

**Economic Valuation of the Recreational Services: A Case
Study of Lal Suhanra National Park, Bahawalpur**



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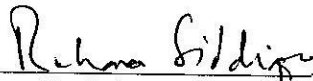
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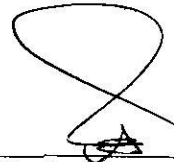
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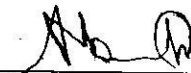
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LIST OF ABBREVIATIONS

Following abbreviations are used in this study

CS	Consumer Surplus.
TCS	Total Consumer Surplus.
FGD	Focus Group Discussion
LNP	Lal Suhanra National Park.
ITCM	Individual Travel Cost Method.
IUCN	International Union for Conservation of Nature.
TCM	Travel Cost Method.
WTP	Willingness to Pay.

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Dedication

I would like to dedicate my thesis to my beloved Father Muhammad Iqbal Peerzada and my ideal brother Saoud Ahmed Peerzada.

ABSTRACT

In the last few years, a big problem challenging by Environmental Economists is the difficulty facing in giving economic value to environmental resources and some other public goods such as National Parks, Lakes, forests and all recreational sites because it is difficult to value non-market goods. This study is a case study of Lal Suhanra National Park (LNP) that is located 36 kilometres away from District Bahawalpur. The basic purpose of this study is the economic valuation of the recreational services provided by the Lal Suhanra National Park and to find out what are the factors that will affect the visitor's willingness to pay for the improvements and if these improvements take place either the number of visits will increase in future or not. The results of the study reveal that the total recreational value of the Lal Suhanra National Park is (202,500,000 PKR.) or (200 PKR. Million) per year, and the results also reveal that there will be more visits by the visitors if they found the demanded improvements taken place in the park, through this our total recreational value increased after improvements number of visits increases and recreational value estimated is (318,000,000 PKR.) or (318 PKR. Million) per year. The results of this study concluded that various factors influence the visitor's willingness to pay for improvements such as distance, household size, total travel cost, quality of the park, income, education, and recreational improvements.

CHAPTER I

INTRODUCTION

Worldwide National Parks played an essential role in the preservation and conservation of biodiversity and these parks provide various benefits that are directly associated with the maintenance of biological integrity. According to the (IUCN) International Union for Conservation of Nature Resources they define “National park is a place where the ecosystem services are not materially changed by the human-induced activities and the park is protected by the capable authority of the country and the visitors of the park are mainly allowed for the cultural, recreational and educative purposes,.. However, in the last few decades, National Parks have become an essential part of global life in both the developing countries and developed countries. Currently, there are more than 1,300 natural reserves and National parks in the whole world. Therefore these National Parks provide many public goods to the society living around these parks (Castaneda 2017).

Moreover, in the present era, most of the people are giving more attention and more importance to their leisure time and recreation which surge the value of public recreational resources. People choosing the places for their enjoyment by choosing the beaches for sunbath, lakes for catching fishing there and going to mountains for climbing. National Parks are the place for the peoples to go there and enjoy with their families in a pleasant environment and usually these National Parks provides various recreational opportunities for the natives and tourist like exercising, jogging, picnicking and sightseeing (Tang 2009).

While on the other side the higher demand for natural resources becomes the cause of the scarcity of natural resources. There is a lack of market for the environmental goods where we can place a market price on the environmental resources like other marketed

goods, so in the absence of natural resource market, the possibilities of exploitation have been increased which causes the excessive use of the natural resources (Yadav and Sahu 2015). In the previous decades there have been excessive growth of population and many people migrated rural to urban areas where the need of green places like parks picnic points and forests has to be increased, so there is a need for the society to provide these facilities in various objectives of the protection of environment and to incorporate the peoples physical activities to that places in their daily routine (Iamtrakul 2005).

Pakistan is a developing country and trying to rejuvenate its natural-based tourism sector to an increasing system of reserves and national parks. In the previous decade, Pakistan's government felt a serious concern about the problem of deforestation and has indicated an important interest in the growth of the national parks. Pakistan has various national parks, wildlife refuges and reserves in various parts of the country. The administration of these parks is long away from satisfactory. This unsatisfactory management may be partly because of the improper or insufficient funds from government and widely open access to the visitors to these places. So there is great attention required through an investigation of these parks that how these parks can be well managed and most importantly how we can value these environmental resources (Himayatullah 2003).

1.1. Background of the Study Area

Worldwide there are 6,555 National Parks and Protected areas in Pakistan, there are 22 national parks in the country and they are covering near about 29,589 km. Lal Suhanra National Park is situated in Pakistan 36 kilometres from the district of Punjab Bahawalpur and it is one of the largest parks in South Asia that is spread over 153,000

acres. This Park was the first national park in Pakistan that is established in 1972 under the management of wildlife safari parks because it has a huge diversity of landscapes, wildlife, and microhabitats. Lal Suhanra Park has contained a recreation area of the small zoo and also a conservation area for many animals (Wariss et al. 2014).

There are many species of animals can be found in the Park. These include numerous wild animals of the desert these are rabbits, wildcats, bustards and deer. In the Lal Suhanra Park there are more than 160 species of birds are also exist there including Griffon Vulture, Honey Buzzard, Houbara Bustard, Hen Harrier, Marsh Harrier, Kestrel, Indian Sparrow Hawk, Lark, and Barn Owl and there are also some reptiles in the park are Monitor Lizard, Indian Cobra, Saw scaled viper, Wolf snake and spiny-tailed lizard. This Park holds a pair of Indian Rhinoceros which were given by Nepal. The Lal Suhanra Park has contained a large scale garden which has to make the environment more pleasant and full of fragrance and there are many entertaining activities like horse riding, boating ride including both manual and automatic. In this Park lots of swing, slides, horse and camel riding facility for children. Pakistan Government has converted Lal Suhanra Park into a wildlife safari park exact to the International standards but currently, instead of lions, there is nilgai in the safari park. In this Park, more than 400 animals are currently are being bred (WWF-Pakistan, 2010).

Every day many families, visitors love to come there for a whole day picnic and explore the animals and enjoy the natural environment and many people come here from many cities around this Park like Bahawalpur, Hasilpur, Deraa bakha, and Khairpur Tamewali and Lodhran. There is Rest House of Nawaz Shareef and mostly people also visit there and the most interesting place that is Safari Park that is near about 15 km people go

there to see lions in their natural habitat but currently there is no lion in the safari park instead of the lion there is Nilgai in that safari park.

1.2. Problem Statement

This park has been deteriorated over the time and the management of the park has been far away from it, a few years' back the quality of the grass in this park was excellent many people purchases this grass for making their home grassy plots that become the source of revenue of the park but over the time the quality of the grass has been deteriorated due the human-induced activities and improper management of the park. In the Lal Suhanra National Park the mortality rate of the animals rapidly increase just because of the lack of facility of veterinary hospital or lab for treatment of the animals and due to this when an animal expires it will take long time to take the dead body for post mortem to the hospital there is a specific time in which post mortem has been done and it will be helpful to diagnose the disease of the animals it will help to preserve the other animals from that disease.

These are the problems as we mention above like the increasing mortality rate, the number of fisheries is declining and the quality of the grass has been decline over time which is affecting the efficiency of the park and the services provided of this park.

1.3. Significance of the Study

The present study will conduct as a case study of 'Lal Suhanra National Park' which is located in Punjab the province of Pakistan. Primary data collected through a questionnaire from the visitors of the park.

National parks are important for the protection of natural beauty, it is also a home for many species to live and grow their families. National parks also provide a safe home for native plants and animals. Concern institutes and people know about the importance

of national parks but common people (visitors) are not much aware of the importance of it, so most of the time they degrade the environment of the park or sanctuary by littering there. National parks are now threatening by many humans induce activities such as soil erosion, forest fire and the big threat to national parks by the settlement of the people inside the parks, and nearby villagers create pollution or some of the visitors create pollution inside the parks. The present study will provide a detailed description of the economic value and environmental importance of LNP to the environmental economists of Pakistan.

Currently, the Government of Pakistan is working for the improvement of recreational services to promote tourism in the province of Punjab. Therefore, the results of the present study will be valuable for the Tourism Department of Punjab for better management and improvement of the LNP. The results of this study can serve as a guide for setting up revenue generation activities in LNP. By applying entry fees to other facilities in Lal Suhanra will help the concerned department to maintain the environment of the park because mitigation has cost and that cost will be paid to the polluter.

1.4. Research Questions of the Study

- 1.** What is the economic value of the recreational services provided by the LNP?
- 2.** What type of services will increase the number of visits to this park?
- 3.** How much the visitors will be willing to pay for the improvements in the services controlling for other factors that may influence the visitor's willingness to pay for the recreational services of the LNP?

1.5. Objectives of Study

- a) To estimate the economic value of the recreational services provided by the LNP.
- b) To determine whether improved services will increase the number of visits to this park.
- c) To examine how much a visitor is willing to pay and what are the factors that affect the visitor's willingness to pay for the improvements in the recreational services provided by LNP.

1.6. Organization of the Study

This study consist of six chapters. The first Chapter will cover the introduction of the topic background of the study area, significance of the study, research questions and the objectives of the study. Chapter two will comprise the literature review and chapter three will discuss the data collection technique, sampling technique, the study area and methodological framework including econometric modelling, estimation of the travel cost and recreational value. Chapter four will be the data analysis tables and graphs. Chapter five will be the results of the econometric models, while chapter six will be the conclusion and policy recommendation.

CHAPTER 2

LITERATURE REVIEW

This Chapter will cover Thematic Literature Review on the work of recreational value of the National Parks that have already been done in many studies.

2.1. Valuation of the Non-Market Goods

The neoclassical uses the price theory for market goods that is different from the nonmarket valuation of the recreational resources like parks, air, public land, and lakes these are all examples of the non-market goods. For the valuation of the non-market goods Travel Cost Method commonly used in many studies. This method reveals people's willingness towards travel and to enjoy the amenity value provided by public resources (Tang 2009).

In the Third World countries, there is an emergent frame of literature having main focuses on wilderness areas and tourism. The major methods used in these kinds of literature such as (TCM) (CVM) these were both initiated in the US and now have been applied in all the developing countries. The Travel Cost Method assumes that many factors intensively affect the travel cost of the visitors and these costs include both the opportunity costs and the direct costs of the visitors of the selected site (Khan 2006).

George R. Parsons explained in his study that this (TCM) method is most beneficial by applying in the cost-benefit analysis and in the assessment of natural resource damage where all the recreational values play an important role. This model is also known as a demand-based model for the use of a single site or multiple sites (Parsons 2017).

While on the other side the (CVM) Contingent valuation method is a survey-based technique in which the respondents are clearly and exactly asked that how much they

are willing to accept (WTA) or willing to pay (WTP) for the use of amenity or the improvement in the quality of an environmental good (Richard 2007).

Amer S. Jabarin et al, (2006) in their study they selected the Dibeen National Park that is situated in Jordan, and they examined recreational patter of this park and use-value. In their study, they used two non-market evaluation techniques one is Travel Cost Model the other is the Contingent Valuation Model both these models were utilized for the estimation of the economic value of the Dibeen National Park. The TCM estimates results showed that an average value of recreation in Dibeen National Park was 71.55 (US\$ 1000) consist of per person per recreation day and in the same way the results showed that average willingness to pay for improving and conserving the Dibeen National Park services from the open-ended willingness to pay approach was (US\$ 7.8) JD 5.53 (Jabarin & Damhoureyeh, 2006).

Another study on Margalla Hills National Park used the Travel cost method (TCM) to estimate the recreational value of the Margalla Hills National Park. The basic objectives of this study were to estimate the consumer surplus, to investigate either there is an existence of a relationship among travel cost and park visitation or not, to find out which are the factors that affect the visitor's willingness to pay for the recreational services provided by the Margalla Hills National Park. The data was used in this study collected through an on-site survey from 2002 to 2003 and the Systematic Random Sampling method was used in this study for the collection of data from a large sample of 1000 visitors of the Margalla Hills National Park. The findings of this study showed that with the average yearly expenditures of the sample respondents on recreation at Rs. 5,500 visited 9 times per year and their monthly income was estimated at nearly 12,000 (Khan 2006).

Sohrabi Saraj Et al (2009) conducted a study on a Natural Forest Park Abbas Abad in which they showed the importance of benefits of forests that considered the wood base products revenue derived from timber these all are recreational benefits for visitors. This study mainly focused on the evaluation of the (WTP) for a Natural Forest Park in Iran. The study utilized one of the common methods of evaluation of the Travel Cost Method and Zonal Travel Cost Method. The visitors of this park was determined through questionnaires and the value of natural forest park was determine by the assessment of the visitor's access cost using Travel Cost Method (Sohrabi Saraj et al. 2009).

The most important problem related to the environment and challenging for environmental economists is difficulty in valuing the environmental goods or resources and many other public goods like recreational resources. Daniel Kwabena et al., (2012) were used the Individual Travel Cost approach for the recreational value of the Kakum National Park. This study derived the monetary value of the Kakum National Park by adopting the formulation of the ITCM as well as the main factors that affect the visitor's number of visits to the park. The study used the survey that was consisted of 246 visitors and their results were indicate that per person value to this park annually is nearly (US\$ 5,849,416) in 2009. Regression analysis indicated that travel cost, knowledge of composite sites and gender were the most essential factors that affect the visitation rate of the park (Ababio 2012).

Manzote Emiriya et al, (2013) have attempted to estimate the monetary value of the Nayanga National Park Zimbabwe and they also aimed to find the factors that influenced the visitors to visit the rate to Nayanga National Park for this they used (ITCM) Individual Travel Cost Method. The study discovered that lofty valued as were indicated by the consumer surplus of US\$134.678 per average visitor or each year US\$

9426.0576. They also found in their study that the substitute sites, income, and travel costs have a big influence to an individual to visit Nayanga National Park Zimbabwe the results also showed that travel costs incurred by visitors and substitute sites both have negative effects on the on an individual's visit to NNP (Emiriya, Robson, and Gombarago 2013).

A study conducted on Shahid Zare Sari Forest Park M. Pirikiya et al, (2016) in their study authors tried to capture attention towards the households who were not paid any attention to the economic value of the recreational function for the environment and the natural resources. The basic aim and core objective of this study were to estimate the recreational value of this Forest Park and the method was used for obtaining results of their objectives they used the Individual Travel Cost Method (ITCM). The data were obtained through a well-established questionnaire distributed among 302 visitors of the Shahid Zare Sari Forest Park in 2012-2013. In this study linear regression model was used for the investigation of the effects of the variables on the number of visits of the visitors of that site. The results showed that the consumer surplus of the visitors that obtain from that site was 12.53 USD each visit and the annual recreational value of 72,500 visitors of that parks was 52,558 USD (Pirikiya et al. 2016).

Soleiman Mohammadi Limaiei et al, (2017) conducted a study on Saravan forest park, north of Iran in which their aim of the research was to evaluate the non-market goods of forest parks in Iran. The questionnaires were used to collect the socio-economic data and the method was utilized in this study that is Travel Cost Method (TCM) one of the best methods globally used to estimate the economic and recreational values. In this study regression analysis was used for the estimation of socio-economic variables on behaviour of the visitors of Forest Park. These recreational and economic values of the Saravan forest park calculated through demand function and the results obtained from

the regression analysis indicated that the all the variables like monthly income of the household, travel cost of the visitors, age, gender and the time required to access the site all these variables were affected on the visiting numbers of the people to the Saravan forest park (Mohammadi et al, 2017).

Brian Quay (2014) in his theses calculated the (TEV) total economic value of National Park Service (NPS) programs lands and parks. This total economic value was made up of the park visitor's non-use and use-values. They used the Contingent Valuation Method (CVM) through the survey they estimated the benefits generated through the National Park Service (NPS) across the country's point of view. In this study, they used the Turnbull estimator for the estimation of the total economic value of the National Park Service and they used Binary Logistic regression to estimate the Willingness to pay (WTP) at household level through the data that were collected in the CVM survey. The study founded that the annual household willingness to pay for NPS parklands was \$243.39 and for the NPS programs household's willingness to pay was \$194.20 (Quay 2014).

A study on Salini National Park in Malta was conducted by Luciano Pace Parascandalo (2010), which was mainly aimed to get a monetary value that was only for the benefits derived from the Salini National Park a recreational site in Malta. The study used the Contingent Valuation Method (CVM) and through this approach, a questionnaire was managed to the park visitors. The core objective of this was to produce a monetary value for this park and some other objectives of this study the assessment of the environmental importance assigned to the Salini National Park and the visiting patterns of the visitors to this park. The research hypotheses which was made in this study that the visitors who visited the Salini Park for recreation were willing to pay a specific price for their visits to the park (Parascandalo 2010).

In recent years Travel cost model has been extensively used for the estimation of the many recreational services provided by nature and their monetary value these recreational services like parks, forests, lakes and many other protected areas in various parts of the world. Many studies conducted on the recreational use values a study was conducted on Tourism recreational value of Biological Park in India and the aim of this study was to estimate the annual recreational use value of this Biological Park. The results showed that the annual recreational value of this Park was estimated at Rs 34.71 million or the US \$ 0.53 million and the domestic tourists per tourist visit to this Park their consumer surplus were estimated the US \$ 8.20 or Rs 534 annually. The findings of this study elicit the management to enhance the useful investment in this Park to make sure the sustained stream of the energetic life supporting the socio-culture, economic and ecological services (Kumar et al, 2015).

Another study used the Travel Cost Method (TCM) through this survey-based approach that uses the traveling cost to the site for the estimation of the demand function of the site Periyar National Park. The main purpose of this study was to measure the recreational value of the Periyar National Park that is situated in India. In this study, the demand function was applied in a simple regression model that showed the relationship between the total numbers of the visitors of this park and the variables that influence the visiting rate of the visitors made could be found. The study also aimed to estimate the consumer surplus of the visitors and the consumer surplus is the value that is used to represent the recreational value of the Periyar National Park. The results of this study showed that the consumer surplus of the visitors was estimated near about USD 15 million and this consumer surplus value seemed to be high the only reason behind this there were some problems occurred with the Travel Cost Method (Bülov et al, 2007).

2.2. National Parks and Conservation of Biodiversity

National Parks are very important for the conservation of biodiversity in the whole world and these National Parks are the utmost widespread type of protected areas in the whole world and especially in Africa. Globally National Parks are created for the extensive protection of the environmental integrity of at least one biological system for the present generation and future generation, to evade occupation or exploitation that is extensively harmful towards the purposes of designation of the whole area and for the provision of the core foundation for the recreational, scientifically, educationally, spiritually and opportunities for the visitors that all of which should be culturally and environmentally well-matched (Chape et al, 2003).

Worldwide the area covered by the National Parks that is the huge percentage that is 23 percent of the whole area that is covered by all the protected areas in the whole world. There are mainly two approaches for the conservation of the biodiversity of the National Parks, the first one approach is the preservation approach which mainly aims towards the National Parks to eliminate human induce activities from these parks except tourism. By utilizing this approach the direct use of the visitors of these natural resources in the National Park for subsistence or commercial purposes is much prohibited. This kind of approach is usually known as the 'protectionism approach'. The basic purpose of this approach is to eliminate the human induce activities which can be go conflicting to the objectives of the conservation of the biodiversity in all the National Parks (Muhumuza and Balkwill 2013).

For the sustainability of all the natural resources and National Parks, the community-based conservation is used and there are many examples of community-based conservation. In Pakistan for the management of wildlife conservation communities played an important role and participation in the conservation of wildlife and give

useful incentives in the form of hunting fees of Markhor for the conservation of this National Animal through Trophy Hunting program in the province of KPK (Ali 2008).

The preservation of the biodiversity of wildlife the National Parks should be established while on the other hand the Ecotourism plays an important role and helps for the conservation of services or natural resources and this Ecotourism raises the living standards of the native people. A study conducted by Abinash Bharali and Ritwik Mazumder on Kaziranga National Park and they used the Zonal Travel Cost Model (ZTCM) was used to calculate the revenue maximization through an entry fee (Bharali and Mazumder 2012).

2.3. National Parks and Livelihood of the People

Nowadays in most of the developing countries the growth of population is increasing rapidly due to this the demand for natural resources and land has been increased due to this as many literatures taught us that National Parks helps the communities in many ways but these parks have also negative impacts on the livelihoods of the communities so in this scenario the objective of conservation not fulfil because mostly people are live around these parks and their main livelihoods depend on the natural resources of these parks (Walpole et al, 2013).

There is great criticism by many social scientists on a human dislocation as a strategy of conservation from the protected areas that is a severe violation among human rights because mostly these protected areas created in those areas where the most politically, socially and economically vulnerable groups of people reside. Hence many social scientists have been criticized the flaw assumption that the communities who are living around these protected areas are destroying the environmental resources and cooperating the movement of conservation (Lam 2011).

In most of the developing countries, most people are living around the parks and they use natural resources directly through these natural resources so therefore it has been seen that there has been a great threat to wildlife and forests. In the developing countries the basic apprehension of the park authorities towards the human-induced activities in these parks, therefore mostly people displaced from their living places and their access to these resources like fuelwood, hunting and food products has been denied which resulting that there has been increased in the economic insecurity among many social groups and create extreme aversion towards the official conservation measures (Ghimire 1994).

In recent years there has been a great role played by the protected areas for the conservation of as the whole world's habitats for the different species, animals and plants. It has been believed that the protected areas are playing an important role for the elevation of poverty in many ways like providing services of the ecosystem, promoting the development in the sector of ecotourism and provide many benefits of conservation for economic and social development (Moshi 2016).

The present study is conducted for the economic valuation of the Lal Suhanra National Park by using the Travel Cost Method (TCM). The existing literature has shown that many protected areas played an important role for the conservation of the world's habitats for the different species, animals and plants. Therefore for the conservation of the biodiversity of these parks, there is a need for economic valuation of these parks and provide policy measures that will help the concerns departments to allocate efficient budget for the protection and maintenance of these recreational areas. A suitable entrance fee will generate revenues that will help with the maintenance of the recreation sites. While in this study we will place four different entry fee bids for three different respondents groups. The findings of the existing literature justify my research work by highlighting all the objectives of this study.

CHAPTER 3

DATA COLLECTION TECHNIQUE AND METHODOLOGICAL FRAMEWORK

This chapter of the study will discuss the data collection procedure, sampling technique and methodological framework

3.1. Study Area

Lal Suhanra National Park is situated in Pakistan 36 kilometres from Bahawalpur district of Punjab and it is one of the largest parks in South Asia that is spread over 153,000 acres.

This Park was the first national park in Pakistan that is established in 1972 under the management of wildlife safari parks because it has a huge diversity of landscapes, wildlife, and microhabitats. Lal Suhanra Park has contained a recreation area of the small zoo and also a conservation area for many animals (Wariss et al, 2014).

There are many species of animals can be found in the Park. These include numerous wild animals of the desert these are rabbits, wildcats, bustards and deer. In the Lal Suhanra Park there are more than 160 species of birds are also exist there including Griffon Vulture, Honey Buzzard, Houbara Bustard, Hen Harrier, Marsh Harrier, Kestrel, Indian Sparrow Hawk, Lark, and Barn Owl and there are also some reptiles in the park are Monitor Lizard, Indian Cobra, Saw scaled viper, Wolf snake and spiny-tailed lizard (WWF-Pakistan, 2010).

3.2. Data Collection Procedure and Sampling Technique

In this section, we will discuss the data collection procedure and sampling technique

3.2.1. Data Collection

In this part of the study, we will discuss the data collection procedure for this Questionnaire that will be designed for primary data collection, by the visitors of the Park who will be there and using the services of the Lal Suhanra National Park Bahawalpur. The questionnaire consists of 36 questions and divided into 7 sections. In the first section of the questionnaire, we will ask visitors about general information regarding socioeconomic characteristics. In the second part of the questionnaire, the questions will be asked related to the recreational behaviour of the

Visitors. The third section questions will be asked from the visitors related to the travel costs and how much they spend time in this park. In the fourth and fifth parts of the questionnaire, the questions will be asked to the visitors regarding their substitute site behaviour and visitor's attitude towards the quality of this park. Section six and seven of the questionnaire contain the questions related to the additional visits of the visitors in the future if the improvements have taken place and the people's attitude towards the entrance fee.

3.2.2. Sampling Technique

The survey is conducted on the Simple Random Sampling technique as many other studies used this technique for the valuation of the recreational sites. We distribute a questionnaire to alternate visitors, not to everyone. Every person was not interviewed like alternate respondents were selected, those who were willing to respond to that and those who were not willing to respond then we went out hopefully to the next visitor. So that's why we use the Simple Random Sampling Technique in our study.

From a pilot survey, we found that the average population in Peak season is 5000/week, and peak season starts from March and ends in July while in the offseason this population is half of the peak season population so, our total number of visitors are 225000 annually. We use Cohen's sample size formula and we found that at 90% confidence level, and 7% margin of error our recommended sample size is 185.

3.2.3. Empirical Framework

The questionnaire divided into seven parts the first part of the questionnaire covers the socio-demographic information about the visitors Age, gender, income, and material status, the second part covers the information related to the recreational behaviour of the visitors, the third part questions are related to the travel costs of the visitors that is include all the expenses that respondents incur in the park and also their accommodation and food costs and the costs related to time they spend in the parks and time during their travel to the park and money spend on travel in terms of public transport or private vehicle , the fourth part of the questionnaire covers the information about the substitute site behaviour of the visitors.

3.3. Methodological Framework

In this section, we will discuss the Poisson distribution model, the use of Environmental Valuation and why it is important and the values that are included in it. The second section will describe the Travel Cost Method and consumer surplus and its measurements.

3.4. Poisson Model

In this study on-site sample survey has been carried out using simple random sampling. So, we have records for those populations who visited the Park at least once and hence, the number of trips is a non-negative integer. So, modelling a number of trips, which is

random non- negative integers and is dependent on exogenous repressors calls for count data models. With its variety, count data varies from the Poisson model to the negative binomial model dependent on conditional mean and variance. From the data, it has been found that a number of trips each individual take to the Lal Suhanra National Park follow a Poisson distribution.

3.5. The use of Environmental Valuation

If we talk about the market goods that are available in the market and these good have their own value in the term of their prices, while on the other side the non-market or environmental goods and services that could be very difficult to evaluate and to place a price or give to a monetary value to these non-market goods. These non-market goods and services like air quality, scenic beauty and many other environmental and ecological resources and services. The economic valuation could also be used for decisions regarding environmental regulations and also for cost-benefit analysis. In this study, the recreational value will only be estimated.

Economic Values

The basic purpose of this study is to estimate the recreational value that is one part of the total economic value Lal Suhanra National Park. According to Bülov and Sebastian (2007), the total economic value consists of different values which can be seen in equation 3.1

$$\text{Total economic value} = \text{Direct use value} + \text{Indirect use value} + \text{Option value} + \text{Bequest value} + \text{Existence value} \quad (3.1)$$

The purpose of this study is to capture only one part of the total economic value that is direct use-value.

3.6. Travel Cost Model

For the evaluation of the recreational services and the services provided by the ecosystem, there are some methods such as the Contingent valuation model (CVM), Travel cost model (TCM), choice modelling and Hedonic Price method for the valuation of non-marketed goods (Mohammadi et al, 2017). The Travel Cost Method is one of them that we have already been discussed above, basically (TCM) is an indirect method that is most commonly used for the estimation of the recreational use value of the natural resources.

The Travel Cost Method is a survey-based method and the basic assumption on which this model is based that is total expenses incurred by an individual for his or her visit to a recreational site that is mainly reflects his or her willingness to pay for the site they visit. However Travel Cost Method can be applied in two different ways, first one is Zonal Travel Cost Method (ZTCM) and second is Individual Travel Cost Method (ITCM) (Ortaçefime 2002).

In our study we have used the Individual Travel Cost Method (ITCM) that is a technique to estimate the Individual Demand Function for recreational benefits obtain from this park and the demand at LNP is a relationship between the numbers of trips by an individual, total cost of travel including all other out of pocket costs and other socio-economic factors. In this model, our dependent variable is an integer value variable that is number of visits by an individual and that is count data travel cost model that is commonly used to estimate the demand for recreational amenities (Jabarin 2006)

For this, the individual travel cost method (ITCM) trip generating function can be defined as

$$V_{ik} = f(T_{ik}, Q_i, Y_i, D_i, S_{ij}) \dots\dots\dots (3.1)$$

Where

V_{ik} is the number of visits made by individual i for visiting the site k while T_{ik} is the total cost of the trip including time cost that individual time spent in the park and round trip travel time and in this way their hourly wages cost included the hours they spend in their whole trip. Q_i is a vector of their perceived qualities of the park by the individual i , and Y_i is the stands for income of the household of the individual i , where D_i is the demographic variables like age, gender, income and education, and S_{ij} is a vector of trip costs of the individual i to the substitute site.

For the qualitative response analysis, we have used the Binary Logistic Model to examine whether a visitor will be willing to pay for an improvement in the services of the park in the form of entry fees or not. We will use this model because our dependent variable is in the form of a binary variable that is the willingness to pay

3.7. Estimation of Travel Cost and Consumer Surplus

In this section, we will discuss the estimations for travel costs and consumer surplus.

3.7.1. Estimation of Travel Cost

For the estimation of travel cost we firstly convert the monthly income of the respondents into per day income and further into hourly wages then we multiply the per hour wages by their round trip travel time to the park and the time spend in the park and then add the transportation cost, food and accommodation expenditure that occurred during the time that the visitors spend in the park and we also added the

amount of maximum willingness to pay of the visitors , by adding all these costs we will estimate the travel cost of the visitors.

3.7.2. Consumer Surplus

While for the objective of calculating consumer surplus we have calculated the consumer surplus through the demand function of the park. The main idea of consumer surplus is the basic principle of the TCM. The importance of the consumer surplus CS in the model of Travel cost that clearly defines us that how much a visitor of the park gives a value to a recreational site or park. However, the consumer surplus clearly shows us that the recreational use value assigned to a recreational site (Hausman et al, 1995).

Hence if we see in the economic terms that the consumer surplus is the difference between the actual expenditure that a consumer pays for a commodity and the maximum amount that you will be willing to pay for that commodity. By the definition of Alfred Marshal, he explains the consumer surplus which means that when a consumer or a buyer is willing to pay more for a commodity or good than the current prices of the market.

In the presence of previous all the definitions about the consumer surplus now we can easily estimate the consumer surplus for the model of Travel cost by using the area under the demand curve we will use Consumer Surplus in our study as a monetary estimate for the recreational value. The difference between the total expenses incurred by an individual during his visit to the park and the maximum amount that he is willing to pay for the improvements in the services provided by the park called Consumer Surplus

3.7.3. Model for Consumer Surplus

When a trip generating function is created the consumer surplus can be derived so in this case:

$$V_{ik} = f(T_{ik}, Q_i, Y_i, D_i, S_{ij}) \dots\dots\dots (3.2)$$

so, in this case, the consumer demand for the site can be derived, and it is expected that the relationship between the number of visits and the travel costs will be negative because as the travel costs increase the number of trips decreases (Bülov et al. 2007).

In this study, we used the following formula adopted from a study on Nature Park for the estimation of consumer surplus(Ortaçefime 2002).

$$CS = v / -\beta \dots\dots\dots (3.3)$$

Where

CS: = Consumer surplus

V: = Average number of the total annual number of visits

B: = demand function curve (Coefficient of cost)

Then we put the values in the formula and we can calculate the average consumer surplus for estimating total consumer surplus we will multiply average consumer surplus to the annual number of visits in a year. However the total consumer surplus represent the total recreational value.

3.8. Econometric Models

In this section, we will discuss the two econometric models the first model is the travel cost model and the second model is the willingness to pay.

3.8.1. Model I

The model we used in this study was adopted from the empirical work of Himayatullah (2003) used in the economic valuation of the environment case study of Ayubia National Park (ANP) (Himayatullah 2003) to achieve the objective of that which are the factors that affect the visitors willingness to pay for an improvements in the quality of the park. These variables which are in our model are taken from Himayatullah (2003). These variables have an impact on the dependent variable that is V_i (Novisit).

$$V_i = \alpha_0 + \alpha_1TTC + \alpha_2Y + \alpha_3TTCSS + \alpha_4A + \alpha_5QP + \alpha_6D + \alpha_7G + \alpha_8HS + \alpha_9RL + \alpha_{10}EDU + e_i \dots\dots\dots (3.4)$$

Where,

VI= Number of visits of the respondents in the last 12 months as a dependent variable

TC= Total Travel Cost

Y= Respondents household income

SSC= Substitute site cost of the respondents

A= Age of the respondents

G= Gender male=1 female=0

QP = Quality of the LNP satisfied=1 otherwise =0

D= Distance of the respondents from their home to the park

HS= Household Size

RL= Respondents Locality Urban=1 Rural=0

EDU= Years of Schooling of the respondents

3.8.2. Model II

$$WTP = \alpha_0 + \alpha_1TTC + \alpha_2Y + \alpha_3TTCSS + \alpha_4A + \alpha_5G + \alpha_6RL + \alpha_7QP + \alpha_8HS + \alpha_9D + e_i \dots\dots\dots (3.5)$$

Where,

WTP= Willingness to Pay is the Dependent variable

TC= Total Travel Cost

Y= Household Income

SSC= is Substitute Site Cost

A= Respondent's age

G= gender of the respondents

RL= Respondent's locality

QP= Quality of the LNP

D= Distance from home to park

HS= Household size

Table 3.1: Variables Specification of all Models

Note: In this table; V=Variable D= dependent variable, I= Independent Variable

Sr. No	V	Definition	Expected Sign	
1	D	Vi= number of visits by the respondents to this park in the last 12 months	Model I	Model II
2	D	WTP= Willingness to Pay for the improvements in the current services of the Park in the form of yes or no.		
4	I	TTC= round trip cost includes travel time cost, time spent on the site cost, accommodation cost, fuel cost, and food expenditures	-	-
5	I	Y= respondents household income (Rs/month)	+	+
6	I	TTCSS= is the substitute site cost of the respondents that people incurred during their trip to a substitute site instead of this park	+	+
7	I	A= age of the respondents	+	+
9	I	E= years of schooling of the respondents	+	+
10	I	G= gender male=1 female=0	+	(- or +)
11	I	RL = urban visitor=1 rural visitor=0	+	(- or +)
12	I	QP= quality of this park, if the visitor of that park is satisfied with the existing services of the park then (Q=1, otherwise Q=0)	-	(- or +)
13	I	D= Distance of the respondents from their current residence to the Park	(-)	(-)

CHAPTER 4

DATA ANALYSIS

4.1. Components for the Computation of the Total Travel Cost (TTC)

There are three components for the computation of the Total Travel Cost that was based on the information which was given by the respondents of the park through questionnaires, in which total cost TC of a round trip was calculated that were measured by summing up three components of the Total Travel Cost. The costs that we included for computing the total travel cost like Travel Cost (TC), Time Cost (TC) and other expenditures. We can write total cost in a mathematical form

$$TTC = Tc + Trc + Exp \dots\dots\dots (4.1)$$

4.1.1. Travel Cost (*Trc*)

In this study *Trc* denotes the costs which a visitor bear during their trip to the park in the form of fuel if he or she has their car for visiting the LNP or public transport. The visitors of the park were mostly come to the park by their vehicles, and from them if a visitor visits the LNP with their friends or family in that case fuel cost of the car was divided by the whole number of family or friends who were came to the park together by doing this we get the per person round trip costs.

Some visitors were living near the park and their mode of transportation was a motorcycle. In this case, we divided the fuel cost of the bike by the total number of passengers to get the per person fuel cost. The visitors who used the public transport to reach the park we included their cost of the fare and the park is 2 kilometers away from the main city, therefore, we included those costs also that the visitors bear for reaching to the park by Auto Rickshaw, and all other costs during their journey to the park.

4.1.2. Time Cost (TC)

By considering all other costs like travel costs and accommodation costs, the estimation of the opportunity cost of travel time, that is the part of the all costs of the trip. There are two parts of the time to calculate the time cost of the visitors, the first part of the time which was consumed by a visitor during his trip to the park and this time was calculated as a round trip time traveling to the site, and another part of time is time spent on the site (Leuven, Economics, and State 2001).

Therefore if a visitor devoted his or her working hours for recreational purposes by doing traveling and time spent on the site, so he or she is trading their time between leisure and labour. However the opportunity cost of time is the wage rate, and the good way for estimating the time cost is the hourly wage rate (Amoako-tuffour and Mart 2008). The monthly income of the respondents that we divided by 30 to get the per day income for the calculation of the hourly wage rate.

Monthly income/ 30= daily wage rate

Furthermore, we have calculated the hourly wage rate by dividing the daily wage rate with 8 to get the value of the hourly wage rate (HWR).

This wage rate was taken from the Government of Pakistan Labour Policy 2010 in which it is declared the average working hours per day are 8 to 9 hours.

By getting the hourly wage rate now for the calculation of Travel Time Cost (TrTC).

$$\text{TrTC} = (\text{HWR} * \text{TrT}) \dots\dots\dots(4.2)$$

Where TrT is the round trip travel time taken to the visitor to reach the LNP that was multiplied by hourly wage rate (HWR) and we get the Travel Time Cost (TrTC).

Similarly for the computation of time spent on the site was obtained from multiplication between the Hourly Wage Rate and time spent on the site (TSS).

So therefore, Time Cost (TC) = TrTC+TSS

TrTC is the round trip travel time cost and TSS is the cost of time spent on the site.

Other Expenditures and entry fee

In the above portion, we have discussed the time and travel costs two parts of the total cost, the third part of the total cost of a trip like other expenditures which were included the expenses inside or outside the park expenditure by a visitors like food and beverage, boating and tickets for many Oscillator. These expenditure costs were asked by the respondents how much they spent on food and other expenditures.

In Lal Suhanra National Park there is no entry fee for the visitors, therefore the entry fee or access cost to the park is zero.

Hence expenditure on per round trip is equal to:

$$TTC = Tc + Trc + Exp..... (4.3)$$

4.2. Descriptive Statistics

Table 4.1: Descriptive Statistics

Variable	Units	Mean	Std. Dev.	Min	Max
Novisit	(Numbers)	2.306452	.8930127	1	4
Age	(Years)	24.72432	5.222724	18	54
Hs	(Numbers)	5.902703	2.019267	2	15
Edu	(Years)	14.43784	1.702835	10	18
Income	(PKR)	49670.27	17997.11	10000	100000
D	(Km)	159.7622	133.1821	30	600
Ttc	(PKR)	3571.915	1483.726	809.5238	9190.477
Ttcss	(PKR)	3429.946	1624.935	0	7766.667
Qp	(Dummy)	.3297297	.4713907	0	1
Rl	(Dummy)	.5567568	.4981163	0	1
Gender	(Dummy)	.8032787	.3986104	0	1

185 Observations

4.3. Variables and their Expected Signs

In the model of travel cost where the number of visits is a dependent variable and other independent variables are socio-economic variables and some variables are related to the quality of the park, improvements and travel costs. However in our model there are several factors which can affect the visits of the visitors to the recreational site like distance to reach the park, quality of the park, income of the respondent's household, age of the respondent, total cost of the trip, household size of the respondent, total cost of the substitute site to reach there, gender and education.

In the present study, the education of the respondents is expected to positively impact on the demand for the park or recreational sites. The quality of the park is also to be expected as positively correlated with the number of visits to the park. The total cost of the visitor's trip to the site is expected to negatively impact on the numbers of visits. Similarly, the distance of the park is also expected to be negatively correlated with the number of visits to the visitors. The gender variable is expected that men will be expected to have more demand for recreational demand than women. Age is expected to be negatively related to the demand for the visits to the park as age increases or people get old their demand for recreation is lesser than the young people.

The cost of the substitute sites expected to have a positive impact on the demand for the existing recreational site. Similarly, it is expected that the income variable will also be positively correlated with the number of visits to the park as people have more income their demand for visiting recreational sites will be higher.

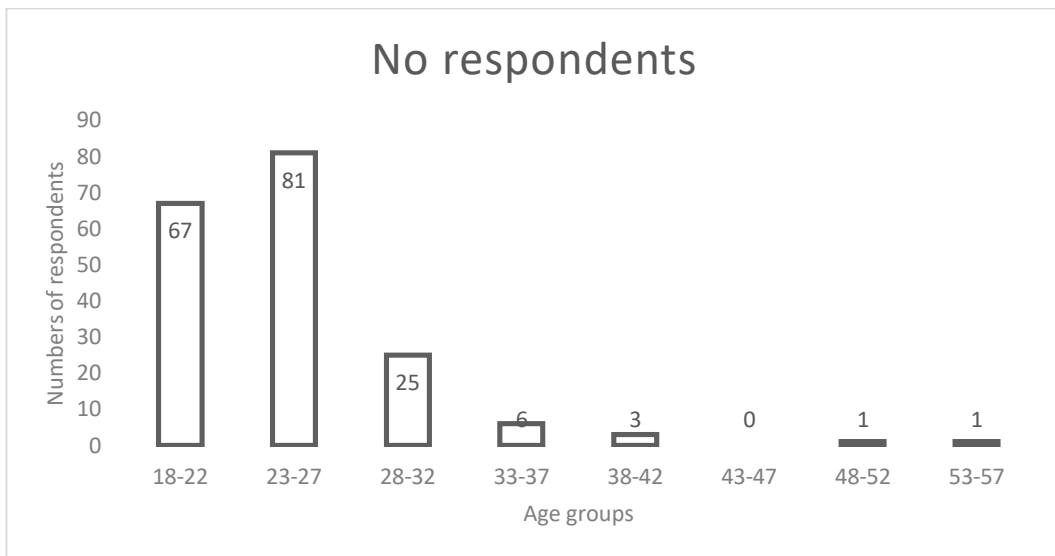
These variables and their expected signs were taken from the study of Himayatullah (Himayatullah 2003).

4.4. Socio-Economic variables or characteristics of the respondents

Age

The average age of the respondents from the sample of 185 was 24.72432, while the minimum age was 18 and the maximum age was 54. 45.42%. The age of the respondents in between 24 to 28 was 45.42%.

Fig 4.1: Age Distribution of the Respondents



Income

In the distribution income of the sample size, 68% of the visitors' income lies between the ranges of 30000-60000. Only 10% of the respondent's monthly income is 10000-28000 and 21% of respondent's income is 'between' 60001-100000, while the minimum income of the respondents was 10,000 and the maximum was 100,000.

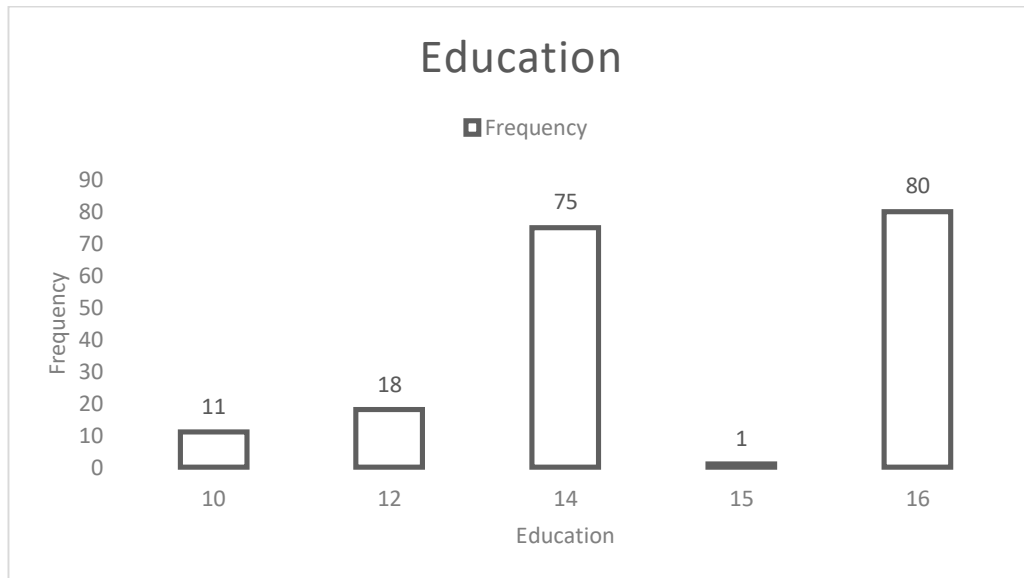
Fig 4.2: Income Distribution of the Respondents



Education

43% of the respondents who have done their masters and 40% of respondents were completed their bachelor's degree and only 15% of respondents were in 10 to 12. The minimum education was matriculation and maximum education was masters.

Fig 4.3. Years of Schooling of the Respondents



Household size of the respondents

The survey we have conducted in which we found that there were only 18% of the respondents under 2-4 family size, 69% of the respondents under 5-7 family size, 22% of respondents were under 8-10 family size and only 3% of respondents under the family size of 11-15.

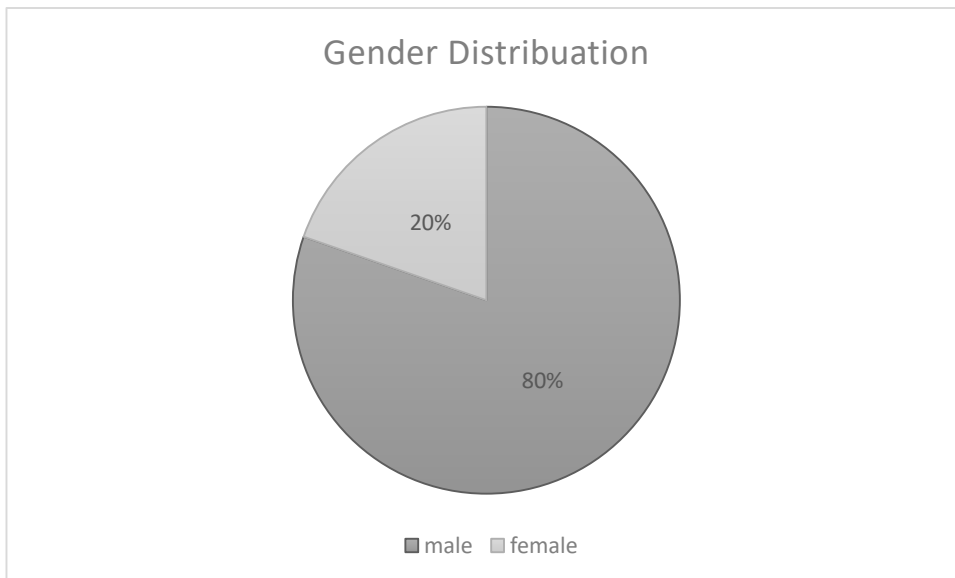
Table 4.2: Frequency distribution of households

Household Size	Percentage	Frequency
2-4	18%	36
5-7	69%	128
8-10	22%	41
11-15	3%	6

Gender

From the data we collected through a survey it was found that 80% of the respondents were male and 20% of the respondents were female while 35% of the respondents were married and 65% of the respondents were single.

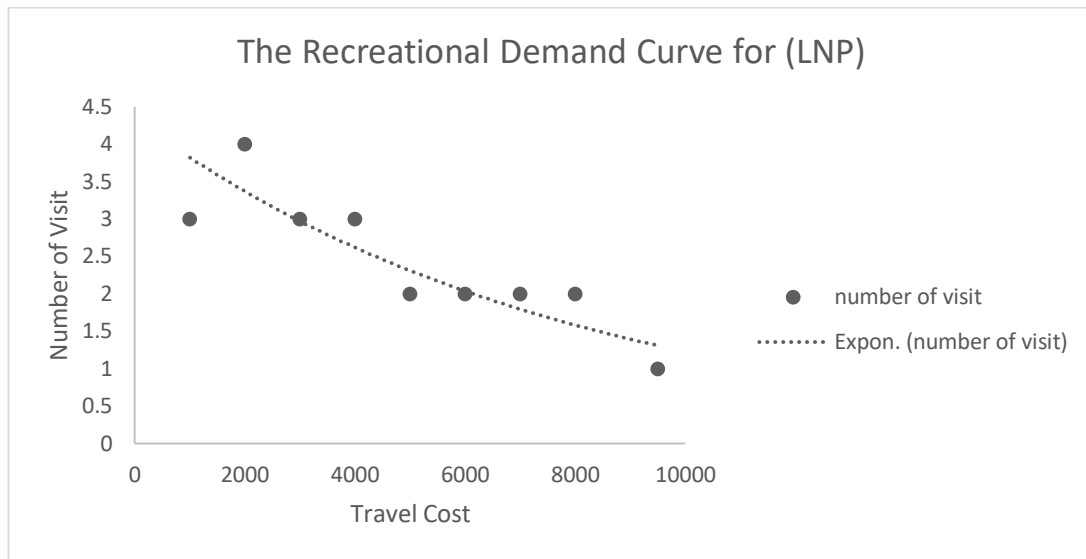
Fig 4.4. Gender Distribution



4.5. Recreational Behaviour of the People

Recreational demand for the Lal Suhanra National Park in Fig 4.5 there is an inverse relationship of the recreational demand of the visitors as their trip or travel cost increases the number of visits decreases

Fig 4.5. The demand for Recreation for (LNP)



Perception of the visitor about the improvements in the park:

There were 94% of the respondents who wanted improvements in the park and only 5% respondents they were not wanted any improvements in the park, while 91% of the respondents were not satisfied with the existing services of the park and only 8% were satisfied with the quality of the existing services of the park. Furthermore there were some questions were asked by the respondents that which kind of recreational services they wanted to improve the options were improvements related to information about the Lal Suhanra National Park and further options were given like information sign, tourist information centre, precautionary signs and maps out of all these options 33% respondents wanted maps, 37% respondents wanted information signs, 70% of the respondents wanted precautionary signs and only 44% respondents who were wanted tourist information center.

Similarly some other questions related to the recreational site like, shades, benches, wildlife watching, grass, dustbin and bots out of all these options 75% respondents

wanted improvement in the quality of the grass, 37% respondents wanted more dustbins, 41% of the respondents were demanded more boats, 32% respondents wanted more shades, 56% respondents wanted more benches and 37% of the respondents who were demanded more wildlife watching.

There were some questions asked by the respondents related to the improvements in Miscellaneous and the options were toilet, waste disposal, accommodation, food, and beverage services out of which 44% respondents wanted waste disposal, 83% of the respondents were demanded improvements in the toilet facility, 40% respondents wanted improvements in food and beverage services and only 21% of the respondents wanted improvements in accommodations.

The questions related to improvements in road and car parking 93% of the respondents wanted improvements in the better and wide road, only 6% of respondents demanded improvement in the car parking facility.

4.6. The Attitude of the Visitors towards the Willingness to Pay

After asking the respondents about the improvements they wanted, further, we asked them if the improvements take place in the future then will you be willing to pay an entry fee or not?

From the sample size of 185 out of, the 95% respondents were willing to pay in the form of the entry fee for the improvements and only 5% of those respondents who were not willing to pay and their justification for not willing to pay was its government responsibility.

Table 4.3: Frequency Distribution of the WTP

WTP	Freq	Percent	Cum
0	8	4.32	4.32
1	177	95.68	100.00

Further, we asked an open-ended question from the respondents how much they are willing to pay for the improvements. Table 4.4 will show the frequency distribution of the respondents how much respondents for improvements.

Table 4.4: Frequency Distribution of Maximum (WTP) of the Respondents

MWTP	Freq	Percentage	Cum.
0	8	4.32	4.32
5	1	0.54	4.86
10	35	18.92	23.78
15	28	15.14	38.92
20	92	49.73	88.65
25	12	6.49	95.14
30	4	2.16	97.30
35	1	0.54	97.84
40	2	1.08	98.92
50	2	1.08	100.00

4.7. Four Categories of Bids for Entry Fee

Firstly we asked the respondents about their, maximum willingness to pay for improvements in the park. After knowing their maximum willingness to pay the visitors were given four different categories of questionnaire having four different bids and the base bid is based on entrance fee Rs.5 being charged by Bahawalpur Zoo and Rs.10 Gulzaar Sadiq Park. Then these questionnaires were distributed among the visitors alternatively like the first respondent were given questionnaire 1 in which bid one asked from the respondents and questionnaires 2 were given to respondent 3, questionnaires 3 were given to respondent number 4 randomly.

4.7.1. Bids for Rs.10-15-5

Base bid of the questionnaire one was Rs.10 if the respondents were willing to pay Rs.10 then they were asked for higher bid Rs.15, but if they were not willing to pay Rs.10 then they were asked lower bid Rs.5. In the first category of the bids, 25% of the respondents were willing to pay for the base bid of Rs.10.

4.7.2. Bids for Rs.15-20-10

Furthermore, Questionnaire 2 was given to the second respondent having a base bid of Rs.15, if the respondents were willing to pay base bid Rs.15 further they were asked by the higher bid Rs.20. But if they were not willing to pay Rs.15, they were asked then by Rs.10. There were 25% of the respondents were willing to pay for the base bid of Rs.15.

4.7.3. Bids for Rs.20-25-15

Questionnaires 3 were given to respondent number 3 and base bid were asked by the respondents were Rs.20. If the respondents were willing to pay Rs.20, then they will be

asked by the higher bid Rs.25. But if they were not willing to pay Rs.20 they were asked about lower bid Rs.15. There were 29% of the respondents were willing to pay for the base bid of Rs.20.

4.7.4. Bids for Rs.25-30-20

The questionnaire 4 was given to the fourth respondents and the base bid of this questionnaire was Rs.25. If the respondents were willing to pay for base bid Rs.25, then they were further asked for higher bid Rs.30. But if they were not willing to pay Rs.25 then they were asked for the lower bid Rs.20. There were 18% of the respondents who were willing to pay for the base bid of Rs.25.

Overall 92% of the respondents were willing to pay for base bids like Rs.10, Rs.15, Rs.20, and Rs.25, while 81% of the respondents were willing to pay for higher bids like Rs.15 higher bid for the base bid Rs.10, similarly Rs.20 higher bid for the base bid of Rs.15, higher bid Rs25 for the base bid Rs.20 and higher bid Rs.30 for the base bid of Rs.25. Furthermore, 95% of the respondents were willing to pay for the lower bids against the base bids like base bids Rs.10 and lower bids that were asked Rs.5, base bid Rs.15 and lower bids were asked Rs.10, base bids Rs.20 and lower bids were asked Rs.15, base bids 25 and lower bids were asked Rs.20.

Demand for the improvements in the park

The results of the data showed that in the section of improvements in recreational site most of the respondents demanded grass, boats, and benches. For the improvements in the section information, most of the respondents wanted precautionary signs and tourist information centres. In the section of Miscellaneous mostly respondents were demanded toilets and waste disposals. The section of Traffic-related improvements most of the respondents demanded better road

4.8. Willingness to Pay of the Respondents for the Improvements in the Form of Entry Fee

Table 4.5 shows that 55 out of 185 or 29% of the respondents were willing to pay Rs.20, 48 out of 185 or 26% of the respondents were willing to pay for an entry fee Rs.10, 47 out of 185 or 25% respondents were willing to pay for an entry fee Rs.15 while only 35 out of 185 or 19% respondents were willing to pay Rs.25. These were the base bids were asked from the visitors further we asked them for higher bids from these base bids in that case 45 respondents out of 185 were willing to pay high on base bid Rs.20 which means they were willing to pay Rs.25 on a base bid of 20 with some improvements they demanded.

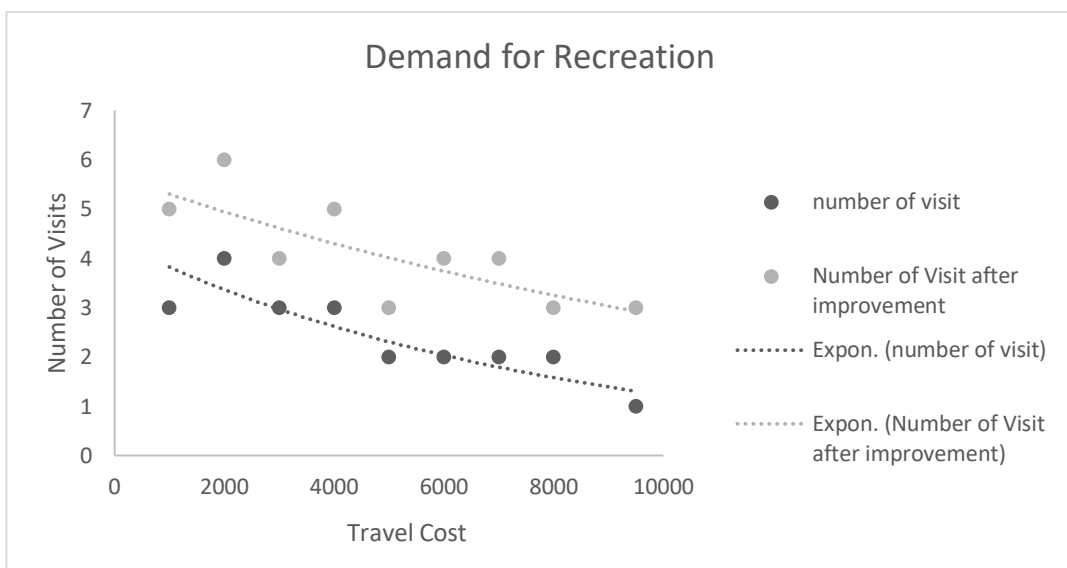
Table 4.5. Freq Distribution and % of the Respondents for Different Bids

Bids	frequency	percentage
10	48	25.95
15	47	25.41
20	55	29.73
25	35	18.92

4.9. The Effects of Demanded Improvements on the Demand of the Lal Suhanra National Park.

Figure 4.6 shows that there is a downward slope between the number of visits and travel costs where the blue line shows the demand curve before the improvements and after improvements demand curve shifted upward to orange lines and the demand for visits in future increases after the improvements.

Fig. 4.6. Demand for Recreation before and After the Improvements



CHAPTER 5

RESULTS AND ESTIMATIONS

5.1. Results of the Econometric Models

5.1.1. Poisson Regression results for travel cost model

The results of the Poisson Regression model from equation (3.4) in chapter three and results of this equation are shown in table 5.1 in which the dependent variable is number of visits to the park in the duration of last 12 months, while explanatory variables are Household size (HS), Age, Income, Education (edu), Distance from home to park (d), Total Travel Cost (ttc), Total Travel Cost of the Substitute Site (ttcss), Respondents Locality (rl), Gender and Quality of the park (qp).

The results of the Poisson Regression show that age is statistically insignificant and negative association with the number of visits that people with higher age are expected to visit less towards recreational sites by -0.0172 unit, and age is not significant because mostly respondents were young age between 18-38, therefore, age is negatively correlated with number of visits, while Household size is negative association with the number of visits if household size increases by one person then their number of visits to the park decreases by -0.0331 units. Household size is statistically insignificant which means that most of the observations did not respond in the way that family size does matter to their number of visits that's why the Household size variable is insignificant.

Distance is also partially significant and negative effect on the number of visits as distance increases by one km the number of visits decreases by -0.0019 units. Total travel cost has negative and statistically significant which shows that as total travel cost to the site increases by PKR 100 the number of visits decreases by -0.0030 units, while

total travel cost of substitute site has a positive and partially significant effect on the number of visits which show that as travel cost to the substitute site increases by PKR one 100 the number of visits increases by 0.0017 units. Quality of the park is statistically significant and positive association with the number of visits which shows that if the perception of the people about the quality of the park is good increases by one unit then the number of visits increases by 0.3791 unit.

Education is positively associated with the number of visits like as education level increases by one year the number of visits will increase by 0.0359 units. But education is not statistically significant because it is not necessary that if a person is educated only he or she will visit the park, many peoples visit the park and their education level is very low and some of them are un-educated. Therefore, education is used for awareness perspective for recreation and health so, therefore, educated people prefer more visits to the recreational sites, so the maximum observations did not decide that it is because of education that's why education is not statistically significant.

Table 5.1 Poisson Regression Results for Travel Cost Model

Variables	Coefficients	Std. Err.	z	P> z
Age	-0.0172	0.0199	-0.07	0.942
Household Size (hs)	-0.0331	0.0297	-1.12	0.264
Income	0.0003	0.0004	0.70	0.484
Distance (d)	-0.0019	0.0160	-1.67	0.090
Total travel cost (ttc)	-0.0030	0.0007	-1.69	0.054
Total travel cost of substitute site (ttcss)	0.0017	0.0005	1.65	0.098
Quality of the park (qp)	0.3791	0.1048	3.62	0.001
Respondents locality (rl)	0.0367	0.1082	0.34	0.734
Gender	0.0146	0.1365	0.11	0.915
Education	0.0359	0.0321	1.12	0.264

No of observation= 185 LR chi2(9) = 42.17

5.1.2. Results of marginal effects for Willingness to Pay (WTP)

Table 5.2 shows the marginal effects for willingness to pay from the equation (3.5). In this model our dependent variable is (WTP) for improvements, Income variable is very important and shows statistically significant and has a positive effect on willingness to pay which means that if the income of the respondents increases by PKR 1000 then the probability of WTP will likely to be increased by 0.0021%. Age has a negative association with willingness to pay as age increases by one year then the probability of willingness to pay will likely to be decreased by -0.0032% while age is insignificant. Distance is statistically significant and negatively associated with Willingness to Pay (WTP), as distance increases by one km then the probability of willingness to pay will likely to be decreased by -0.0312%. Household size is partially significant and negative association on willingness to pay, if a family size increases by one person then the probability of willingness to will likely to be decreased by -0.0129%. The quality of the park and total travel cost both are statistically significant and has negative association with willingness to pay which means if the perception of the respondents about the quality of the park that they are satisfied then their probability of willingness to pay will likely be less -0.2673% as compared to those respondents who were not satisfied with the quality of the park and they wanted some certain improvements and they were willing to pay more for those improvements, while if travel cost of the respondents increases by PKR 100 then the probability of willingness to pay will likely to decrease -0.0032%. Total travel cost of substitute site and gender has a positive association with willingness to pay and statistically insignificant which means that if travel cost of substitute site increases by PKR 100 then the probability of willingness to pay will likely to be increased by 0.0043 % while gender has also positive association with willingness to pay which shows that the probability of willingness to pay of male

will likely to be more 0.0485% as compare to female. The gender variable is insignificant because in total observations of the study there are only 35 female respondents and 150 male respondents, therefore, the gender variable is insignificant.

Table 5.2 Results of the Logistic Model for WTP

Variables	Dy/dx	Odds-R	Std. Err.	z	P> z
Age	-0.0032	0.9425	0.0519	-1.10	0.273
Household Size (hs)	-0.0129	0.7868	0.1079	-1.75	0.080
Income	0.0021	1.0004	0.0002	1.83	0.057
Distance (d)	-0.0312	1.0000	0.0006	-1.72	0.054
Total travel cost (ttc)	-0.0032	0.9994	0.0032	-1.84	0.059
Total travel cost of substitute site (ttcss)	0.0043	1.0008	0.0024	0.34	0.735
Quality of the park (qp)	-0.2673	0.0101	.0087	-5.35	0.001
Respondents locality (rl)	0.0099	1.1982	.6844	0.32	0.752
Gender	0.0485	2.0857	1.5872	0.97	0.334

LR chi2 (9) = 78.20 Number of obs = 185 Pseudo R2= 0.445.

5.2. Recreational Value of the Lal Suhanra National Park

Consumer surplus can be calculated from equation (4.3). In economics term, consumer surplus is simply the difference between that what is consumer willingness to pay and what he actually pays. However, the total recreational value is the sum of consumer surplus and the total cost of the trip taken to the park.

In this study, we used the following formula adopted from a study on Nature Park for the estimation of consumer surplus(Ortaçefime 2002).

$$CS = v / -\beta \dots\dots\dots (5.1)$$

Where

CS: = Consumer surplus

V: = Average number of the total annual number of visits

B: = demand function curve (Coefficient of cost)

Then we put the values in the formula and we can calculate the average consumer surplus for estimating total consumer surplus we have multiplied the average consumer surplus to the annual number of visits in a year.

$$CS = 2.70 / -(-0.0030) = \text{PKR. } 900$$

While there are near about 225000 individuals visits the Lal Suhanra National Park each year according to the park entrance data entry authority of the park, now this value was multiplied by the individual consumer surplus for the estimation of total consumer surplus (TCS)

$$TCS = 900 \times 225,000 = (202,500,000 \text{ PKR.}) \text{ per year}$$

$$TCS = (202,500,000) \text{ and } (200 \text{ Million PKR.})$$

However, this value of consumer surplus will represent the annual recreational use value of the Lal Suhanra National Park

While after improvements the consumer surplus will be different as we calculated through the same formula

$$CS = 4.24 / -(-0.0030) = 1,413 \text{ PKR.}$$

$$TCS = 1,413 \times 225,000 = (318,000,000 \text{ PKR.}) \text{ per year}$$

$$TCS = (318,000,000) \text{ and } (318 \text{ Million PKR.})$$

Table 5.3 Recreational Value

	Recreational Value
Average per visitor, PKR.	900 PKR.
Total Annual Recreational Value in (PKR)	(202,500,000 PKR.)
and in millions	(200 Million PKR.)
After improvements average per visitor PKR.	(1,413 PKR.)
After improvements Total Annual Recreational value in (PKR) and millions	(318,000,000 PKR.) (318 Million PKR.)

5.3. Focus Group Discussion

While we have conducted our survey data, and we also conducted Focus Group Discussion from the officials of the Lal Suhanra National Park and that was very hard to meet them and to take their time for discussion. In a focus group discussion the officials told us that over the time passes various changes occurred in the park, out of which mostly through climate change and there is a big threat to the wildlife of the park that there is no veterinary hospital in the Lal Suhanra National park that create problems when an animal has expired it will take time to go veterinary hospital for post mortem to recognize the cause of death but due to long-distance of hospital, time to recognise the cause of death has end therefor they demanded a veterinary hospital and well-trained staff for the protection of wildlife . They told us that they demanded pol for the protection of wildlife and the wildlife department should be made the autonomous body so, therefore, more and more earnings generate through Lal Suhanra National Park. They also told that there should be a proper security wall around the park area for the protection of wildlife.

CHAPTER 6

CONCLUSION AND POLICY RECOMMENDATIONS

In this chapter, we will discuss the conclusion of the study and policy recommendations.

6.1. Conclusion

This chapter of the study focuses on the important findings obtained from the results of two different models that we applied in this study the Travel Cost model and willingness to pay (WTP). In the present era due to rapid growth in population and demand for nature-based tourism has been increased, so there is a need for the valuation of these non-marketed goods through valuation techniques for the estimation of recreational values or economic benefits of the natural resources like National Parks and Wetlands. This study is conducted for the Economic valuation of the services provided by the Lal Suhanra National Park Bahawalpur, which is the second-largest park of Pakistan covering the area of 153,000 acres. For the economic valuation of this park, we used the Individual Travel Cost Method (ITCM).

In this study for the valuation of Lal Suhanra National Park (LNP) the Individual Travel Cost Method was used through this model we founded correlation between the numbers of trips taken by the visitors in the last 12 months with the explanatory variables like age, gender, income, household size, distance, total travel cost, total travel cost of substitute sites, recreational improvement and quality of the park. The Poisson distribution model was regressed to check the correlation between these explanatory variables with the dependent variable that is the number of visits.

The survey we conducted in this study from the sample size of 185 respondents, the results of the survey reveal that most people come from near cities and some of the

visitors come from long distance areas for recreational purpose and most of the people were educated and having well awareness about the recreational services and environment. The results of the study reveal that 74% of respondents ranked the quality of the park is good. The willingness to pay for the respondents was high for the improvements in the quality of the park and conservation of the biodiversity of the park.

It is also concluded that if these improvements take place in future, the number of visits of the visitors will be increases

The study calculated the total annual recreational value of the LNP that is (202,500,000 PKR.) or (200 PKR. Million), before improvements and after improvements, the recreational value of the Lal Suhanra National Park (LNP) increased to (318,000,000 PKR.) or (318 PKR. Million).

6.2. Policy Recommendation

However, the recreational value estimated in this study can be used for various purposes like, for the cost-benefit analysis and policy decisions. The Lal Suhanra is a small town near Bahawalpur City and the population growth rate is high and mostly people are now settling down near the park and the demand is also increasing for land.

The results of the study will be valuable in future for many of the studies on this park to determine an appropriate fee for the entrance of the visitors for this the average consumer surplus could be used as the indicator of willingness to pay that how much a visitor is willing to pay to visit the LNP.

From the field survey and results of this study, it is revealed that if the quality of the park is improved it would attract more and more visitors and can generate much more revenue for the government. Further, the Tourism department of Punjab should focus for the quality improvements of the LN Park in order to promote tourism in Punjab.

In Focus Group Discussion the officials tell us some problems related to a big threat to the wildlife of the animals because there is no veterinary hospital for animals in the Lal Suhanra National Park (LNP) and there is no security wall inside the park area for the protection of wildlife. Therefore the Punjab Government should also take these problems into account and allocate sufficient budget for resolving these issues of the LNP.

Budget allocated by government for maintaining National Parks and other natural resources are limited as compare to other development programs, the best alternative for the revenue generation activities is the imposition of entry fee in recreational sites.

The recreational benefits and revenues from the entry fee for LN Park can provide a guidance or establish an example for parks management beyond the Lal Suhanra National Park in the country.

As there are many National Parks (NP) in Pakistan that need more investment for the quality improvements. We hope, this study will attract the federal and provincial governments and policy makers to the demand for nature and the benefits that can accrue from the investing in nature.

REFERENCES

- Ababio, Daniel Kwabena Twerefou* and Daniel Kwasi Adjei. 2012. "An Economic Valuation of the Kakum National Park: An Individual Travel Cost Approach." *African Journal of Environmental Science and Technology* 6(5):199–207.
- Ali, Sajjad. 2008. "CONSERVATION AND STATUS OF MARKHOR (Capra Falconeri) IN THE NORTHERN PARTS OF NORTH WEST FRONTIER PROVINCE , PAKISTAN By."
- Amoako-tuffour, Joe and Roberto Mart. 2008. "Leisure and the Opportunity Cost of Travel Time in Recreation Demand Analysis : Leisure and the Opportunity Cost of Travel Time in Recreation Demand Analysis : A Re-Examination." (February).
- Bharali, Abinash and Ritwik Mazumder. 2012. "Application of Travel Cost Method to Assess the Pricing Policy of Public Parks: The Case of Kaziranga National Park." *Journal of Regional Development and Planning* 1(1):44–52.
- Bülov, Sebastian, Tobias Lundgren, A. Travel Cost Approach, Sebastian Bülov, and Tobias Lundgren. 2007. "An Economic Valuation of Periyar National Park." 49.
- CASTANEDA, CORY J. 2017. "No Title RACE, INCOME, AND BENEFITS FROM NATIONAL PARKS."
- Emiriya, Manzote, Mandishekwa Robson, and Esnath N. Tavengwa Gombarago. 2013. "An Application of the Individual Travel Cost Method To Nyanga National Park ,." *Journal of Economics* 1(1):1–16.
- Ghimire. 1994. "Parks and People: Livelihoods Issues in National Parks Management in Thailand and Madagascar. In Ghai D(Ed.) Development and Environment: Sustaining People and Nature." 25:195–226.
- Hausman, Jerry A., Gregory K. Leonard, and Daniel McFadden. 1995. "A Utility-Consistent, Combined Discrete Choice and Count Data Model Assessing Recreational Use Losses Due to Natural Resource Damage." *Journal of Public Economics* 56(1):1–30.

- Himayatullah, A. 2003. "Economic Valuation of the Environment and the Travel Cost Approach: The Case of Ayubia National Park." *Pakistan Development Review* 42(4 II):537–49.
- Iamtrakul, Pawinee. 2005. "(Iamtrakul et Al. 2005).Yes.Pdf." 5:1249–64.
- Jabarin, Amer S. Said A. Damhoureyeh. 2006. "Estimating the Recreational Benefits of Dibeen National Park in Jordan Using Contingent Valuation and Travel Cost Methods." *Pakistan Journal of Biological Sciences* 9:2198–2206.
- Khan, Himayatullah. 2006. "Willingness to Pay for Margalla Hills National Park: Evidence from the Travel Cost Method." *The Lahore Journal of Economics* 11(2):43–70.
- Kumar, Shashi, Yogesh, and Pradeep Chaudhry. 2015. "Tourism Recreational Value of Biological Park, Itanagar, Arunachal Pradesh, India." *E-Review of Tourism Research* 12(5–6):263–80.
- Lam, LaiMing. 2011. "Cultural Perspectives of Land and Livelihoods: A Case Study of Shuklaphanta Wildlife Reserve in Far-Western Nepal." *Conservation and Society* 9(4):311.
- Leuven, Katholieke Universiteit, Resource Economics, and Colorado State. 2001. "WORKING PAPER SERIES n ° 2001-22 Travel Cost and Time Measurement in Travel Cost Models Ellen Moons *, John Loomis **, Stef Proost *, Katrien Eggermont ***, and Martin Hermy ****." 32(0).
- Moshi, Beatrice simon. 2016. "Impacts of Protected Areas on Local Livelihood: A Case Study of Saadani National Park." (July):1–34.
- Muhumuza, Moses and Kevin Balkwill. 2013. "Factors Affecting the Success of Conserving Biodiversity in National Parks: A Review of Case Studies from Africa." *International Journal of Biodiversity* 2013:1–20.
- Ortaçefime, Veli. 2002. "An Estimation of the Recreational Use Value of Kursunlu Waterfall Nature Park by the Individual Travel Cost Method *." 26:57–62.
- Parascandalo, Luciano Pace. 2010. "Valuation of the Salini National Park." *Bank of Valletta Review*, 42:1–28.

- Parsons, George R. 2017. *A Primer on Nonmarket Valuation*. Vol. 13.
- Pirikiya, M., H. Amirnejad, J. Oladi, and K. Ataie Solut. 2016. "Determining the Recreational Value of Forest Park by Travel Cost Method and Defining Its Effective Factors." *Journal of Forest Science* 62(9):399–406.
- Quay, Brian. 2014. "THE TOTAL ECONOMIC VALUE OF THE NATIONAL PARK SERVICE: A CONTINGENT VALUATION METHOD ANALYSIS."
- Richard, S. J. 2007. "Www.Econstor.Eu."
- Sohrabi Saraj, B., A. Yachkaschi, J. Oladi, S. Fard Teimouri, and Hooman Latifi. 2009. "The Recreational Valuation of a Natural Forest Park Using Travel Cost Method in Iran." *IForest* 2(JUNE):85–92.
- Soleiman Mohammadi Limaie 1, Ghazaleh Safari 2, Goljahan Mohammadi Merceh 3. 2017. "Non-Market Valuation of Forest Park Using Travel Cost Method Seite 53 134." 53–74.
- Stuart Chape, Simon Blyth, Lucy Fish, Phillip Fox and Mark Spalding. 2003. *United Nations List of Protected Areas*.
- Tang, Tiantian. 2009. "An Application of Travel Cost Method to Yuelu Mountain Park in Changsha , China." *Department of Forest Economics* (January):78.
- Walpole, Matthew J., Harold J. Goodwin, and Kari G. R. Ward. 2013. "Pricing Policy for Tourism in Protected Areas : Lessons from Komodo National Park , Indonesia Pricing Lessons Policy for Tourism in Protected Areas : From Komodo National Indonesia." 15(1):218–27.
- Wariss, H. M., S. A. Pirzada, K. Alam, S. Anjum, and R. Qureshi. 2014. "Flora of Lal Suhanra National Park, Bahawalpur, Punjab, Pakistan." *Pakistan Journal of Botany* 46(4):1331–41.
- Yadav, Nidhi and Naresh Chandra Sahu. 2015. "Economic Valuation of Protected Areas and Recreational Sites in India : Some Review Findings Economic Valuation of Protected Areas and Recreational Sites in India : Some Review Findings Nidhi Yadav * and Naresh Chandra Sahu." (January).

APPENDICES

Appendix A

Questionnaire

I am preparing this thesis as a partial fulfilment of MPhil Degree requirements at Department of the Environmental Economics, Pakistan Institute of Development Economics, Islamabad (PIDE).

The following questions are thus purely for academic purposes and mainly concerned with household/individual perception about the socio-economic characteristics, expenditures on the trip and willingness to pay for the improvements in the services of the park. Your input is highly valued and I will be grateful if you could please take few minutes out to express your views in this regard. The information and identity of respondent will be kept confidential and will only be used for competing research and not for any other purpose.

I will be grateful for your cooperation

Name of Interviewer_____

Date

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Code:

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Section A

General Information about the Visitor

1. Gender of the respondent: Male Female
2. Where do you live? Name of Place _____
3. Type of visitor: Individual Family Friends
Other (please specify) _____.
4. Age _____ (years).
5. Marital Status (please circle one): 1. Single 2. Married 3. Widowed/divorced.
6. Household Size: _____ (No. of Family Members).
7. Years of schooling: _____
8. Location: 1. Urban Dweller 2. Living in Rural Areas
9. Income of the household (Rs. /month): Rs. _____
10. What is your profession or profession type? a) Government, b) Private, c) Farmer, d) Student
Other (please specify) _____.

Section B

Visitor's Recreational Behaviour

11. How many times did you visit national parks or nature-based recreation in Pakistan within the last 12 months for recreation purpose?

No. of times: _____.

12. How much did you spend on eco-tourism during the last 12 months? Rs. _____.

13. How many times did you visit the Lal Suhanra National Park within the last 12 months for recreation purposes?

No. of times: _____.

14. If you were not on this trip today, what would you most likely be doing?

Working at job Watching TV Housework/Shopping

d. Other (please Specify) _____.

Section C
Travel Cost

15. How many hours were you at the Park today? _____ Hours.

16. How did you come to this Park?

By Tour Bus By public transport by rented car by private car by
motorcycle

Other (please specify). _____.

17. How much did you spend on your trip from initial point to this national park?

Transportation _____ Rs. (in case of public transport)

Fuel _____ Rs. (if private/own vehicle) Food _____ Rs.

Accommodation _____ Rs. Other _____ Rs

.Total _____ Rs.

18. Please estimate the time and distance of your roundtrip to this national park from your Home? _____ Hours _____ km.

19. What was your basic/general purpose to visit Lal Suhanra?

Business Visiting friends or relatives Recreational purpose hickin

Other (please specify). _____.

Section D

Substitute Site Behaviour of people

20. Do you know any other Park that you would like to visit instead of Lal Suhanra National Park?

Yes No

1= Yes If yes then go to Question **21**

0= No If no then skip related Questions **21, 22, 23**

21. If yes to **Q.20**, What would be your total cost to visit that park as compared to Lal Suhanra National Park? Rs._____.

22. What is the distance from your home to that park? _____km (please specify).

23. How much time would you spend at the next best alternative park? _____ Hours.

Section E

People attitude towards Quality of LNP

24. How would you describe the quality of recreational benefits at Lal Suhanra National Park?

a. Very poor, b. Poor, c. Fair, e. Good, f. Excellent,

25. Are you satisfied with the existing recreational benefits of the park?

Yes No

1= Yes If yes then go to Question 26

0= No If no then go to Question 27

26. If Yes to Q. 25, which other single site do you visit frequently? _____ and why? Reason (Please Mention): _____

27. If No to Q 25, would you like to have improved recreational services provided by the Lal Suhanra Park?

Yes No

1= Yes If yes then go to Question 29

0= No If no then go to Question 28

28. If No to Q 27, why?

- a. Satisfied with the existing recreational benefits/services of LN Park.
- b. Don't have any money; cannot afford
- c. Govt.'s responsibility
- d. Not my responsibility
- e. Others (please Specify)

29. If yes to Q.27, what types of improvements would you like to see at this park?

(i) Recreational Site:

What type of recreational improvement do you want in this Park?

Wildlife watching Benches Shades Boats Dustbin Gras

Other (please Specify) _____.

(ii) Have you visited the lack? If yes then would you like to have improvements in the quality of the lack?

Yes No

(iii) Information about Lal Suhanra National Park:

Maps Information Sign Precautionary Sign Tourist Information Centre

Other (please Specify) _____.

(iv) Traffic:

Better road Car Parking other (please Specify) _____.

(v) Miscellaneous:

Waste disposal Toilet Food and Beverage Services Accommodation

Others (please Specify) _____.

Section F

Visitor's Attitude towards Number of visits in future

30. If you are willing to pay for improved quality of recreational services in the near future, perhaps you may wish to come to the park and spend more time for recreation.

How many more times would visit this park? _____ visits per year.

31. Any suggestion for improvements in the park:

32. What improvements would motivate you to visit again?

Comments:

33. If these improvements taken place will your number of visits/year:

a. increase, **b.** decrease, **c.** remain constant.

Section G

Visitor's Attitude towards Entrance Fee

34. If facilities at Lal Suhanra National Park by government is provided for better services of visitors, such as more recreational sites, improved cleanliness, greater traffic safety, public safety and entertaining activities? Will you be willing to participate in making financial contribution to such initiatives in the form of entry fee?

Yes No

1= Yes If yes then go to Question **36**.

0= No If no then go to Question **35**.

35. Reason? (Please Specify) _____.

36. (A) If yes, what is your maximum willingness to pay for a single trip? PKR.

_____.

Please also answer

(B) In addition to the qualities stated above (**Q33**) would you be willing to pay **Rs 10**?

Yes No

1= Yes If yes then go to Part (c).

0= No If no then go to Part (d).

(C) Suppose that the engineers designing the project for improving environmental services of the park confronted some unexpected technical problems, and that instead of **Rs. 10** the entry fee was **Rs. 15**. In this case would you be willing to pay the entry fee or not?

Yes No

1= Yes If yes then finished

0= No If no then remain with 10

(D) Suppose if the Park management improved the cleanliness in the park and provide clean sitting place then would you be willing to pay Yes or No? If yes then would you be willing to pay **Rs. 5**

Appendix B

Table 5.1: Gender of the respondents

Gender	Frequency	Percent
Male	148	80.43
Female	37	19.57
Total	185	100.00

Table 5.2 House Hold Size frequency distribution

Household Size	Percentage	Frequency
2-4	18%	36
5-7	69%	128
8-10	22%	41
11-15	3%	6

Table 5.3 Frequency distribution of maximum willingness to pay

MWTP	Frequency	Percentage
0	8	4%
5	1	.54%
10	35	18%
15	28	15%
20	92	49%
25	12	6%
30	4	2%
35	1	.53%
40	2	1%
50	2	1%