CHAPTER TWO

SUVERY OF LITERATURE
2.1 Introductory Statement

Tourism has become a major economic activity in the developing countries in terms of contribution towards foreign exchange earning, generation of national income and creation of gainful employment opportunities. Thus, increase in specialization in tourism would, at first sight, appear to be beneficial to developing countries which are well endowed with environmental resources demanded by tourists from high income nations. However, they have really achieved the optimum use of and return from the assets due to the problems of market failure. The natural resources are frequently un-priced public goods which are subject to degradation through overuse, as in the case of the loss of flora and fauna due to various forms of tourist activity. Hence, attention has been paid to the relationship between tourism and the environment and to the problems associated with tourism expansion (Pearce, 1985; Romeril, 1989; Butler, 1991; Tisdell, 1997). Hence, eco-tourism
or nature-based tourism is emerging worldwide as the most focus area of interest for the tourists.

Possibly the earliest definition of eco-tourism was given by Ceballos Lascurin in 1987 who defined it as 'tourism that involves travelling to relatively undisturbed or uncontaminated areas with the specific objective of studying, admiring and enjoying the scenery and its wild plants and animals, as well as the cultural manifestations (both past and present) found in these areas' (Boo, 1990).

In practice, eco-tourism has become identified with tourism dependent on natural environments (both living and non-living) and with any indigenous cultures closely connected to such environments.

Just where to draw the boundary between eco-tourism and other forms of tourism is unclear. Some writers further restrict the application of the term eco-tourism to forms of nature-based tourism which are non-consumptive and careful of their surrounding natural environments.
The term 'eco-tourism' is often used interchangeably with 'sustainable tourism' or 'nature-based tourism'. The three are neither synonymous nor mutually exclusive. Nature-based tourism comprises just one of a number of different types of tourism and is distinguished by its natural setting. Eco-tourism is also characterized by its natural area setting but places an emphasis on conservation of the natural environment, visitor education and community benefits (Annual Report, Department of Tourism, 1994, p.6). However, there is a need for the valuation of eco-tourism which can help the policy makers to take unbiased decision for its sustainable management. So, the present study makes an attempt for valuation of eco-tourism of KNP in Assam as a case study.

2.2 Methods of Valuation within the Neo-classical Paradigm

The proper valuation of environmental goods through non market methods has become a challenge to economists in contemporary research. The problem with the valuation of environmental goods is that the environmental goods have both
use value and non-use value. Use values are derived from the actual use of environment, as for example, the benefit that one derives from the provision of safe drinking water, pollution free air etc. On the other hand, non-use value is a gain in a person's utility without the person actually using the goods. One may value eco-systems in remote parts of the world for reasons other than intending to visit the eco-system or potentially obtaining something useful from the eco-system. Three basic types of non-use values are existence value, bequest value and option value. The purpose of dissecting value and placing it into this various categories is to understand the complexity whereby environmental goods confer value on consumers. In fact, some environmental assets have little use value but very significant non-use value.

There are basically two approaches for valuation of environmental goods namely, Revealed Preferences and Stated Preferences.

2.2.1. Revealed Preferences

In revealed preference, we observe a real choice in the market and clearly infer information on the trade-off between
money and the environmental goods. For example, we may notice that two communities are identical except that one has high housing prices and cleaner air and the other has lower housing prices and dirty air. We may infer that the difference in housing prices reflect the value people place on clean air. This surrogate market valuation approach uses information relating to a marketed good to infer the value of an associated non-marketed good. Different possible associations can be examined in this context. The hedonic price method, for instance, assumes that the value of a resource is related to net benefits derived from it. In the property value or wage differential approach it is assumed that the change in land or property price due to a change in the environmental amenity reflects the value attached to that amenity. This method evaluates best the differential advantage obtained from extended residence in certain spatially preferred locations. The travel cost approach treats expenditure incurred on visiting a site as an index of consumer's preference for the services provided by it and derives there from the value placed on these services. It is most commonly used for assessing the value of preservation of flora and fauna in protected areas such as
National Parks (Tobias and Mendelson, 1991 and Navrud and Mungatana, 1994). The production function or alternative technology approaches can best be used for valuing indirect ecological functions of forests (Anderson, 1987). The first views the contribution of a natural resource to economic activities in terms of substitute inputs. Soil conservation may, for instance, result in saving in the amounts spent on chemical fertilizer. The alternative technology approach can also be classified as a cost-based valuation since the contribution of the natural resource is viewed in terms of the saving effected by not having to resort to an alternate technology. Soil conservation in upstream forests, for instance, results in a saving in the costs of desalting of downstream water bodies using mechanical dredgers.

2.2.2. Stated Preferences

Price-based and surrogate price-based techniques rely on the preferences revealed in the real market. The issue that is how to go about valuation if such markets do not exist? Contingent Valuation Method (CVM) determines consumer's preferences by constructing hypothetical markets. Contingent
valuation method arrives at the willingness to pay in order to continue receiving benefits or willingness to accept compensation in returns for foregoing benefits. The method can be useful in a wide range of situations, in the determination of both use and non-use value. In the context of eco-tourism, it can yield estimates of the willingness to pay for the preservation of particular species or of whole eco-systems. It is equally useful in assessing use value for locally consumed forest products such as fuel wood, fodder etc. Contingent ranking, a variation of the CVM relies on non-monetary preference of the respondents. A range of commodities are given for ranking in qualitative rather than monetary terms and then scored. Trade offs are used to determine the individual's choices between various outcomes and a ranking obtained on their basis.

CVM is the method related which depends critically on the manner in which respondents are sensitized, hypothetical markets are constructed, and schedules canvassed among the users or beneficiaries. They are criticized for certain biases like starting point bias, embedding bias, part-whole bias and
strategic bias. This criticism emerges from the fact that the consumer is reacting under hypothetical contingencies of a real-life decision-making process.

A review of environmental valuation studies in different developed countries reveal that studies were undertaken spasmodically, with varying degrees of influence on decisions and with marked variations between countries (Navrud, 1992). TCMs were used in the seventies and eighties to value recreation facilities by various organizations including the Forestry Commission. In the late eighties and nineties, an emerging interest in valuing other environmental goods, not amenable to TCM treatment, led to more Hedonic Pricing Technique (HPT) and particularly more CVM studies.

However, the appropriateness of a particular method of economic evaluation of environmental resources depends on the task at hand.

2.3 Travel Cost Method

The Travel Cost Method (TCM) is typically used to capture the recreational value of sites, such as national parks
and sanctuaries. Sometimes, though less often, it has also been applied to problems like finding the value of collected forest products (not routed through the market) for villagers, by examining the travel and time costs involved in collecting them. As these examples illustrated, the TCM can only capture the direct use of value of an environmental good – other components of Total Economic Value (TEV) such as option value or non-use value can not be qualified by this method.

The travel cost method focuses on estimating the following demand function:

\[ V = f(TC; X) \]

Where,

\( V = \) Number of visits to the park

\( TC = \) Travel cost to reach the park

\( X = \) Vector of other relevant socio-economic variables.

Two approaches can be used i.e. the Zonal Travel Cost Method (ZTCM) and the Individual Travel Cost Method (ITCM). Let us examine the differences between these two approaches.
In the ZTCM, the unit of analysis is the zone. Under this method, visitors are divided into different zones of origin. In case, we are required to find the recreation value of an Indian sanctuary for Indian tourists and our samples are large enough, we can divide the tourists into different zones, based on the States that they come from.

A visitation rate is then calculated for each zone. This is defined as follows:

\[
\text{Visitation rate} = \frac{\text{(Number of visits to the park per year from the zone)}}{\text{(total population of the zone)}}.
\]

The visitation rate, therefore, tells us the average number of visits made by each resident of the zone to the site during a year. In this way, the effect of population on visitation is accounted for.

In the ITCM, on the other hand, the concept of zoning is absent. Hence, the dependent variable is simply the number of visits made by the respondent to the site during a year. We can see that the number of observations in the case of ITCM will be equal to the number of respondents, while in the case of
the ZTCM it will be equal to the number of zones. The fundamental point of difference between the two approaches, therefore, is in the definition of the dependent variable.

The choice of which of the two methods to use will depend upon the situation at hand. If the site is one that offers a unique recreation experience, then typically, visitors will come from even far away regions to visit it. However, visitors who come from longer distances are generally not able or willing to visit the site more than once or twice in a year. In such situation, if we were to use the ITCM approach, then the dependent variable (the number of visits made by each respondent) would not exhibit sufficient variation to make regression analysis possible. In that case, it is advisable to use the ZTCM.

Since in the study area most of the visitors are coming from long distances, the zonal travel cost method is applied in the study area.

2.4 Various Issues of Application of Travel Cost Method

The travel cost model is one of the oldest approaches to environmental valuation, proposed in a letter from Harold
Hotelling to the US Forest Service in the 1930s, first used by Wood and Trice (1958) and popularized by Clawson and Knetsch (1966). The method has been widely used in both the USA and the UK since 1960s for valuing the non-market benefits of outdoor recreation, especially recreation associated with national parks and forests.

Knetsch and Davis (1965) evaluated the recreational value of Pittson Area Woods in Northern Maine using a variety of techniques. A contingent valuation question elicited aggregate maximum willingness to pay (WTP) values of around $72,000, while a question asking individuals how much further they would drive to reach similar recreation facilities, if those in Pittson were not available to them, yielded an estimated benefit of $64,000. In comparison a zonal travel cost model yielded an aggregate benefit estimate of $70,000. These results were remarkably close and gave early encouragement to practitioners.

An early example of a TCM study of a historical site was that of Ballston Hall, Staffordshire, which estimated the benefits that members of society might enjoy if the building was
restored and compared them with the cost of restoration (Aylen, 1978).

Recreational activities such as hunting are also commonly examined by using a travel cost framework. Bishop and Heberlein (1979) estimated the value of goose hunting permits via a variety of approaches. TCM results based on a variety of time-cost assumptions were considerably lower than those generated using a contingent valuation technique. It must be noted, however, that the contingent valuation questions used in this study were quite unusual relying on the respondents' willingness to accept compensation for the loss of their deer hunting permit within both the real and the hypothetical framework.

Thayer (1981) used travel cost method and contingent valuation method to assess the loss of landscape value from the development of a geothermal power plant in the lemez mountains in Northern New Mexico. The TCM was framed as the cost of traveling to a substitute recreational site. His results were similar for both methods and he argued that the TCM site
substitution method can be used to cross-check contingent valuation results.

Ulph and Reynolds (1981) used the TCM to estimate the recreation use value of the Warrumbungle National Park to be around $100/visitor day. Beal (1995a) studied the demand for the Girraween National Park in Queensland and estimated a choke price of $47.23. Beal (1995b) also studied the Carnarvon Gorge National Park in Queensland. These studies provide demand curves that can be used in determining optimal pricing in conjunction with the supply curve.

Loomis (1982) examined the hunting permit fees of lottery-rationed species in Utah. With the help of travel cost model, he found that hunting permits fees, fixed at low level might result in under-valuation of the species. Using the modified travel cost model, losses in recreation benefits associated with lottery rationed hunting permits were estimated. The results suggested that the minimum permit fee for big horn sheep was $172 (compared to the prevailing fee of $100) and $188.50 for buffalo (compared to the prevailing fee of $88.50). The difference in benefits under pricing and lottery
reflected the difference between maximum and average willingness-to-pay.

Desvousges et al. (1983) estimated the benefits of water quality improvements along the Monongahela river, Pennsylvania using both travel cost and contingent valuation techniques. The results for user values of different changes in water quality clearly show how TCM results and incidentally contingent valuation results are very sensitive to the elicitation method employed to drive benefit estimates.

Bojo (1985) applied TCM to evaluate the tourist benefits of the V. Valley in Sweedan. A total of 282 households were interviewed in 1985 for this purpose. The questionnaire that was used covered the variables like home area, means of travel, travel costs, length of stay and main activities during the stay, alternative recreation sites and disposable household income.

Many more applications are found in respect of wildlife preservation and nature conservation, especially in the USA. The TCM has been applied in many of the US Governmental
Institutions and it revealed that the average outdoor recreational value for per person per day in the country was US$ 34 in 1986 (Walsh, 1986). Another study reveals that the wildlife attributes of each forest are estimated to contribute about 30 per cent of the total recreational value (Willis and Garrod, 1991).

Farber (1988) estimated the recreational use value of the wetlands of Terrebonne Parish, Louisiana, which cover 650,000 acres, using a ZTCM. The sampling procedure consisted of placing self-addressed, stamped questionnaires on windshields of all vehicles parked in the morning at all 27 boat launch facilities in the wetlands on various dates throughout the year including the hunting and fishing seasons. Of the 7837 questionnaires distributed only 1,126 were returned, a response rate of 14.4 per cent. This study demonstrated the sensitivity of the results to the assumptions in the model. The annual value of the wetlands varied from $1.277 million when time cost was assumed to be 10 per cent of the average full wage rate, to $3.898 million when time cost was assumed to be equal the full wage rate. The capitalized
value varied by a factor of 2.67 depending on whether a 3 per cent or 8 per cent discount rate was used and also according to whether the population (use of wetlands) was assumed to grow in the future. Thus, the average capitalized value of wetlands varied from $36 to $111 per acre depending on the assumptions chosen.

Loomis et al. (1989) in a study of the economic benefits of hunting and viewing deer in California, included land use trade offs with housing and ranching. In addition to estimating the WTP of hunters and deer viewers using TCM and CVM, the authors also estimated total personal and business income generated in the State of California for deer hunting and viewing as well as total employment impacts.

Dixon and Sherman (1990) used travel cost methods to estimate consumer surplus of Khao Yao, Thale Noi and Khao Dao protected Areas in Thailand.

In a study of the Messa Verde National Park, Winger and McKean (1991) argued that visibility (in terms of visual range) was an input into the household production function and this
implied that households and individuals adjust their behaviour
to obtain optimal amounts of landscape consumptions.
Sightseers have some control over visual range days by
staying longer at a site they believe will have optimal
atmospheric condition at a given time. Most vistas in the Mesa
Verde National Park may be reached only by entering the park
and driving to the top of mesa, and vistas are affected by
visibility. Visibility in the area has diminished over the past 40
years through copper mining and smelting, coal fired power
plants and other urban development upwind. Winger and
McKean found that tourists altered their behaviour in response
to environmental quality. Not only was the relationship highly
statistically significant but the variation in the visitation rate from
low to high levels visibility amounted to more than help of the
average visitation rate. The Mesa Verde National Park attracts
many more visitors when visibility is high.

Tobias and Mendelsohn (1991) used the TCM to
measure the value of eco-tourism at Mastered Cloud Forest
Reserve in Costa Rica. They estimated the value of a tropical
rainforest site at Costa Rica- the Monteverde Cloud Forest
Biological Reserve. The data was collected in 1988 from 755 park visitors (all domestic). The travel zone taken was the canton and there were 81 such cantons. They then obtained estimates for the consumer surplus for each canton. These were added together to obtain the total annual consumer surplus. They finally estimated domestic recreational visits alone represented an annual value of between US $ 97,500 and $ 116,200 and foreign visitors represented an additional US $ 400,000 to $ 500,000 annually.

Navrud and Mungatana (1994) have used econometric methods to estimate the economic value of flamingoes for tourism in Lake Nakaru National Park in Kenya. They used a type of Contingent Valuation Method (CVM) as well as a Travel Cost Method (TCM) to derive estimates of the lake's economic value for tourism. From the results of their CVM type analysis, they found that the visitor's consumer surplus was equal to approximately $75 million annually, with one third of this surplus being due to the presence of flamingoes. The motive for the study was that Lake Nakaru was becoming increasingly polluted from industrial and other developments, thereby,
threatening the survival of its flamingoes. Tourist's economic value of flamingoes (which depend on an unpolluted lake) provided an economic argument for regulating the emission of pollutants into the lake. These authors obtained a much higher value for the economic value of Lake Nakaru National Park for tourism using the travel cost method rather than from their version of CVM. This is most likely because travel costs were incurred by visitors (especially international ones) to visit multiple places. This would have limited the applicability of the travel cost method and inflated the estimates of the economic value of Lake Nakaru National Park to visitors.

Menkhaus and Lober (1996) in their study determined the value of Costa Rican Rainforest as eco-tourism destination, using the Monteverdi Cloud Forest Reserve as a sampling site. The valuation method used was the TCM, a non-market valuation approach which used travel expenses as a proxy for the value of the park. Data were collected by a survey of 240 US tourists. This study found that the value placed by US eco-tourists, on visiting Costa Rican Rainforest was $1150 per visit.

Bowker and Leeworthy (1998) examined the ethnicity and
individual trip taking behaviour associated with natural resources based recreation in the Florida keys. The TCM is used to estimate the trip demand.

Crase and Dolley (1999) used TCM to analyse the value of market information gleaned by producers attending public livestock auctions. They used the TCM to qualify the value of this information and noted the limitations of applying the TCM in this context.

Driml (2002) provided an example of the application of the travel cost method to the estimation of recreational values engaged by the visitors to the Wet Tropics World Heritage Area (WTWHA) in North Queensland. This valuation was challenging because of the large and disposed nature of the WTWHA and the variety of visitor’s sites. The study demonstrated the high value of visitation values and was of particular practical significance for those engaged in the management of the region.

Carr and Mendelsohn (2002) in their study examined domestic and international travel to the Great Barrier Reef in
order to estimate the benefits of the reef with the help of TCM. The study explores the problems of functional forms and the measuring of travel cost for international visits and comparing actual costs, distance, and the lowest price fares. The best estimates of the annual recreational benefits of the Great Barrier Reef range between US $700 million to 1.6 billion. The domestic value to Australia is about US $400 million, but the estimated value to more distant countries depends on the definition of travel cost and the functional form. The study conclusively demonstrates that there are very high estimates associated with protecting high quality coral reefs.

Tisdell and Wilson (2002) explored the impact of World Heritage listing on economic value of the Australian listed properties. The study focused on foreign visitors only because of data limitations. They concentrated mostly on use values for tourism and gave some consideration to consequences for non-use values.

An interesting study was done by Xue, Cook and Tisdell in 2004. Based on a case study of Changbai Mountain Biosphere Resource (CMBR) located in North East China, they
focused on the recreational value of tourism using travel cost methodology and speculated to the extent to which this value depended on the biodiversity present in CMBR.

Douglas and Johnson (2004) focused that estimation of high values for tourist related recreation in the USA and amenity values indicated that allocation of basic water as well as terrestrial resources to recreation activities is given precedence over conventional market oriented activities that often degrade or even deplete the resources. The authors discussed at length the TCM, a survey based technique that quantifies the non-market benefits of trips to recreation sites. The data for their analysis was calculated from a survey that was distributed on-site at Lake Powell in 1997. The Lake Powell survey data indicated that aggregate recreation expenditures for Lake Powell trips were a remarkable $291 million in 1997. They explored several policy and management implications of their estimates.

Scholars like Becker, Inbar, Bafat etc. made a study on (2004) estimating the economic value of viewing griffon
vultures at Gamla Nature Reserve, Isreal by applying travel cost method. The study found that proper valuation of non-market environmental commodities such as wild life has significant policy implication. They used zonal travel cost model, where concentric zones were defined around the site such that the cost of travel at all points in a given zone was approximately constant. They generated a visit distance function and used it, based on 143 questionnaires, to derive the demand for the site from which a monetary value could be estimated. The potential annual benefit of Gamla was estimated to be NIS 5.5-6.0 million (US $ 1.1-1.2 million). The annual benefit of Gamla to the visiting public is approximately five times higher than the current revenue and around 85 per cent of the visitors to Gamla Nature Reserve were ready to pay for this site provided there were budget limits and the amount collected were invested in the protection of vultures and other threatened species.

In a study of wildlife tourism in Uganda, Anderson, Crone, Stage and Stage (2005) used the TCM. The data collected from a travel cost survey indicate that in 1997, even under
uniform pricing, Ugandan’s profit from gorilla tracking in the Bwindi Impenetrable National Park alone could have been increased by between US $ 30,000 and US $ 220,000 (depending on the assumptions about social costs).

2.5 An Overview of Valuation of Eco-tourism: India and North East India

Though much of the world’s precious natural resources lie in the developing countries, it is ironical that relatively few economic valuation exercises have been done in those countries of the world. The same picture is found in case of India. In the early nineties Murty and Menkhaus, (1994) estimated costs and benefits for preserving Keoladeo National Park (KNP) at Bharatpur in Rajasthan accruing to all the concerned groups namely tourists, the local population, the Government and non-users. The methodology used, combines contingent valuation techniques, with survey based techniques, to arrive at estimates of value.

Hadkar et al. (1995) conducted a survey among the residents of Mumbai and elicited their willingness to pay for the
maintenance and preservation of Borivli National Park (BNP) by using contingent valuation method. However, the most interesting study in India is the economics valuation of biodiversity in Bharatpur National Park by Chopra et al. (1997) using two alternative methodologies viz., travel cost method and as ecological economics inspired multi-criteria approach.

A version of travel cost method was applied by Chopra (1998) to determine the value of tourism and the nature of demand for it in a study of the Keoladeo National Park of Rajasthan. The data was collected regarding tourist's travel and stay expenses, duration of stay and various socio-economic characteristics. The total number of tourists covered in this study were 305, consisting of 235 Indians and 70 foreign tourists. The consumer's surplus was estimated from the semi-log form of the function relating visitation rate to travel cost (both its total and local variants). The consumer surplus using total travel cost was found to be higher. In view of the joint product nature of the services provided by the park, it was considered more appropriate to estimate consumer's surplus from local cost estimates. This amounted to around Rs. 427.04
per visit by Indians and Rs. 432 per visit by foreigners.

The report suggests that biodiversity conservation can be more effective and less resource consuming if stakeholders are involved in a meaningful way in the management of the park by using Bharatpur National Park as a case study. James and Murty (1998) have applied contingent valuation methods to estimate the non-user benefits of the Ganga Action Plan.

In case of North East India, very few studies have been done till date. The pioneer in this field was Mitra (2003) who for the first time applied TCM for estimating the recreational value of tourism of selected tourist spots of Arunachal Pradesh. He found that consumer surplus per visit of Indian tourist was Rs.995.51 and Rs.1,232.48 per visit of foreign tourist.

In 2004, the officials of the State Council of Science and Technology for Sikkim (under Sikkim Government) used TCM in their project for estimating sustainable development of eco-tourism in Sikkim. Both the contingent valuation and travel cost method were used involving local community members, domestic and foreign visitors to estimate the recreational value
of the Khangchendzonga National Park and the sacred Khecheopalri lake to elicit their willingness to pay (WTP) for its maintenance and conservation.

Thus, we find that in spite of the fact that the North Eastern Region of India is a hotspot in biodiversity and much of the good forest area is located in this region, only a few studies have been carried out to determine the demand for eco-tourism and to estimate the economic valuation of biodiversity as well as forest. The present study is an attempt to fill this gap in knowledge. The present study will also form the basis of relevant future research work in North East India in general and Assam in particular.

2.6 Problems Associated with the Sustainability of Eco-tourism

Eco-tourism can provide strong economic incentives for preservation of natural resources. Nevertheless, the development of eco-tourism is not without problems. Eco-tourism must be carefully managed if the resources on which it depends are to be utilized on a sustainable basis.
over all long term success of eco-tourism depends on how well the natural resources like forest, wild life, etc. are managed.