of foreign and domestic visitors were not observed (Majumdar *et al.* 2011).

In north-east India, Devi (2010) estimated the recreation value of 3 tourist sites in Meghalaya using CVM and found positive WTP for all the 3 sites. Singha (2011) found that majority of the respondents were found to show pro-environment attitude and were motivated by non-use values. Mandal *et al.* (2014) observed that the resources mobilised for conservation and management of Kaziranga National Park (KNP) were only 3.52% of total WTP. Both the studies suggested enhancement of 'entry' and 'recreation' fees. The additional revenue generated can be used for better management and improvement of the sites. Mandal *et al.* suggested user charges equivalent to the estimated value of the park.

Bharali (2012) found in his study that more than 80% respondents showed willingness to pay for conservation of Kaziranga. The study estimated the economic value of the park to be around Rs. 5.86 million. However, this value is reduced to Rs. 3.19 million in the hypothetical absence of one-horned rhinoceros in the park. The study, however, observed the estimates of CVM to be more than that of ZTCM. This may be an indication of strategic bias among respondents. But this may be also because of the fact that the ZTCM approach fails to account for passive values. Examining such differences could give valuable additional information to gauge the efficiency of the methods. Barman (2012) used an open-ended CV survey to estimate WTP for Kaziranga among the residents of Assam. They observed the average WTP to be Rs. 121.25 and median WTP to be Rs. 100. However, the CVM was administered only to estimate the non-use values of the park and not the use values. The results were based on a relatively small sample of 160 people who were not park visitors.

Maharana *et al.* (2000) studied WTP for Khangchendzonga National Park, Sikkim, and surveyed the domestic and foreign visitors as well as the local community members and observed significant differences in WTP of each category with foreign visitors showing high WTP followed by the local community members. The study tried to point out the lack of consideration of non-monetary contributions in CV studies. In this regard, the study asked the respondents about their willingness

to do voluntary service for the park if they were not able to pay in money. Other studies could incorporate this aspect for estimating peoples' willingness. Maharana, Rai and Sharma (2000a) also conducted a study in the Khecheopalri Lake in Sikkim and found the aggregate WTP to be around US\$ 46,940 with foreign visitors showing the highest WTP. The WTP for the conservation of the Lake was observed to be quite higher than other Indian sites.

Thus, previous studies on ecotourism resources have increasingly supported the conservation of biodiversity, environmental amenities and recreational values of the sites. Proper management of such resources could help in reaping more economic benefits and foster more development and conservation efforts. Despite the criticisms for the method, researches in various fields have given encouraging results to vote CVM as a promising approach for environmental valuation and damage assessment.

## **5. CONCLUDING REMARKS**

Literature review indicates that there are various factors that influence visitors' WTP to a given site. Income, education and awareness among people have shown considerable positive relationship. Considering this, the governments and the authorities can take steps to impart information and education as well as raise the awareness of people towards environmental resources. Effect of income supports differential pricing based on park characteristics and consumer background. Foreign visitors should be charged more compared to domestic ones. Also, efforts should be made to incorporate more recreational facilities and activities for people from different demographic backgrounds.

Thus, in any CV study, in order to determine visitors' WTP to a given site it is important to understand the visit and visitor characteristics, their perceptions regarding the attributes of the site and their attitude regarding existing entrance fee and other charges etc. It is also important to analyse visitors' WTP by understanding the reasons for their willingness and non-willingness to pay as well as the factors that influence the visitors' willingness to pay at a site. Their concern about the conservation and maintenance of the environment and how much value do they place on the site have important bearing on their WTP for the site. Since there is no standard approach for designing a CV study, one must carefully consider the study requirements to design any methodology. Efforts should be made to avoid associated biases and ensure reliability and validity of the results. The importance of pilot surveys and pre-tests in this regard cannot be ignored. In order to be reliable, CV studies should follow the guidelines presented in the NOAA report as closely as possible but without making the instrument very complex and

difficult to understand or grasp by the participants. Although controversial, this method is a promising method and has been used by academicians and policy-makers for benefit estimation.

However, there is a lack of CV studies in developing countries like India, although they are rich in diverse natural resources. In Assam, we have many cultural as well as natural resources. Among nature-based tourism resources, we have 5 National Parks, two of which are designated World Heritage sites (Kaziranga and Manas). There are also many Wildlife Sanctuaries and other ecotourism sites. The question is whether the national parks have enough economic value to justify an increase in the entrance fee or to receive continuing support from the government. Whether the existing pricing structure is reasonable enough or people are willing to pay more? If so, what steps are taken to exploit their higher WTP? If not, what are the reasons for their non-willingness? Thus, peoples' WTP needs to be explored with more CV studies for better understanding of their attitude and the importance of nature tourism resources. However, such CV studies are very few in Assam and other north-eastern states. Considering the importance of environmental conservation and management of ecotourism sites for sustainable tourism, more such studies should be encouraged in this part of the world.

### References

- Abedini, Azam, Mohamad Hosein Mohamadi and Majid Kholuzini Sharahi (2016): "Estimating the Outdoor Recreational Value of Lavizan Jungle Park of Tehran Using Contingent Valuation Method (CV)," *Open Journal of Ecology*, Vol 6, pp 225-234.
- Ahmad, Siti Aznor (2009): "Visitors' Willingness to Pay for an Entrance Fee: A Case Study of Marine Parks in Malaysia," *Ph.D. Thesis*, Department of Economics, Faculty of Law, Business and Social Science, University of Glasgow, UK.
- Alvarez, Sergio and Sherry L. Larkin (2008): "Valuing Recreational Benefits of a National Park in Andean Columbia," *Conference paper/presentation at Southern Agricultural Economics Association Annual Meetings*, Dallas, TX February 2-6, 2008.
- Arrow, Kenneth, Robert Solow, Paul R. Portney, Edward E. Leamer, Roy Radner and Howard Schuman (1993): "Report of the NOAA Panel on Contingent Valuation," *Federal Register*, 58, 1993, pp 4601-4614.
- Asafu-Adjaye, John and Sorada Tapsuwan (2008): "A Contingent Valuation Study of Scuba Diving Benefits: Case Study in Mu Ko Similan Marine National Park, Thailand," *Tourism Management*, Vol 29, pp 1122-1130.
- Bal, Debi Prasad and Seba Mohanty (2014): "Determinants of Willingness to Pay for Entrance Fee to National Park: An Empirical Investigation," *International Journal of Ecological Economics and Statistics*, Vol 35, No 4, pp 65-73.

*Estimating Peoples' Willingness to Pay for Ecotourism Resources...*

- Barman, Subrata (2012): "Valuation of Environmental Amenity: A Case Study of Kaziranga National Park," *Ph.D. Thesis*, Department of Economics, Faculty of Arts, Gauhati University, Guwahati, Assam, India
- Bateman, Ian J. and Ian H. Langford (1997): "Non-users' Willingness to Pay for a National Park: An Application and Critique of the Contingent Valuation Method," *Regional Studies*, Vol 31, No 6, pp 571-582.
- Bateman, Ian J., Ian H. Langford, R. Kerry Turner, Ken G. Willis and Guy D. Garrod (1995): "Elicitation and Truncation Effects in Contingent Valuation Studies," *Ecological Economics*, Vol 12, No. 02, pp 161-179.
- Bharali, Abinash (2012): "A Study on the Demand for Ecotourism Using Nonmarket Valuation Methods: The Case of Kaziranga National Park," *Ph.D. Thesis*, Department of Economics, Mahatma Gandhi School of Economics and Commerce, Assam University, Silchar, India
- Bharali, Abinash and Ritwik Mazumder (2012): "Application of Travel Cost Method to Assess the Pricing Policy of Public Parks: The Case of Kaziranga National Park," *Journal of Regional Development and Planning*, Vol 1, No 1, pp 44-52.
- Birdir, Sevda, Ozlem Unal, Kemal Birdir & Allan T. Williams (2013): "Willingness to Pay as an Economic Instrument for Coastal management: Cases from Mersin, Turkey," *Tourism Management*, Vol 36, pp 279-283.
- Brookshire, David S., Mark A. Thayer, William D. Schulze and Ralph C. d'Arge (1982): "Valuing Public Goods: A Comparison of Survey and Hedonic Approach," *American Economic Review*, Vol 72, No. 1, pp 165-177.
- Carson, Richard T. (2000): "Contingent Valuation: A User's Guide," *Environmental Science and Technology*, Vol 34, No 8, pp 1413-1418.
- Chaudhry, Pradeep and Vindhya P. Tewari (2006): "A Comparison between TCM and CVM in Assessing the Recreational Use Value of Urban Forestry," *International Forestry Review*, Vol 8, No 4, pp 439-448.
- Davis, Robert Kenneth (1963): "The value of Outdoor Recreation: An Economic Study of the Maine Woods," *Thesis (Ph.D.)*, Harvard University, 1963.
- Devi, Amrita (2010): "Valuation of Tourist Sites in Meghalaya - a case study of East Khasi Hills," *Ph.D. Thesis*, North Eastern Hill University, Shillong, Meghalaya.
- Eagles, Paul F. J. (2002): "Trends in Park Tourism: Economics, Finance and Management," *Journal of sustainable tourism*, Vol 10, No 2, pp 132-153.
- Echeverria, Jaime, Michael Hanrahan and Raul Solorzano (1995): "Valuation of Non-Priced Amenities Provided by the Biological Resources within the Monteverde Cloud Forest Preserve, Costa Rica," *Ecological Economics*, Vol 13, pp 43-52.
- Hadker, Nandini, Sudhir Sharma, Ashish David and T. R. Muraleedharan (1997): "Willingness to Pay for Borivli National Park: Evidence from a Contingent Valuation," *Ecological economics*, Vol 21, pp 105-122.
- Hakim, Arif Rahman, Sri Subanti and Mangara Tambunan (2011): "Economic Valuation of Nature-Based Tourism Object in Rawapening, Indonesia: An Application of Travel Cost and Contingent Valuation Method," *Journal of Sustainable Development*, Vol 4, No 2, pp 91-101.

- Hanemann, W. Michael (1994): "Valuing the Environment through Contingent Valuation," *Journal of Economic Perspectives*, Vol 8, No. 4, pp 19-43.
- Hoyos, David and Petr Mariel (2010): "Contingent Valuation: Past, Present and Future," *Prague Economic Papers*, Vol 4, pp 329-343.
- Kamri, Thalany (2013): "Willingness to Pay for Conservation of Natural Resources in the Gunung Gading National Park, Sarawak," *Procedia - Social and Behavioral Sciences*, Vol 101, pp 506 – 515.
- Kim, Samuel Seongseop, Kevin K. F. Wong and Min Cho (2007): "Assessing the Economic Value of a World Heritage Site and Willingness-to-Pay Determinants: A Case of Changdeok Palace," *Tourism Management*, Vol 28, pp 317–322.
- Lee, Choong-Ki (1997): "Valuation of Nature Based Tourism Resources Using Dichotomous Choice Contingent Valuation Method," *Tourism Management*, Vol 18, No 8, pp 587-591.
- Lee, Choong-Ki and Sang Yoel Han (2002): "Estimating the Use and Preservation Values of National Parks' Tourism Resources Using a Contingent Valuation Method," *Tourism Management*, Vol 23, pp 531–540.
- Lee, C. K. and James W. Mjelde (2007): "Valuation of Ecotourism Resources Using a Contingent Valuation Method: The Case of The Korean DMZ," *Ecological Economics*, Vol 63, pp 511–520.
- Lockwood, Michael and Kathy Tracy (1995): "Nonmarket Economic Valuation of an Urban Recreation Park," *Journal of Leisure Research*, Vol 27, No 2, pp 155-168.
- Maharana, Iyatta, S. C. Rai and Ekalabya Sharma (2000): "Environmental Economics of the Khangchendzonga National Park in the Sikkim Himalaya, India," *GeoJournal*, Vol 50, No. 4, pp 329-337. DOI: <http://www.jstor.org/stable/41147482>
- Maharana, I, S. C. Rai and E. Sharma (2000a): "Valuing Ecotourism in a Sacred Lake of the Sikkim Himalaya, India," *Environmental Conservation*, Vol 27, No 3, pp 269-277. DOI: 10.1017/S0376892900000308
- Majumdar, Suman, Jinyang Deng, Yaoqi Zhang and Chad Pierskalla (2011): "Using Contingent Valuation to Estimate the Willingness of Tourists to Pay for Urban Forests: A study in Savannah, Georgia," *Urban Forestry & Urban Greening*, Vol 10, pp 275– 280.
- Mandal, Raju, Subrata Barman and M. P. Bezbaruah (2014): "Economic Valuation for a Better Conservation: A Case Study of Kaziranga National Park, India," *SHSU Economics & Intl. Business Working Paper Series*, Paper No 14-10.
- Mansouri, Masoumeh, Ziaedin Badehian, Kamran Adeli and Kambiz Abrari Vajari (2014): "Estimating the Recreational Value of Forest Parks Using Contingent Valuation Method (Case Study: Hassan Gavyar Forest Park of Noorabad City)," *Agriculture Science Developments*, Vol 3, No 5, pp 200-204.
- Mmopolwa, G., D. L. Kgathi and L. Molefhe (2008): "Tourists' Perceptions and Their Willingness to Pay for Park Fees: A Case Study of Self-drive Tourists and Clients for Mobile Tour Operators in Moremi Game Reserve, Botswana," *Tourism Management*, Vol 28, pp 1044-1056.

*Estimating Peoples' Willingness to Pay for Ecotourism Resources...*

- Nam, Pham Khanh and Tran Vo Hung Son (2001): "Analysis of the Recreational Value of the Coral-surrounded Hon Mun Islands in Vietnam," *Research Report No. 2001-RR17, Economy and Environment Program for Southeast Asia (EEPSEA)*, Singapore.
- Nuva, R., Mad Nasir Shamsudin, Alias Radam and Ahmad Shuib (2009): "Willingness to Pay towards the Conservation of Ecotourism Resources at Gunung Gede Pangrango National Park, West Java, Indonesia," *Journal of Sustainable Development*, Vol 2, No. 2, pp 173-186.
- Randall, Alan, Berry Ives and Clyde Eastman (1974): "Bidding Games for Valuation of Aesthetic Environmental Improvements," *Journal of Environmental Economics and Management*, Vol 1, pp 132-149.
- Reaves, Dixie Watts, Randall A. Kramer and Thomas P. Holmes (1999): "Does Question Format Matter? Valuing an Endangered Species," *Environmental and Resource Economics*, Vol 14, pp 365-383
- Reynisdottir, Maria, Haiyan Song and Jerome Agrusa (2008): "Willingness to Pay Entrance Fees to Natural Attractions: An Icelandic Case Study," *Tourism Management*, Vol 29, pp 1076-1083.
- Samdin, Zaiton (2008): "Willingness to Pay in Taman Negara: A Contingent Valuation Method," *International Journal of Economics and Management*, Vol 2, No 1, pp 81-94.
- Singha, A. (2011): "Economic Valuation of Environmental Resources: A Contingent Valuation of Kaziranga National Park of Assam," *Ph. D. Thesis*, Assam University, Silchar, India.
- Togridou, Anatoli, Tasos Hovardas and John D. Pantis (2006): "Determinants of Visitors' Willingness to Pay for the National Marine Park of Zakynthos, Greece," *Ecological Economics*, Vol 60, pp 308-319.
- Tohmo, Timo (2004): "Economic Value of a Local Museum Factors of Willingness-to-Pay," *Journal of Socio-Economics*, Vol 33, pp 229-240.
- Venkatachalam, L. (2004): "The Contingent Valuation Method: A Review," *Environmental Impact Assessment Review*, Vol 24, pp 89-124.
- Walpole, Matthew J., Harold J. Goodwin and Kari G. R. Ward (2001): "Pricing Policy for Tourism in Protected Areas: Lessons from Komodo National Park, Indonesia," *Conservation Biology*, Vol 15, No 1, pp 218-227.
- Wells, Michael P. (1997): "Economic Perspectives on Nature Tourism, Conservation and Development," *Environmental Economics Series*, Environment Department Papers, Paper No. 55, The World Bank (1997).
- Yacob, Mohd Rusli, Alias Radam and Ahmad Shuib (2009): "A Contingent Valuation Study of Marine Parks Ecotourism: The Case of Pulau Payar and Pulau Redang in Malaysia," *Journal of Sustainable Development*, Vol 2, No. 2, pp 95-105.
- Zhongmin, Xu, Cheng Guodong, Zhang Zhiqiang, Su Zhiyong and John Loomis (2003): "Applying Contingent Valuation in China to Measure the Total Economic Value of Restoring Ecosystem Services in Ejina Region," *Ecological Economics*, Vol 44, pp 345-358.

**Notes:**

- <sup>1</sup>Use values arise from actual recreational or direct use of the facilities and amenities while the non-use values arise from the satisfaction or utility derived without directly using the concerned goods or services (Arrow *et al.* 1993; Bateman & Langford 1997; Hadker *et al.* 1997; Wells 1997; Carson 2000; Lee & Han 2002; Togridou *et al.* 2006; Kim *et al.* 2007; Nuvaet *et al.* 2009; Mandal *et al.* 2014; Abedini *et al.* 2016). Non-use values include existence value, option value and bequest value. Existence value is the satisfaction derived from the mere existence of a particular natural resource. Option value is the willingness to pay (WTP) for the natural resource for possible future use. Bequest value is the satisfaction derived from conservation of natural resources for future generations (Lee & Han 2002; Venkatachalam 2004; Lee & Mjelde 2007; Devi 2010; Singha 2011). Option value has also been identified as use value in some studies (Bateman & Langford 1997; Nuva *et al.* 2009).
- <sup>2</sup>Some of the possible sources of bias in CVM are starting point bias, anchoring bias, vehicle bias, hypothetical market bias, strategic bias, embedding effect and warm glow effect. Starting point bias arises when starting points used in eliciting WTP responses influence the final value of the stated WTP. Similarly, Anchoring bias occurs when individuals use an initial piece of information to make subsequent judgments. Vehicle bias may appear due to application of different payment vehicles in the CV studies. Hypothetical market bias is due to the hypothetical nature of the scenario presented. Strategic bias occurs due to free riding and over-pledging behaviour of the respondents by giving deliberately wrong responses. Embedding effect refers to the wide range of variation in WTP value for the same good when the good is valued separately or when it is valued as a part of a more inclusive good. Warm glow effect means getting moral satisfaction from the act of paying something in general which is not influenced by the characteristics of the actual environmental good under consideration. Similarly, there are other issues and biases involved in the use of CVM that should be carefully treated while conducting such studies.
- <sup>3</sup>The National Oceanic and Atmospheric Administration (NOAA) Panel suggested several guidelines for ensuring reliability in CV surveys like the use of in-person interviews, pretesting and pilot surveys, a larger sample size, binary discrete choice question instead of open-ended question, a careful description of the good and its substitutes, full reporting of data and questionnaire etc. The report also suggested that underestimation of WTP is to be preferred to overestimation. The valuation question should be posed as a vote on a referendum i.e., a 'yes' or 'no' dichotomous choice question related to the WTP. Respondents must be strongly reminded of their budget constraints and other alternative expenditure possibilities before eliciting the WTP responses.