

**A CONTINGENT VALUATION STUDY OF  
MOUNTAIN FRESH WATER LAKES  
ECOTOURISM: A CASE STUDY OF  
POOKOD LAKE IN KERALA**

**Executive Summary of the Minor Research Project  
Submitted to the UGC**

**By**

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# **A CONTINGENT VALUATION STUDY OF MOUNTAIN FRESH WATER LAKES ECOTOURISM: A CASE STUDY OF POOKOD LAKE IN KERALA**

Tourism is the fastest growing industry all over the world. Eco Tourism is a growing segment of tourism. Tourism makes up 3-10% of GDP in developed countries and up to 40% in some developing countries. Eco tourism is the segment in the tourism market in which people travel with the primary purpose of visiting a natural destination. It is the “travel to unspoiled places to experience and enjoy nature” (Honey, 2002, cited in Christ et al, 2003).

Renowned by the tagline God’s own Country in the global tourism market, Kerala Tourism is India’s benchmarking destination and lone super brand. Kerala has earned wide accolades from various quarters for its unique way of development in human indicators. Tourist locations in Western Ghats region of Kerala attracted visitors from all over the world. Out of the 39 adorned serial sites of the Ghats, 12 are from Kerala. This makes Kerala a typical destination for both the domestic and international tourist segments. (Rajaseenan, Varghese and Abraham)

Tourism does appear to have very significant potential for pro-poor growth in the developing countries and underdeveloped countries where the most disadvantaged marginalised people resides. There are many ways through the linkage effects of the tourism which explore the potential of natural recreational sites can operate on the lives of the poor. There are related macro-economic and other reasons to extract a rent from nature-based tourists for enhancing the welfare of the people of host countries. Copeland (1991) who analysed the impact of tourism on the welfare of small open economies and the potential problems of 'dutch disease', notes that one condition that would enhance the benefits of tourism to local people is to extract `some additional rent from unpriced natural amenities enjoyed by tourists'.

Nature based tourism activities, in an ecologically sensitive area need close monitoring. Tourism in these natural areas should be ecologically sustainable. There should be provision for the visitor to be educated about the environment. The economic benefit of such an activity should accrue to the local population to ensure sustainability. Ecotourism projects the concept of sustainability in tourism, that is, the

needs of today's visitor should not be met at the expense of future generations. (Thampi, 2005)

The governments of developing countries that conserve its natural resources such as forests, which provide global environmental benefits, should extract a rent or income from people who use it for services such as tourism. It may also be important for reducing the revenue gap of governments of developing countries that bear the cost burden of conserving natural resources. The shadow price of their budget constraint can be positive and significant (which is normally considered in the pricing policy of public goods as in Wilman, 1988). There can be competing claims on limited public finance, and there can be more beneficial public investments for domestic economy such as in education and health, which may encourage even a welfare-maximising domestic government not to invest in conservation of its natural resources to the level desired by the global society.

A number of studies have been undertaken in recent years to develop methods for valuing non-market benefits of Environmental goods and services in monetary terms. These methods attempt to express such benefits in monetary terms, i.e. the willingness to pay (WTP) of consumers for a particular non-marketed benefit or their willingness to accept (WTA) monetary compensation for the loss of the same. The present study uses Contingent Valuation Techniques for estimating non-market values of Pookod fresh water lake in terms of its WTP of the visitors as an increased entry fee.

### **Objectives of the study**

1. To measure the extent and growth of tourism industry in India
2. To assess the Willingness to pay for the economic value of recreational facilities at Pookod Lake using Contingent Valuation Method.
3. To assess the current status of ecotourism in Pookod Lake
4. To find out the major environmental and ecological issues pertaining to ecotourism at Pookod Lake and surrounding regions.

### **Research Methodology**

Data regarding the extent and growth of tourism in the state regarding number of visitors, revenue generated, growth of infrastructure etc, is collected from various government departments and ministries. Records kept at the departments and

information published in the websites etc, were used. Information regarding the number of visitors and the revenue generated from a particular natural recreational site is collected from the site as far as possible.

Respondents are selected from the visitors through a systematic sampling procedure and are approached with an interview schedule in order to find individual recreational demand curve and the Willingness to Pay (WTP) for the conservation of the particular tourism destinations. The survey instrument is constructed to find answers to the following research questions

1. How do factors such as travel cost, income, and visitors socio-economic characteristics affects the Recreational Demand for a particular tourism sites.
2. What is the annual Recreational Value of the concerned tourist destination?
3. What is the visitor's willingness to Pay (WTP) for funding to protect and conserve the particular nature based tourism area and what factors affect their willingness to Pay?

Responses are regressed against a number of socio-economic and attitudinal characteristics of respondents. The data so collected will be analysed with help of various statistical techniques which included percentages, averages, correlations and regression.

## **Major Findings**

- The Present study uses information from 247 visitors of which 125 are females. 81.4% of the respondents surveyed are married and majority of the falls under the age category of 20 - 29. About 71% of the tourists are under 40 years of age and 117 have a monthly family income of less than 20,000 Rupees. 95 respondents have income in between 20,000 and 40,000 Rupees. The mean schooling years of the visitors is 13.29. Most of the respondents (27.5%) are Private company employees. There are 23 Self Employed people, 42 Farmers, 18 coolie workers, 6 unemployed persons, and 22 students.
- The survey reveals that majority of the respondents have prior information about the lake. The mean years of the familiarity with the lake is stood at 5.66 years and the mean visitation rate among the tourist is 0.75. Around 22% of

visitors of Pookod Lake have visited the lake more than once during the last year and 60.7% of the visitors had visited at least one time in the past.

- With regards to the question of environmental condition of the lake majority of the respondents feel that they couldn't see any changes with respect to their past visits. The perceptions of tourists about the hygiene conditions compared to their last visits also fetches the same opinion as 48.67 respondents believe that the conditions are unchanged. With regard to the condition of biodiversity 43% of the respondents expressed their concerns as its declining trends. 41% of the visitors were of the opinion that the recreational facilities after their last visit have been improved.
- With regards to Biodiversity about one third of the respondents felt 'very good' at the end of their visits. 45% of the respondents rate the biodiversity of the area is 'Good' where as 50 respondents rated it as normal. A good number of people rate the quality of recreational facilities and amenities at the Lake as 'Very Good'. 19.8% of the respondents rated as 'Very Good' and 108 responses (43.7%) believe that the quality is 'Good'. The respondent's perceptions regarding the quality hygiene and cleanliness are also recorded and was rated 'Very Good' by 20% and "Good" by 48%.
- Majority of the visitors (52%) felt that Bio-diversity loss is the serious problem that should be dealt immediately. Pollution comes next with 19.84% of the respondents favouring it.
- The visitors are not willing to accept a reduction in the number of tourist during peak days in order to maintain the quality of the environment. Only 26.3% of the respondents agree to this suggestion.
- 43.3 % of the visitors opined that they felt lower than expected at the end of the visit. Only 19.8 % visitors say that the visit gives them pleasure which is higher than expected.
- Among those surveyed, 61.5% replied that they are willing to pay the increased entry fee. The mean WTP is recorded as 66.84 with a standard deviation of 29.932. Out of the 152 respondents who are willing to pay increased entry fee, 51 (33.6%) respondents favour for fixing the entry fee at 40 rupees per visitor.

- Among 125 females 50.4% of the respondents have shown their willingness, whereas the proportion is higher in the case of males, where 73.8% are willing to pay for the project described. Among the government employees surveyed, 74.2% are willing to pay for the project, whereas only 52.9% of the private company employee are willing to contribute. 65.2% of Self employed respondents, 72.2% of coolie workers the whole person constitute the unemployed category, 90.9% of students and 67.6% of house wife are also willing to contribute this project.
- Among the government employees, 87% of the respondents are willing to pay Rs. 80 or more. Farmers also willing to contribute, but majority of them is willing to Rs. 60 or less. About 70% of coolie workers who are willing to contribute can only pay Rs. 40 only. 89.5% of the students are also responded that they would pay only 40 Rupees as the new entry fee.
- There are 37.3% of the people belonging to the lower income group are willing to pay only 40 Rupees as their entry fee. The proportion is greater in case of the next income brackets (20001-40000), as there are 68.2% of the visitors are willing to pay more than or equal to Rs. 60 as the increased entry fee. There are only 16.4% of people in the first income group is willing to pay Rs.80 and above, but for the second income bracket 34.8% of the people are willing to pay for it.
- Only 16.6% of respondents who are educated up to class ten are willing to pay an amount of Rs. 80 or above. For those having higher secondary level education, the proportion went up to 19.4% and a person with graduate level with 15 to 16 years of schooling the proportion went up to 51.6% and post graduates it is still higher with 56.6%. This shows that as the education level went up the WTP amount tend to become higher and therefore there is a clear relationship between these two.
- The analyses have shown that visitors belonging to the lower and upper rung of the age ladder are more willing to pay than their middle aged counterparts. The respondents belonging to young ages are more willing to pay than the middle aged.
- Those who visited in the past are ready to pay higher as compared to those who are not visited earlier. While 38.7% of people with past visits are ready

to pay Rs. 80 or more for the visit only 26.1 % of those who have no history of past visits are ready to pay the same amount.

- Only 39.5% of the people enjoyed boating are willing to pay more than or equal to 60 Rupees as their entry fee. But 68.3% of people who spent their time on sightseeing are willing to pay Rs. 60 or more as entry fee. This proportion is even higher in case of those people who love to roam around the lake.
- People belongs to nearby region are more willing than people from faraway places. On an average 72.7% of people, they are mostly from Wayanad district itself are willing to pay for the project.
- The crosstabulation also showed that those who are having less travel costs are more willing to pay for the environment. Respondents having the least expenditures for the travel are interested more willing.
- For the Multiple regressions Model used in the present study, the value of  $R^2$  is .396 which means that the predictor variables used in our model accounts for only 39.6% of variations in the model.
- In the present study the adjusted  $R^2$  is .371 and its difference from the  $R^2$  is  $.396 - .371 = .025$  (about 2.5%). This shrinkage (loss of predictive power) means that if the model were derived from the population rather than a sample it would account for approximately 2.5% variance in the outcome.
- Applying Stein's Equation instead of Wherry's to compute Adjusted  $R^2$  results a decline in the predictive power of  $R^2$  as the gap between  $R^2$  and adjusted  $R^2$  widens to 0.56 means that there is a loss of 5.6% of predictive power.
- The size of the Durbin-Watson statistic or the present study is 1.879 which is very close to 2; therefore the assumption of lack of autocorrelation between residual terms is met.
- ANOVA test gives us the F-ratio which is the ratio of Mean Squares of the Model ( $MS_M$ ) and the Mean Squares of the Residual ( $MS_R$ ) results the value of 15.94, which is significant at  $p < .001$ .
- The regression model of the present study is given as Maximum WTP as entry fee =  $-8.368 + (.407 \text{ Respondent's age}_i) + (3.146 \text{ Respondent's Education}_i) + (.802 \text{ No. of years that the}$

respondent is familiar with Pookod Lake<sub>i</sub>) + (7.615No. of Times visited last year<sub>i</sub>) + (.004Total Travel Costs<sub>i</sub>) + (.019Distance Travelled<sub>i</sub>)

- For these data all six predictors have positive b-values indicating positive relationships. It means that one or more of these six variables increases the Willingness to Pay also found to be increases.
- The standardized  $\beta$  values shows that the Respondent's Education (.318) and No. of Times Visited Last Year (.260) have a comparable degree of importance in the model.
- For the present model the VIF values are all well below 10 and the tolerance statistics all well above 0.2; therefore, we can conclude that there is no Collinearity within our data. The average VIF is calculated as 1.592 which is very close to 1 and this confirms that Collinearity is not a problem for this model.
- The graphs of ZRESID against ZPRED and SRESID against ZPRED have shown that the assumption of Homogeneity of variance has been met in our model. The pattern is indicative of a situation in which the assumptions of linearity and homoscedasticity have been met.
- Histogram and normal probability plot are selected to test the normality assumption. The result shows that there is some sort of deviations from normality. Kolmogorov-Smirnov Test and Shapiro-Wilk Test confirm that the present distribution of dependent variable is non-normal. The D-statistics given by both tests are .237 and .802 which are highly significant at .001 levels.

## **Suggestions and Conclusion**

Tourism is the sole hope for many third world countries for reducing poverty. There are many ways through the linkage effects of the tourism which explore the potential of natural recreational sites can operate on the lives of the poor. The governments of developing countries that conserve its natural resources such as forests, which provide global environmental benefits, should extract a rent or income from people who use it for services such as tourism. A Pro-Poor Sustainable Tourism strategy supports actors from district, national and international levels to effectively

harness tourism as a driver for job creation and local economic development to benefit the most disadvantaged communities.

However, if not managed properly, tourism can have significant negative impacts on the environment and host communities. Natural resource attractions can be jeopardized through improper uses or overuse. Physical site alteration and disturbance of biota; removal and redistribution of materials; pollution; loss of biodiversity and a host of other problems result from unplanned and uncontrolled tourism development.

The findings from the present study indicate that environmental valuation as a tool for valuing the ecotourism destinations can be done with proper care. The study finds that the increased entry fee of the ecotourism sites may reduce the pressure over ecologically fragile tourist areas without reducing the prospects of the earnings. In order to fix the right entry fee for each eco-tourism sites, separate valuation studies can be undertaken and the result would be used for the policy decisions. The study can be extended to all tourist locations which are mainly depends on natural areas for tourism purposes.