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ECONOMIC VALUATION OF ECOTOURISM SPOT: A CASE STUDY OF KERWA DAM IN BHOPAL OF MADHYA PRADESH

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Abstract: *The term eco-tourism refers to eco-friendly and nature based tourism for nature lovers with permanent passion to admire and enjoy life at its natural way. Ecotourism is different from Mass tourism and luxury tourism and it is promoted to conserve nature for the welfare of living beings. The year 2002 was celebrated as International Year of Eco-tourism. Ecotourism is linked to many social issues and economic activities of a particular area. Besides growth and jobs creation, ecotourism plays an important role in the development of a region or a state. Infrastructure created for ecotourism purposes contributes to local development and rejuvenation of areas in industrial or rural decline, or undergoing urban regeneration. Sustainable ecotourism also plays a major role in the preservation and enhancement of the cultural and natural heritage ranging from arts to local gastronomy, crafts or the preservation of biodiversity. The paper is split up into three parts , part –I deals with Introduction and objectives and historical background of ecotourism and economic valuation of ecotourism spot in Bhopal city of M.P. Part-II of the paper consists of detailed methodologies used in the study. Part-III deals with results and discussions followed by conclusion and recommendation .*

1. INTRODUCTION

The term eco-tourism refers to eco-friendly and nature based tourism for nature lovers with permanent passion to admire and enjoy life at its natural way. Ecotourism is different from Mass tourism and luxury tourism and it is promoted to conserve nature for the welfare of living beings. The year 2002 was celebrated as International Year of Eco-tourism. This signifies the relevance and recognition of ecotourism both locally and globally. The lessons learned in 2002 should reach beyond the International Year of Ecotourism in time, space and range of travel niches. For the benefits of ecotourism to be relevant locally and globally it is required to change the way tourism operates today. for this, one of the essential efforts that should be made is the capacity building of all stakeholders who can understand and implement ecotourism in a way that it contributes actively to the conversation of knowledge and cultural heritage and development of the indigenous communities, in order to minimize the negative impacts of tourism and maximize the community benefits, the training of the tourism manager is essential to orient them for the sustainable ecotourism. Ecotourism is linked to many social issues and economic activities of a particular area. Besides growth

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and jobs creation, ecotourism plays an important role in the development of a region or a state. Infrastructure created for ecotourism purposes contributes to local development and rejuvenation of areas in industrial or rural decline, or undergoing urban regeneration. Sustainable ecotourism also plays a major role in the preservation and enhancement of the cultural and natural heritage ranging from arts to local gastronomy, crafts or the preservation of biodiversity.

2. REVIEW OF LITERATURE

The term ecotourism was coined by Hector Ceballos Lascurian in 1983. The term was used to describe the nature-based travel with emphasis on education, management and development of sustainable tourism product and activity.World Tourism Organisation has defined ecotourism as " tourism that involves travelling to relatively undistributed natural areas with specified object of studying, admiring and enjoying the scenery and its wild plants and animals, as well as any existing cultural aspects (both of past and present) found in these areas." The Ecotourism Society (TES) defined Ecotourism as "responsible travel to natural areas that conserves the environment and sustains the wellbeing of the people" (Epler Wood, 1996) Its main aims are ecological and socio-cultural integrity, responsibility and sustainability (Cater 1994). Ecotourism has developed from the traditional nature tourism and sustainable development concepts.

Long Term success of sustainable eco-tourism ultimately depends upon community perception and involvement in planning and management of sustainable ecotourism. (Craik 1991). "A phenomenon composed of a options, ranging from a hand core, scientific approach to visit a natural area as a weekend activity or a part of a broader trip" Boo (1990): visits to national parks and other natural areas with the aim of viewing and enjoying the plants and animals as well as any indigenous culture.

Ecotourism Association of Australia (1992) "Ecologically Sustainable Tourism that fosters environmental and cultural understanding, appreciation and conservation" - The National Eco-Tourism Strategy (Common Wealth of Australia) (1994) Tourism that involves travelling to relatively undistributed natural area with the specified objective of studying, admiring and enjoying the scenery and its wild plants and animals - W.T.O. natural Area Tourism (1993, 1998) Sharpley and Telfer (2002), highlighted Concept and Issues related to Tourism and Development and Suggested how the barriers to Tourism Development could be minimized. Butcher (2007), mentioned the role of ecotourism in bringing about sustainable development in the developing world. Ecotourism is often advocated as a sustainable option as it combines development with an emphasis on preserving wildlife and cultures. However, as argued in this book, it also ties and development prospects for rural communities to a 'nature first' outlook that severely limits the prospects for substantial economic development.

Ecotourism has been initiated by a range of non-governmental organizations as exemplary sustainable development in the rural developing world. This book looks at the way these

NGOs advocate ecotourism, and identifies key features of this advocacy. These features - the emphasis on local community participation and on the role of local tradition, the assumption of environmental fragility and the emphasis on preserving natural capital, and the overarching assumption that development should integrate conservation and development on a local level - are critically evaluated. It is argued that ecotourism's popularity as a development option devalues human development by tying the latter to an externally imposed conservation priority.

The study carried out by Hill and Gale (2009) focused on the principle and practice of Ecotourism and Environmental Sustainability though presenting the outcome of the invited paper in the Royal Geographical Society (with Institute of British Geographers (RGS-IBG) Annual International Conference 2006. They have highlighted the complex interactions between ecotourism and a range of natural environments, from polar to tropical and terrestrial to aquatic.

Nature based tourism has been examined by Newsome *et al.* (2002)a) and Buckley *et al.* (2003a), and wildlife tourism by Newsome *et al.* ((2005). The particular case of tourism in parks, protected areas and wilderness areas has been examined extensively by for example, Eagles and McCool (2002), Hendee and Dawson (2002), Lockwood *et al.* (2006) and Pigram and Jenkins 92006). Recent research on parks as tourism attractions in Sweden has been reported by Mc Donald *et al.* (2007). Marine ecotourism, including marine nature based tourism, has been reviewed recently by Cater and Cater (2007) In the wildlife tourism subsector, Higham and Bejder 92008) examined the question of sustainability, and Coghlan and Prideaux (2008) found that most visitors to cairns, Australia would rather visit a wildlife tour.

Cater and Lowman (1994), Stressed on Ecotourism with reference developed nation that how the word amazing diversity of nature and human culture could bring sustainable development of Ecotourism. Further they had highlighted the issue related to Ecotourism as sustainable option.

Badan (1998) had defined Tourism as the relationships and phenomena arising out of the Journeys and Temporary stays of people travelling preliminary for leisure or recreational purposes. The impact of tourism was identified as the most common theme in the review of tourism research. He described in brief about the tourist places in India. In chapter four he had described the tourist sites of Odisha. Singh, (2002) found that there is a possibility of income generation from the tourist site if the local people's capacity could be enhanced. The Ecotourism spots inPanchmarhi has now started facing the menace of plastic, use and throw drinking water bottles, rapper of fast food etc. To resolve this issue, it is important create awareness among tourist and local people to motivate visitors not to throw dust and used material here and there.

Singh & Singh (2006) found the indicators of ecological sustainability by involving local people in forest resource management. They found that the role of involving villagers

was very important from protection and conservation point of view. Singh, (2006, 2011, 2014, 2015, 2016) found that a quest for sustainable development and management of natural resources was required as future road map for developing eco-tourism site .The economic dimension was very Important from sustainable livelihood point of view at eco tourism site of local people.

This paper is outcome of an assignment given to M.Phil students for Economic Valuation & Accounting of Ecosystem during last three years batch in our Institute. This assignment was developed in the form of paper. This paper is split up into three parts , part –I deals with Introduction and objectives and historical background of ecotourism and economic valuation of ecotourism spot in Bhopal city of M.P. Part-II of the paper consists of detailed methodologies used in the study. Part-III deals with Results and discussions followed by conclusion and recommendation.

Thus, the objectives of this study is as follows

- to assess the economic valuation of the eco-tourism spot at kerwa dam of Bhopal M.P
- to assess the flow of tourist in the peak season and other seasons.
- to document the attraction of the ecotourism spot of kerwa dam from people point of view or tourist point of view.
- to find out necessity of economic valuation at eco-tourism spot.
- to measures the amount of money that people/ tourist expend to use the resource or expenditure done by per tourist to assess the use value of the spot and
- to understand economic benefits of investment done by the government

PART-II

Methodology

The above study was a field based one. The methodology was adopted therefore aimed at making qualitative and quantitative assessment of the following during the intensive Eco-tourism sites and village survey. Both primary and secondary data was used in this study. The Kerwa dam of Bhopal city of M.P. is the Universe of the study.

Sampling framework

First, with the help of Government records, pilot survey and discussion with appropriate authorities and agencies a list of Ecotourism spot have been identified. As the study aims at analyzing both qualitative and quantitative aspects, the field work will be divided into the following three steps.

i) Recording the observation of the field staff,

ii) Organizing Focal group discussions with the local people and tourists, forest and MP Tourism department Officials and skyfalladventure atkerwa dam.

iii) Interviewed 5% of tourists local people and officials from three departments with the help of structured questionnaire through personal quarries.

Data Collection and Processing

As per the preliminary review it is found that the adequate data is not available at the ecot-tourism spot . The collection of data is based on the interaction with the stakeholders engaged in ecotourism activities in different locations. This includes the forest officers, tourism department, local communities and the tourists. Approximately 2 to 3 days were spent at the the eco-tourism site for collecting the information. The total number of respondents was around 5%. The information collected during the field work was classified into the qualitative and quantitative data. The quantitative information was transferred to the data entry sheets for computer tabulation and statistical analysis and assessing the potential of eco-tourism sites based on field level indicators. A set of field level indicators was developed in consultation with local officials of three departments, involving community members. For in-depth study The photographs and information brochures were also collected to study the valuation of the spot . Some of the Techniques as Used by Singh, (2011, 2012, 13, 15, 2016) was also used to capture perception. Some of the valuation Techniques Singh (2012, 2013, 2015 and 2016) and measures of indirect use values, Contingent Valuation Method has also been used in the Study. The latest methodology, Travel cost Method (TCM), Tourism expenditure approach, Avoided losses or damage avoided method, Contingent valuation method (CVM) , Hedonic pricing Method , Existence value (EV) method, Option value (OV) method have been used in the study.

PART-III

Results and Discussions

About the Study Area

The Kerwa dam is a popular picnic spot near Bhopal city. It is around 15kms from Bhopal city and very well connected by road. It covers 69 sq. kms. area which includes it catchment area. It is a multi-purpose dam which is used for generation of Hydro-electric power, fulfil water requirement of Bhopal city and to develop an eco-tourism site where people can visit to spend their weekend time and children can enjoy the picnic.The nearest airport is Raja Bhoj airport which is approx. 25kms. While from IIFM it is 15 km. By taxi, auto, bus and bike we can reach at Kerwa dam.

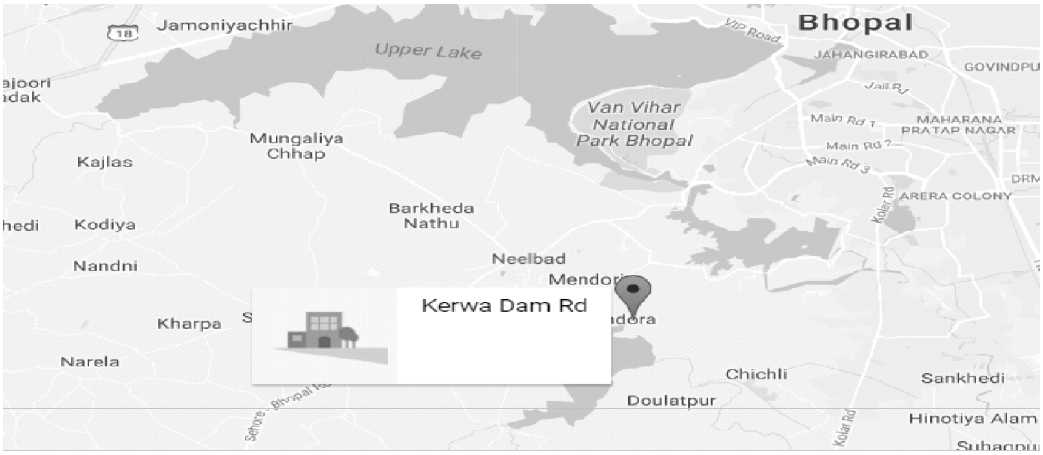
Attractions

The Kerwa dam is a good spot with plenty of water and greenery around. The Kerwa eco-tourism site has one kilometre of walking area laden with trees, scrubs and flowering plants on both the sides. The gushing water towards the downstream is particularly an attraction. The area is very rich in biodiversity point of view related to both from flora and fauna. The

Picturesque mountainous location of the spot is seen. The area of kerwa dam is very beautiful with fascinating environment. The Wild forest and vivacity of animal and birds are seen here . The Adventurous sport and water trips are also available at the eco-tourism spot.

The Kerwa has a wide variety of birds like parakeets, flycatchers, woodpeckers, owls, peacock, shrike, drongo and nightjars to mention a few. The lush greenary around this place is very panoramic, which adds beauty to this place.

Location of Kerwa Dam



Valuation methods

- Method used for kerwa dam study was travel cost method which is commonly applied tool when valuing user benefits of environmental goods in monetary terms.
- TCM is the cost which an individual incurs to visit a recreation site could be used as an implicit price for that site's service.
- changes in access costs for a recreational site.
- elimination of an existing recreational site.
- addition of a new recreational site.
- changes in environmental quality at a recreational site.

(A) Travel Cost Method

The travel cost method is often used in research or resource-intensive studies to assess recreational or ecotourism values and occasionally for the valuation of water supply and fuelwood. It is based on the idea that the amount of money people are prepared to spend to travel to an amenity, and the opportunity cost value of the time involved, can serve as a proxy for their willingness to pay (WTP) an entrance fee to the amenity.

It involves estimating the consumer's surplus from a demand curve derived from travel cost and socio-economic data. The usual economic assumption is that as the price of a good goes up, less of it is demanded. Therefore the number of visits should be inversely related to the travel cost. Information on visitors' travel costs can be used to draw up a demand curve for the resource. The area under the demand curve (the consumer's surplus) is used to estimate the WTP for the amenity.

It is very important to identify time and money spent on travel to a particular site. In some cases, the site in question may be the only one of tourist attraction in the area. In other cases, however, the site in question may be one of many in a popular tourist area, and the travel cost value has to be divided across all these sites. A similar problem arises if the journey to one site is undertaken for multiple purposes, for example a person travels from the capital city to attend a business meeting in a regional town and then adds on a tourist visit to the nearby attraction.

(B) Tourism Expenditure Approach

A simpler and less precise way of estimating tourism or recreational benefits is to use the tourism expenditure approach. This does not capture any WTP above the actual price paid and hence the estimated value excludes the consumer's surplus. Neither does it establish a relationship between price and demand nor hence it cannot he used to forecast demand at different entry prices, for example. It is however relatively easy to calculate as it assumes that the value of an area for tourism, recreation or scientific tourism can be based on how much people spend to travel and stay in the location. Calculation of average tourism expenditure requires data on accommodation, food and transport expenditure, as well as any gate and guide fees. This is only possible when there is some control and recording of visitor expenditure. In India, Forest Departments collect these data. A problem with the approach, like the travel cost method, is multiple-purpose trips. Journeys often involve visiting different places or combining work and leisure pursuits, in which case some judgment about how much of the cost should be allocated to a particular recreational or tourism benefit is needed.

Avoided losses or damage avoided method

The avoided losses or damage-avoided method is a specific application of the change of productivity approach. A typical application of it is for valuing the benefit of avoided Hooding damages due to forest management or conservation. When flooding or other damage occurs due to deforestation there are often reports of farming and livestock losses, damage in urban areas, the costs of cleaning it up and sometimes loss of human life. These can be used to estimate the damages that would occur in the without-project (or forest intervention) situation.

However, this approach depends on the feasibility of measuring the damage avoided, and of being able to attribute the damages to a change in forest cover or condition. There is an ongoing debate about the relationship between deforestation and flooding which casts

some doubts on the approach. Secondly, there can be a problem predicting the frequency and severity of flooding.

Contingent valuation method (CVM)

CVM may be termed as the modern name for the survey method. Only difference being that CVM elicits through appropriately worded questions how people would respond to hypothetical changes in some environmental service. These questions may be in the form of referendum (yes or no) or a payment card, apart from the direct questioning of the exact amount an individual/household is willing to pay. However, the direct questioning has been criticized as a difficult proposition to elicit the requisite information. The referendum approach includes dichotomous-choice, close-ended, or take-it or leave-it question formats while the payment card format specifics a range of values from which respondent is asked to mark the highest values he or she would be willing to pay. Another way of eliciting the information is through a bidding game procedure, which is somewhat similar to payment card approach, where the respondent is offered different hypothetical bids until a range is generated. In this case, the true willingness to pay is expected to lie between positive and negative responses rather than on a single point. All these approaches are tested for their validity.

The most commonly used hypothetical questions simply ask people what value they place on a specified change in an environmental amenity or the maximum amount they would be willing to pay to have it occur. The responses, if truthful, are direct expressions of value and would be interpreted as measures of compensating surplus (CS). The term contingent valuation method (CVM) is conventionally used to refer to approaches based on this form of question.

A second major type of hypothetical question asks for a yes or no answer to the question. Would you be willing to pay Rs. X...? Each individual's response reveals only an upper bound (for a no) or a lower bound (for a yes) on the relevant welfare measure. Questions of this sort are often referred to as referendum questions because of the analogy with voting on such things as bond issues. Discrete choice methods can be used to estimate willingness to pay functions or indirect utility functions for data on responses and on the characteristics of the people surveyed.

The third and fourth major types of hypothetical questions do not reveal monetary measures directly. Rather, they require form of analytical model to derive welfare measures from responses to questions. The third approach to questioning is known as Contingent ranking. Respondents are given a set of cards and hypothetical alternatives, each depicting a different situation with respect to some environmental amenity and other characteristics that are presumed to be arguments in the respondent's preference function. Respondents are asked to rank the alternatives in order of preference. By placing the cards in that order, These rankings can then be analyzed to determine, in effect, the marginal rate of substitution between any other characteristic and the level of the environmental amenity. If one of the

other characteristics has a monetary price, then it is possible to compute the respondent's willingness to pay for the good on the basis of the ranking of alternatives.

In the fourth type of hypothetical question known as Contingent activity questions individuals can be asked how they would change the level of some activity in response to a change in an environmental amenity. If the activity can be interpreted in the context of some behavioral model, such as an averting behaviour model or a recreation travel cost demand model, the appropriate indirect valuation method can be used to obtain a measure of willingness to pay.

Some issues and problems in hypothetical methods are specific to the particular form of the question being asked. For example, when people are asked how much they would be willing to pay for something, they might say "zero" because they reject the idea of having to pay for something they consider to be rightfully theirs. Other problems are generic to all methods based on hypothetical questions - for example, problems in scenario specification, sampling, and item non-response. The major questions regarding all hypothetical methods concern the validity and reliability of the data, that is, whether the hypothetical nature of the questions asked inevitably leads to some kind of bias or results in so much "noise" that the data are not useful for drawing inferences.

It is tempting to think of hypothetical methods as being cheap and easy substitutes for the data-hungry indirect methods, with their sophisticated analytical and econometric models. But the hypothetical methods have their own difficulties, subtleties, and pitfalls. They require more than just going out and asking people questions. Will the answer you get furnish the desired information on the respondent's preferences and values? This question in one form or another has been at the heart of the debate on the merits of CVM and related techniques from the very beginning. And it has provided a major motivation for the recent development and testing of hypothetical methods generally.

(C) Hedonic Pricing

The hedonic price technique is a method for estimating the implicit prices of the attributes that differentiate closely related products in a product category. Generally speaking if the product class contains enough models with different combinations of attributes, it should be possible to estimate an implicit price relationship that gives the price of any model as a function of the quantities of its various attributes. This relationship is called the hedonic price function. The partial derivative of the hedonic price function with respect to any attribute gives its marginal implicit price (Freeman III, 1993: 124). For example, prices of land in a residential area may include premiums for location in clean and safe area and discounts for dirty areas and unsafe area. If they do, it is then possible to estimate the demand for such environmental amenities as clean air from the price differentials revealed in private markets.

Where environmental changes affect producers of market goods, values can also be observed indirectly through examination of changes in product and factor prices and in

producers' quasi-rents. Indirect Observed methods involve a kind of detective work, in which clues about the values individuals place on environmental services are pieced together from the evidence that people leave behind as they respond to prices and other economic signals.

Measures of Non-Use Values

There are the following two methods belonging in this category:

Existence value (EV) method

The existence of non-use values is based on the hypothesis that people impute economic values on natural resources and environmental amenities and services independent of their present use of those resources Based on the this hypothesis, we presume that people might be willing to pay for conservation of some environmental services/amenities such as the valley of flowers, endangered species and biodiversity. In the environment economics literature, resource values that are independent of people's present use of the resource are variously called "existence", "intrinsic" "non-user", and "non-use" values (Freeman III, 1993:141). These values may arise from various motives such as a desire to bequeath certain natural resource to one's heirs, or future generations or a sense of stewardship, or altruism, or an ethical concern.

Existence values arise from preventing the extinction of a species, or preventing the complete destruction of a natural resource or an environmental amenity. John V Krutilla first introduced the concept of EV in the mainstream economics literature in 1967 (Freeman III. 1993: 143). It would be pertinent to state here that although the source of existence of EV is related to some one's use, it is independent of any use made of the resource by the person holding the EV.

Option value (OV) Method

Weisbrod introduced the concept of option value in 1964 (Freeman III. 1993: 261). Weisbrod argued that an individual who was not sure as to whether he would visit a site such as a national park would be willing to pay a sum over and above his expected consumer's surplus (CS) to guarantee that the site or the national park should be available should he wish to visit it. I le called this extra sum the option value of the site. If option price (OP) is defined as the maximum sum the individual would be willing to pay to preserve an option for future use before his own demand uncertainty is removed, then the excess of OP over the expected consumer's surplus can be called OV. It w'as argued that OV should be measured, if possible, and added to expected CS in order to obtain the full measure of the value of providing an environmental service or amenity (Freeman III 1993: 261-62). According to Freeman III (1993: 263-64). OV is the algebraic difference between the expected value of the consumer's surplus and the state-independent willingness to pay. Since these two points on the willingness - to- pay curve represent alternative ways of measuring the same welfare change, the

difference between their expected values cannot be a separate component of value. Furthermore, OV cannot be measured separately, it can only be calculated if we have enough information about people's preferences to estimate both OP and expected CS. In view of this, Freeman III is of the view that OV be not considered as possible benefits from environmental protection.

A summary of various valuation methods normally used for financial and economic analysis forestry sector project is given in and methods of valuation of intangible benefits in Table 11.

Table 1
Economic valuation methods for various intangible benefits of forests

Benefits	*Methodology Tor Economic Valuation*	
	Direct Method	*Indirect Method*
Direct -Non consumptive Ecotourism/recreation, Education and Research. Human habitat and Other non-consumptive uses	Contingent valuation method	i) Travel cost Method ii) Experiments
Indirect A) Watershed benefits: Agriculture productivity, soil conservation, recharging of ground water, regulation of stream flows and Other watershed benefits	Contingent valuation method	i) Change in productivity ii) Replacement cost approach
(B) Ecosystem Services Approach Nitrogen fixing, waste assimilation, carbon store, microclimatic functions, and other ecosystem services	Contingent valuation methods	Indirect estimates
(A) Evolutionary processes (1) Global life support and biodiversity	Contingent valuation methods	
Non-use Values	Contingent valuation methods	

(*Source:* MoEF 1999. as quoted in Verma (2000)

Authorities

There are three authorities of the eco-tourism spot of Kerwa Dam at Bhopal, M.P.

- MP Eco-tourism Board : MP Eco-torism Board providing recreational facility such as adventurous activities for tourists. At present in-charge: Altaf
- MP Tourism : MP Tourism basically provided accommodation and catering facility to the tourists. Tourist are coming from various places such as; Mumbai, Kolkata.

  At present in-charge: Ajay Dwevedi
- **Skyfall Adventure pvt. Ltd.**

  1. Zipping 2. Target shooting, 3. Paintball

Table 1
Shows the details of data collected from the eco-tourism spot of Kerwa dam

Attributes	*Number/ Unit*
Interviewed	50 person
Timing:	10 A.M. - 5 P.M.
Mostly visited season	Monsoon and winters
Tourist per day inflow	100-200
Weekend inflow	600-700
Entry fee	Rs.10/-
Room charges	
For two person	Rs. 3269/-
For three person	Rs. 4700/-
Catering	
Veg.	Rs. 350/-
Non-veg	Rs. 400/-
Rippling	200 Rs. Per person
Monkey crawling	200 Rs. Per person
Balanced sky rope	100 Rs. Per person
Zipping510 Rs. Per person	
Paintball	100 Rs. Per person
Target shooting	100 Rs. Per person
Number of staff working with MP tourism	13
Number of staff working with MP Eco-tourism	11

Source: Survey 2015, 2016

The asset valuation of Eco-tourism spot of Kerwa dam estimated as follows

Table 2
Asset Valuation of Kerwa dam

Attributes	*Number/ Unit*
Total area of Kerwa Dam	69 sq. km
Property rates at the Kerwa region	Rs. 20,00,000 = 1 acre
1 sq.km	247.11 acre
Total area in acres	: 69 x 247.11 = 17050.59 acre
Total valuation of land according to market price	: 17050.59 x 20,00,000
The estimated economic value of the asset is	Rs. 3410,11,80,000.

Source : Survey 2016-17

It could be concluded from the table that the estimated value of the Kerwa dam asset is Rs 3140. 1180 crores.

The Aesthetic valuation of the eco-tourism spot of Kerwa dam depends upon the following attributes

(a) Amount paid by visitors to visit Kerwa Dam i.e. Price paid for;

(b) Cost paid for Tickets and

(c) Amount paid for travelling to reach Kerwa Dam.

The following table 3 shows the aesthetic valuation of eco-tourism spot of kerwa dam

Table 3
Aesthetic valuation of eco-tourism spot of kerwa dam

Attributes	*Number/ Unit*
Average Tourist inflow daily	200
In one year	200 x 365
Average number of tourists	73,000 tourist
Entry fee for all	Rs.10/-
Total revenue generation	73,000 x 10 = 7,30,000/- lakhs
Amount paid for travelling	36.5 lakhs (Rs 200 per family)
Hence total aesthetic cost /valuation would be	: 7.3+36.5 lakhs = 43.8 lakhs

Source: survey and information of M.P. Tourism and MP Eco-tourism spot office 2016

It could be concluded that the Aesthetic valuation of eco-tourism spot of kerwa dam is 43.8 Lakhs per year. This value may be varied due to change in number of visitors every day and price policy of the government. This would be helpful in understanding the trend value if the proper record of the visitors kept in the local office. This would also increase the revenue generated from the eco-tourism spot of Kerwa dam which could further be used by the authorities for creating many more amenities to visitors /tourists.

Table 4, shows the livehood generation from the eco-tourism spot of kerwadam . The following activities related to income generation are going on.

Table 4
Livelihood generation- at the Kerwa Dam Bhopal M.P.

Attributes	*Rates*	*No. of person per day*	*Income in one year*	*Remarks*
Room Tariff	Rs 3269 (Two) Rs 4700 (Three)	25 families	3.2 Crore	May vary
Catering	Rs 350/- Veg, Rs 400/ - Non-veg.	100 per day	1.28 Crore	May vary
Parking Charges	Rs. 10/-	200 per day	7.3 lakhs	May vary
Rippling	200	5	19,08950 lakhs	May vary
Monkey crawling	200	3		
Balanced sky	200	5		
rope	200	3		
Zipping	100	6		
Paintball	100	7		
Target shooting Archery	100	3		

Source: Survey 2017

It could be concluded from the table that total income generated from the livelihood is Rs 4,74,38,950/- . The total income generation from the livelihood may vary due to change in the influx of tourists at the spot.

From table 2, 3 and 4 it is evident that the Economics valuation of the of Kerwa Dam could be as follows

(a) Asset value = Rs. 3410,11,80,000.

(b) Aesthetic value = 43.8 lakhs

(c) Livelihood generation = Rs. 4,74,38,950

Hence, the Total economic valuation of the Kerwa Dam is =

(a) Asset value+ Aesthetic Value +Livelihood generated

Rs3410,11,80,000. + 43,80,000+ 4,74,38,950 = 3415.30 crore

Therefore, total economic valuation of the Kerwa Dam of Bhopal M.P. is equal to = Rs. 3415.30 crore

Recommendations

- Economics of any Eco-tourism site is very important to increase its market value. Hence, the role of public and private sectors and government sector is very important to promote tourism and eco-tourism hence it help to promote aesthetic value of the other eco-tourism spot.
- It is strongly recommended that why the economic valuation is important for eco-tourism spots.
- It is also suggested that how this estimated value of the ecotourism spot would assist the tourism and forest department for increasing revenue from the eco-tourism spots as use and non-use value of the natural resources which is working out Rs 3415.30 Crores.
- The trend value of the eco-tourism spots will also be helpful in creating the other useful amenities in the eco-tourism spots.
- This model study may be replicated to other eco-tourism spots of Madhya Pradesh and other tourism spot for estimating the economic valuation of the natural resources for potential areas where to invest and how much to be invested in environmental sector for sustaining the eco-system services to human well- being and mankind.

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