

## **WILLINGNESS TO PAY TOWARDS LAKE CONSERVATION – CASE STUDY OF KARANJI LAKE, MYSORE.**

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### **Abstract**

The interrelationships between Biodiversity and economic wealth have recently becoming widely acknowledged because human economic productivity largely reliant on Earth's ecosystems some of the important economic commodities that biodiversity supplies to humankind are: food, Biological pest control, medication, raw material to industry, tourism and recreation. Many tourism attractions are strongly linked to biological diversity, such as protected areas, beaches, islands, lakes, coral reefs, wildlife viewing etc.

Biodiversity is thus a key tourism asset. Particularly in the recent years Lakes as tourism product occupies an important place, but unfortunately with the human interventions has lead to unplanned development. Population growth, urbanization and other negative fall-outs have affected the fragile environment, with this back drop Environment protection has become the need of the hour in the 21<sup>st</sup> century after it has been abused in the name of development and economic progress. However, the situation is not irreversible and conservation can yield positive results. In this light, the study include: (i) present a background on the biodiversity products of the Karanji lake (ii) related literature reviews and (iii) summarize principal findings and concluding observations.

The study is based on field observations and primary data from the visitors and contingent valuation method (CVM) is used to estimate the conservation value in Karanji Lake. The CVM uses survey technique to ask people directly what their environmental preferences are. Further, our study tries to answer tourists' willingness to pay towards conservation with the help of economic theory.

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The interrelationships between Biodiversity and economic wealth have recently becoming, widely acknowledged because human economic productivity largely reliant on Earth's ecosystems some of the important economic commodities that biodiversity supplies to humankind are: food, Biological pest control, medication, raw material to industry, tourism and recreation. Many tourism attractions are strongly linked to biological diversity, such as protected areas, beaches, islands, lakes, coral reefs, wildlife viewing etc. Biodiversity is thus a key tourism asset.

Lakes all over the world are used as a resource for ecotourism, natural tourism, leisure tourism and conference tourism and are attracting millions of tourists. The 12<sup>th</sup> World Lake Conference TAAL 2007 held in Jaipur in November 2007 recognized the importance of lakes for domestic and recreational uses and ecotourism. The lakes declared as water bird sanctuaries are like fairylands for birds. Shorelines or banks of lakes attract both humans and a diverse community of plants and animals. Thus biodiversity of lakes make them important as natural resource for tourism.

Initially lakes served as the only source of drinking water of the town or settlement developed along their banks or shore. Lakes contribute significantly to socio economic development of the surrounding region. Lakes provide various benefits that include influencing the microclimate, flood control, encouraging biodiversity and replenishing groundwater. Lakes act as sewage absorbers in cities, the microclimate of the area surrounding the lake benefits if the lake water level is maintained. The usage of lakes for sports, entertainment, swimming, fishing etc is of great importance to the public. Use of lake shores for residential commercial, development and recreation has increased world over.

But unfortunately with the unplanned human interventions in the form of Population growth, urbanization and other negative fall-outs have affected the fragile environment, with this back drop Environment protection has become the need of the hour in the 21<sup>st</sup> century after it has been abused in the name of development and economic progress. However, the situation is not irreversible and conservation can yield positive results, but any Protected Areas like this are often faced with limited financial resources to maintain and

monitor to their fullest potential. Methods, such as “Willingness To Pay studies” (WTP) are used to assess the park visitors’ views and opinions towards fee systems and the potential of paying more in order to sustain nature management and conservation of natural resources.

***Literature Review on CVM:***

The contingent valuation method is used in cases where markets for environmental goods and services either do not exist or are not well developed or where there are no alternative markets. The CVM uses survey technique to ask people directly what their environmental preferences are. Since responses to a hypothetical situation are derived from potential consumer, CVM assumes that the consumer's expressed WTP in a hypothetical situation which is a measure of the consumer value in an actual situation. It is called "*contingent valuation*" because the valuation is contingent on hypothetical scenario out on respondents.<sup>1</sup> This method was proposed and first used in developed countries for the valuation of public goods like access to parks, clean air or water, endangered species or unobstructed views. This method is sometimes the only way to estimate the benefits of common property resources for which no direct or related market exists, for example, scenic or ecological characteristics.<sup>2</sup> Considerable research has established the CVM as a sound technique for estimating values for conservation following are few literatures considered for study.

Anoop, P. & Suryaprakash, S. in there study on Ashtamudi estuary<sup>3</sup>, largest estuary in Kerala, which through light on potential future uses, was assessed by contingent valuation method. The value was assessed separately for the three categories of stakeholder’s viz. coir producers, fishermen and tourists. Tourists are WTP highest amount for conserving the estuary for using it in future for recreation purpose.<sup>4</sup>

IUNC report on Djoudj National Bird Park (DNBP) in Senegal, this report is part of a broader study initiated in 2002, study focuses on the WTP of recreational visitors to DNBP, and the study

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<sup>1</sup> Naghmeh mobarghei & Gholamali Sharzehi “Analysis of survey based methods in ecosystem services valuation and introduces more appropriate methods to achieve reliable result in developing countries”

<sup>2</sup> Economic Development Institute of The World Bank (02 pub)

<sup>3</sup> An estuary is a partly enclosed costal body of water with one or more rivers or streams flowing into it, and with a free connection to the open sea.

<sup>4</sup> Estimating the Option Value of Ashtamudi Estuary in South India: a contingent valuation approach

has established that admission fees to DNBP could easily be increased without significantly affecting tourism demand. However, it is also important to note that visitors expressed a desire for improvements to the quality of services provided (e.g. dugout canoes, signage, pathways, etc.).<sup>5</sup>

Gianni Cicia and Riccardo Scarpa their article “*Willingness to Pay for rural landscape preservation: A case study in Mediterranean Agriculture*” mention estimates of welfare from a contingent valuation study which investigates the potential benefits derived by tourists from the implementation of a programme aimed at preserving the traditional agricultural landscape in a typical Mediterranean area: the National Park of Cilento (Southern Italy).<sup>6</sup>

Siti aznor ahmad in his study on Visitors’ “*Willingness to Pay for an entrance fee: A case study of Marine Park in Malaysia, April, 2009*” estimates how much visitors are willing to pay for two separate issues; first, to reduce the damages due to crowding effect and second, to reduce the damages due to inland development, The willingness-to-pay estimates were obtained from the respondents using the Contingent Valuation Method.<sup>7</sup>

Nuva, R. & Mad Nasir Shamsudin “*Willingness to Pay towards the Conservation of Ecotourism Resources at Gunung Gede Pangrango National Park, West Java, Indonesia*” Their study was conducted to determine the visitors’ willingness to pay for conservation of the resources at Gunung Gede Pangrango National Park (TNGP), and to determine the satisfaction of visitors towards the use of the ecotourism resources of the park. The dichotomous choice Contingent Valuation Method (CVM) was employed to determine the willingness to pay (WTP).<sup>8</sup>

***Methodology and source of data:***

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<sup>5</sup> Estimating the value of ecotourism in Djoudj National Bird Park in Senegal, IUNC report.

<sup>6</sup> May 19, 2000 Paper submitted to European Review of Agricultural Economics

<sup>7</sup> Unpublished document, Department of Economics, Faculty of Law, Business and Social Science, University of Glasgow.

<sup>8</sup> Journal of sustainable Development, Vol 2 No 2 July 2009

Based on the above literature we used CVM technique to evaluate our objective that is to estimate willingness to pay for conservation in Karanji Lake in Mysore. For the purpose of this study, primary data were collected by means of structured questionnaires. A total of 100 visitors were surveyed in which only 76 are used for the purpose of this analysis because of missing values. This was conducted during peak summer vacation time. Information on socio-economic characteristics of respondents obtained included gender age, education, origin, group size occupation; monthly purpose and regarding there visit. Respondents were required to respond either 'Yes' or 'NO' nature.

### ***Location of the study***

Though Mysore has developed into a modern city, the city still moves at a gentle, unhurried and leisurely pace. The city has a good green cover and has a few lakes that add to the beauty and calmness of the city. These lakes are popular picnic spots and are frequented by nature lovers as they attract a number of migratory birds, in which Karanji Lake occupies frontline.

This lake is located in the city of Mysore in the state of Karnataka, India. This lake is spread over 90 hectares, while water spread area is about 55 acres, the foreshore area measures about 35 hectares and is home to more than 90 species of resident and migratory birds. On the banks of the Karanji lake is the Regional Museum of Natural History. The lake is surrounded by a nature park consisting of a butterfly park and a walk-through aviary. This aviary is constructed on the shore of the lake has a height of 20 mts, length of 60 mts and width of 40 mts making it ***India's biggest walk-through aviary***.

Some of the common migratory birds found here are Grey Pelican, peacocks, white-peacocks, Painted Stork, Ibis, Cormorants, and Egrets etc. which nest on trees in the islands present in the lake. Recent survey of birds has indicated 87 species and 12 of them are migratory birds. Herons, Asian open bill storks, Egrets, Red wattle lapwing, Sandpipers, Rose ringed parakeet, Black Drongo, Brown Shrike, Red-whiskered bulbul, Booted warbler, Sunbird and Greenish Warbler are some of the other species of birds found here.

The butterfly park has been created on a small island within the lake about 45 species of butterflies have been identified with the help of a botanist; appropriate species of host plants and nectar plants essential for the breeding of butterflies were selected and planted within the island. Visitors to the

lake can hire boats also. Karanji Lake is owned by the Mysore Zoo Authority. Mysore Zoo gets revenue of an average of Rs. 50000 per day from ticket sales who visit this lake.

### **Results**

Out of 76 respondents 40 (52%) were female 40 (52%) and male 36 (47.4%), in which tourist from with in and around Mysore were largely localities 48 (63.2%), and from other districts 20 (26.3%) formed major population who were surveyed, varied in age from under 18 to over 60, but the majority fall in the age group of 18-25 (35.2%) and 25-40 (50.0%). 60(44.1%) respondents came as an exclusively trip for lake and 16 (21.1%) respondents this was a Part of large of larger trip to Mysore. The respondent's educational qualification with Degree comprised of 50% and Post Graduate 44.7% formed major group. With regard to occupation Student group formed major junk of 33 (43.4%) followed by those who are in the Public 18 (23.7%) and Private 14 (18.4%) service. Since majority comprised of student group monthly income component fall short, they did not answered this question. Income group comprised Rs10000-15000 9 (11.8%) Rs 15000-2500 (9.2%) greater than Rs 25000 11 (14.5%). To the question Number of times visited, respondents replied for 2 and 3 time happens to be more in number 22 (28.9%) 32 (42.2%) respectively. With regard Willingness to pay question which is center theme of our study, response was unexpected from established literature. Only 24 (31.5%) were willing to pay and rest 52 (68.42%) were not willing.<sup>9</sup> Here the reason for non willingness to pay may be varied; attempt is made to answer this scenario with the help of economic theory in the following Para.

### ***Law of Diminishing Marginal Utility (DMU) its relevance in defining willingness to pay***

A consumer's willingness to pay for a unit of a good is directly related to the utility derived from consumption of the unit. This in fact, is universal tendency which operates under certain assumptions in all cases without exception; and based on common Consumer Behaviour Economists characterize this tendency as Law of DMU, According to Marshall "The *additional benefits which a person derive from a given increase of his stock of a thing, diminishes with*

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<sup>9</sup> ( the detailed list of result is given in the end of paper )

Number of Times visited	number of tourist	percentage	Willingness to pay	Not Willing to pay	% of Willingness to Pay	% Not Willingness to Pay
1	14	18.4%	3	11	21.4%	78.6%
2	22	28.9%	5	17	22.7%	77.3%
3	32	42.1%	14	18	43.8%	56.3%
5	8	10.5%	2	6	25.0%	75.0%
<b>Total</b>	<b>76</b>	<b>100.0%</b>	<b>24</b>	<b>52</b>	<b>31.6%</b>	<b>68.4%</b>

every increase in the stock that he already has” to put it in simple terms. As someone consumes more of a good marginal utility will eventually decline is *the* classic example.

Similarly we can answer to our problem, here in our case tourist are not willing to pay for conservation can explained with the help of following table .

Accordingly, in our survey out of 76 tourists 31.6% are willing to pay and 68.4% are not willing to pay in which 18.4% of the tourists who are visiting for the first time for the lake, out of which 21.4% are willing to pay and 78.6% are not willing to pay. Tourist with second visits are 28.9% in which 22.7% are willing to pay and 77.3% are not willing to pay similarly, tourist whose visit is third time comprises 42.1% among them 43.8% are willing to pay and 56.3% are not willing to pay. And last group whose visit to the lake for more than fifth times are 10.5% in which only 25.0% are willing to pay and 75.0% are not willing to pay. Which reveals repeated times the visits lesser is the tourist willingness to pay. Since majority who were surveyed happens to visited more than two or three times they are not willing to pay more entry fee.

The WTP survey identified a problem with visitor awareness of lake entry fees. It is recommended that additional signage and brochures at the path way and eco friendly hotels is probably needed to fully address this, and ensure that Lake users are aware that they are paying a fee towards the conservation.

***Annexure***

Variables	Frequency	Percentages
Gender		
Female	40	52.6
Male	36	47.4
From		
With in Karnataka	20	26.3
Other state	7	9.2
Foreign	1	1.3
Local	48	63.2
Age		
<18	2	2.6
18-25	27	35.2
25-40	38	50.0
40-60	9	11.8
Exclusive or part of large trip		

Exclusive for lake	60	44.1
Part of large of larger trip	16	21.1
Education		
SSLC or below	3	3.9
Degree	38	50
Post Graduate	34	44.7
TCH	1	1.3
Purpose		
Traveller	7	9.2
Study	3	3.9
Recreation	27	35.5
Picnic	24	31.6
Birds / Butterfly watching	15	19.7
Occupation		
Student	33	43.4
Public	18	23.7
Private	14	18.4
Self employed	3	3.9
Home maker	6	7.9
Nothing	2	2.6
Monthly income		
10000-15000	9	11.8
15000-25000	7	9.2
>25000	11	14.

Number of times visited

1	14	18.4
2	22	28.9
3	32	42.2
5	8	10.5
Willingness to pay	24	31.5
Not willing to pay	52	68.42