

Perception of Visitors on Public Park Service and their Willingness to Pay

Khem Raj Subedi¹, Min Bahadur Shahi², Nathuram Chaudhary³

^{1, 2, 3} Tikapur Multiple Campus, Far Western University, Nepal

Corresponding Author: khem7434@gmail.com

Abstract

The public recreation parks are public goods and need timely upgrade to ensure increase public welfare. The aim of this study was to analyze the perception of the visitors on the key constructs of park service quality and estimate their willingness to pay (WTP) to access the existing public park service. Tikapur Public Park in Kailali District of Nepal was the selected study site. Regression analysis was used to identify significant variables associated with WTP. The estimated regression analysis output result shows that income level, age, years of schooling, household size, substitute site travel cost, gender, place of residence, park quality, average stay hours in the park significantly predicted the WTP of the respondent visitors. Therefore, the result shows that there is substantial space for improvement in the park to upgrade the park recreational service. Likewise, based on stated willingness to pay for the park entry fee, the existing fee is far below than their WTP. This evidence clearly indicates that TBP bestows substantial welfare to the whole society. The park management should pay enough attention upgrade quality of park. There should be comprehensive reform project to avail timely adequate park service so as to raise utility from the park.

Keywords: Public Park Services, Recreational utility, Regression Analysis, Willingness to pay, public goods

Introduction

Public recreational parks and green spaces are important health promoting facilities for urban dwellers, which can bring about improved health outcomes, and reduced public stress. Access to urban parks and green spaces is purported to be associated with the development of social capital, increased community wellbeing

Copyright 2022 ©Author(s) This open access article is distributed under a Creative Commons



Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License.

and inclusive neighborhoods (Wang, 2015). Park accessibility is as an important indicator to measure urban livelihood and quality of life (Byrne et al., 2009).

Public parks and open spaces other public service and facilities are vital to the day-to-day life and wellbeing of city dwellers. Indeed, urban parks and open spaces are recreational assets that help breathe life into our cities (Ben & Peter, 2009; Wang, 2015). In fact, public recreation parks are part of environmental goods and services and contribute substantially to the growth of tourism sector thereby contributing to net value addition to any society and economy as a whole. As such, urban parks offer a wide range of benefits, which are physical, psychological, aesthetic, environmental, economic, social, cultural, historical, and recreational and pursue different core values according to visitors' perceptions (Park & Sang, 2018). Furthermore, Parks also significantly improve surrounding environment by contributing to increasing greenery, reducing air, water, and noise pollution, and helping in wildlife preservation (Ahmed & Gotoh, 2006; Crompton, 2005).

Public park provision is widely preferred in urban areas given that they provide different varieties of recreational activities enhancing the citizen's quality of life (Salazar & Defranesco, 2005). In other words, public parks generate high value for human welfare, but they do not receive due consideration in public policy. Since environmental goods and services are not traded in the usual markets, the benefits derived from these commodities are external to the market (De & Devi, 2011).

The public parks have also perceived value from the eye of its users. The term perception in social psychology refers to the processes by which people perceive one another, and is an impression, a sense, or both, of personalities and social traits of others based on their behaviour (Roeckelin, 2006). Perception is part of human psychological thinking process (Bonnes et al., 2003). Therefore, in this context the term perception refers to human psychological thinking process processes by which the visitors perceive various existing attributes of the park and express their preferences and value. The perception of the visitors matters their WTP to access the park service. Therefore, the perception survey focuses on various desirable existing facility and quality of the park, WTP of users in status quo and WTP of same users in alternative improved scenario.

The research considered the revealed preference method to identify the WTP and its related expenditure factors. In other words, revealed preference is a way to infer the preferences of individuals given the observed choices. It contrasts with attempts to directly measure preferences or utility through stated preferences. In other words, revealed preference theory advocates that it is not what you say, it is what you do that reveals what you want (Pearce et al., 2006).

In other word, considerable proportion of the resource is devoted by the public authority for the construction, maintenance and operation of Public Park. Basically, the park management need to have concrete knowledge of two categories; total benefit of the park to the society and determinants of visitor's willingness to pay for park service. This would rationalize the allocation of scarce resource for the park operation and its quality upgrade. The aim of this study was to carry out perception analysis of the visitors on the key constructs of park service quality and estimate their willingness to pay (WTP) to access the existing public park service. Therefore, this study tried to answer basically two questions: firstly, the park quality dimensions to be upgraded to increase recreation utility of the park visitors that will increase attraction for the visitors of the park thereby increasing social welfare; secondly, the factors that are associated with WTP of visitors to access the park service. This knowledge can be concrete basis to rationalize resource allocation decision for park management to upgrade quality standard of the park service. In this context, the study site of this study was Tikapur Park which is popularly called Tikapur Banglow Park (TBP). It is located at the bank of Karnali River in Kailali district of Far Western Province of Federal Democratic Republic of Nepal. The TBP is spread along the surface area of more than 58.0243 Hectares of Land (Tikapur Municipality, 2016).

Literature Review

The perception is human mental process which encompasses subjective process of understanding the surrounding stimulus by an individual. In social psychology, the term perception is defined as the processes by which people perceive one another, and is an impression, a sense, or both, of personalities and social traits of others on the basis of their behaviour (Roeckelin, 2006). Therefore, from a visitor's view point, preference of individual visitors' experience or the environment that they prefer to be in and the impacts they have encountered with, are all influence on their perceptions (Kaplan & Kaplan, 1989). Therefore, individual economic behavior is strictly based on perceived value on any stimulus as per utility analysis of microeconomic theory. Based on this analogy, we can infer that expenditure to access the park recreational facility and WTP is outcome of this assumptions.

The urban parks generate substantial public benefits, yet explicit economic assessments of its values is at infancy stage. The analysis of parks should be based on perception of its users or visitor's preference and values taking into consideration various attributes of park features including the location of parks (Barnaby et al., 2017). Thereafter, several research studies have been carried out across the world regarding willingness to pay for accessing benefits of recreational sites such as public parks, green spaces and their impact on land and property values, and even

attitude of people to their quality of life (Anderson & West, 2006; Colwell, 1985; Coughlin et al., 1974; Hannon, 1994). Crompton (2001) argues that public park is better alternative as recreation center and obviously contributes to reduce the incidence of juvenile delinquency. Public parks as urban green areas have played contributed tremendously to conserve urban environment while keeping the rapid pace of urban growth. However, development, maintenance and preservation of the quality of public park service are tough issues faced by many city governments and communities (Iamtrakul et al., 2005). Zella and Ngonyali (2016) employed Travel Cost Method to value recreation Kilimanjaro National Park. Based on the econometric results, Consumer Surplus per day of stay in the park was US\$ 571.10, the mean visitor WTP was per day of a visitor was US\$ 516.84, whereas the total recreation value of the park was estimated to be US\$ 193 929 602 per one calendar year. Likewise, the revenue maximizing entry fee for the park was estimated to be US\$ 55.8.

Michelle et al. (2016) estimated total economic value of national park service as US\$92 billion, of which US\$62 billion was for National Parks and remaining US\$30 billion was for National Park Service (NPS). Wang (2015) with evidence argued that urban Public Park, open and green spaces are significant health promoting facilities and increasingly playing critical role in contributing to the sustainable future of our cities.

El-bekkey at al. (2013) carried out study using travel cost method and estimated the consumer surplus per person per visit is US\$ 65.36. In parallel, they carried out study on the willingness to pay (WTP) for the improvement of services using Contingent Valuation Method (CVM). The estimation of WTP under CVM was done by the bid curve that was US\$ 6.20. The study concluded that the recreational value based on TCM is higher than the CVM.

Roussel and Tardieu (2012) estimated mean consumer surplus US \$ 78.03 per visitor and per trip. De and Devi (2011) estimated consumer surplus per domestic tourist per visit per trip Indian Rupees (IRs) 1787.46. The same for the foreign tourist was about IRs 15872. The revised consumer surpluses based on the additional willingness to pay were IRs. 1933.15 and IRs. 17292. This implies that there is an incremental consumer surplus IR. 145.69 and IRs. 1420 respectively for Cherrapunjee of India.

Nde (2011) estimated consumer surplus equivalent to the recreational value of the beach per trip per visitor per day ranged from €2.56 to €41.51 for Ngoe Beach in Kribi, Cameroon. Likewise, based on the stated willingness to pay of the visitors, a possible access fee to the beach of €2.0 was suggested.

Adams et al. (2008) conducted study on use and existence values and found that population is willing to pay US\$ 2,113,548.00 per year for the conservation of the Morro do Diabo State Park (MDSP) or US\$ 60.39 per ha per year. The results also indicated that the preservation value is subject to level of income. It implies that the ability to pay of people is strongly and positively correlated the with income levels.

Aryal (2008) conducted study for Chitawan National Park of Nepal and estimated the total annual consumer surplus or economic benefit obtained from recreation in the Park approximately NPR 23 million (US\$ 34, 21,162.7). Based on WTP, the study recommended US\$ 15 per person as the Park entrance fee which could be utilized for Park operation and management.

Ahmed and Gotoh (2006) calculated that the residents of the Nagasaki City of Japan are willing to pay in total 920 million Japanese yen (5,225 yen per household) for preserving the public parks in the city. Their study revealed that the non-use value of public parks in Nagasaki City was found to be very high.

Himayatullaha and Siddiqui (2003) found the annual monetary recreational value of the Ayubia National Park of Pakistan about Pakistani Rupee (PKR) 200 million. Besides, the total recreational value was also projected in a new scenario that amounted to PKR 209 million. Likewise, the total actual consumer surplus was estimated to be PKR 24.2 million. They concluded that annual consumer surplus, in case of an improved scenario was projected to be PKR 35.01 million.

The brief details of review of literature presented above mostly belong to global context. Hence, this type of study is in its infancy stage Nepalese context. There is dearth of such literature on estimation of economic benefits of public parks and socio-economic determinants of willingness to pay for park recreational service in the Nepalese context. Therefore, study is expected to fulfill such gap.

Methods and Procedures

The study site of this study was Tikapur Park which is popularly called Tikapur Banglow Park (TBP) located at the bank of Karnali River in Kailali district of Far Western Province of Federal Democratic Republic of Nepal. The TBP is spread along the surface area of more than 58.0243 Hectares of Land (Tikapur Municipality, 2016). The relevant data were collected from TBP recreational site visitors using survey technique. This study has considered the individual visitors as source of information on choice of visit and their spending preference to enjoy the park recreational service. Therefore, the population of the study was all the visitors who visited the park during February 2018 AD to January 2019 AD which was

impossible to estimate exactly. Hence, the desired sample size was then calculated following Godden (2004) formula for determining sample size on infinite population. The formula specified as:

$$SS = \frac{Z^2(p)(1-p)}{M^2} \dots \dots \dots (1)$$

Where, SS, p and M denote sample size for infinite population, population proportion {(assumed to be 0.5 (50%) since this would provide the required sample size} and margin of error {at 5% (0.05)}. Likewise, Z implies Z value (1.96 for 95% confidence level). Therefore, this estimation calculated the sample size of 384. Based on this, 384 visitors were surveyed to collect information as per the objectives of the study. The structured questionnaire mainly concentrated on the collection of relevant cross sectional.

Operational Definition of Variables

The operationalizing the variables and making them clear and specific is key arrive logical and meaningful is conclusion corner stone of any research. The detail of operationalization is given below:

Table 1

Operational Definition of Variables in the Data Set

Acronyms of Variables	Operational Definition
RTTC	Round Trip Travel Cost to visit park to home of respondent
HHMI	Monthly Household Income of Respondent
Age	Age of Respondent
YrsSch	Years of schooling of Respondents
HHs	Household size of Respondents
SRTTC	Substitute Park Round Trip Travel Cost
AvHrsStay	Average hours of stay in the park by respondent visitors
Dum1_Sex	Dummy variable 1 i.e. 1 if respondent is Male, 0 if Respondent is Female
Dum 2_Pr	Dummy variable 2 i.e. 1 if respondent is Urban dweller,0 if Respondent is Village dweller.

Dum 3_PQ	Dummy variable 3 i.e. 1 if respondent visitors' perception on Quality of Park is good and 0 otherwise.
D4_EMP	Dummy variable 4 i.e. 1 if respondent is employed and 0 otherwise
D5_APS	Dummy variable 5 i.e. 1 if visitor perceived adequacy of park service and 0 otherwise.
WTP	Willingness to Pay
SWTP	Stated Willingness to Pay

Note: This table demonstrates the Acronyms of variable and their operational definitions

Willingness to Pay (WTP)

Urban parks confer varieties of economic benefits to the societies. Direct use benefit is one of them. Several studies have identified WTP as a proxy of direct use value. The round trip travel cost has been applied as surrogate for estimation of direct use value of recreational park or any other recreational place by researchers. The Travel Cost Method (TCM) is applied for estimation of economic use value of places where visitors use for recreation. The rationale of the method is that, the time and costs which people are suffered to visit a recreational site, indicates its recreational value. According the method, it is assumed that, the recreational value of a place, reflects the people's WTP to visit it (Amirnejad et al., 2011). In this method, the preferences of individuals associated with environmental utility are specified through calculating the time and money that the visitors cost to visit a place (Amirnejad et al., 2011). In other words, round trip travel cost enables us to assess individual's preferences for the consumption of non-market goods. Therefore, we have to use the cost of traveling to a recreation site as WTP in order to infer recreational benefits provided by the site. Hence, dependent variable is round trip travel cost and explanatory variables are other socio economics characteristics. The Regression Model can be presented as follows:

$$WTP_{ij} = f(HH_{mi}, X_i) + \epsilon \quad \dots\dots\dots(2)$$

Where, WTP_{ij} is round trip travel cost of individual i visitor to visit site j , HH_{mi} is household monthly income of individual visitor and X_i is a vectors of explanatory variables viz, household monthly income, age of respondent visitor,

household size of respondent visitor, years of schooling of respondent visitor, round trip travel cost of substitute park, gender of respondent visitor, place of residence(urban/rural) of respondent, perceived park quality and adequacy of park service. Finally, ϵ stands for error term.

$$WTP_{ij} = X_i' \alpha + \hat{\epsilon}_i \dots \dots \dots (3)$$

Where, WTP_{ij} is round trip total travel cost individual visitor i to visit site j , X_i is a vectors of explanatory variables viz, household monthly income, age of respondent visitor, household size of respondent visitor, years of schooling of respondent visitor, round trip travel cost of substitute park, place of residence(urban/rural) of respondent visitors, sex of respondent visitors, perceived park quality by respondent visitors, adequacy of park service and α is parameter of vectors of explanatory variables to be estimated and $\hat{\epsilon}_i$ is the estimated residual term.

Results and Discussion

The data in table 2 exhibits the fact of descriptive statistics of the sample respondents. The average age of respondents is 27.87 years whereas average household size is 5.98. About 59.4 percent of the respondents were male. Likewise, 70.60 percent visitors are urban dwellers and remaining 29.40 percent are village dwellers. Regarding level of educational, 36.7 percent are secondary graduates, followed by 32.60 percent bachelor, 19.80 percent basic and primary, 6.30 masters and above, 4.20 percent just literate and 0.5 percent illiterate. The data also shows that of total visitors, 36.70 were students, followed by 26.30 percent were self-employed, 21.10 percent are formally employed, 13.80 percent unemployed, 1.30 percent daily wage earner and 1.30 percent retired (Table 2).

Table 2

Socio- Demographic Characteristics of Sample Respondent Visitors

Mean Age (In Years)(n =384)	27.87
Household Size(n =384)	5.98
Gender (n =384)	
Male	59.40%
Female	40.60%

Place of Residence (n =384)

Urban Dweller76.60%

Village Dweller 29.40%

Educational Status (n =384)

Illiterate 0.50 %

Literate 4.20%

Basic and Primary19.80%

Secondary Level36.70%

Bachelor32.60%

Masters and Above6.30 %

Employment Status(n =384)

Student36.70%

Formally Employed21.1 0%

Unemployed13.80%

Retired 0.80%

Self-employed 26.3 %

Daily Wage 1.30%

Willingness to Accept higher entry fee to improve park quality(n =384)

Yes 82.00%

No 18.00%

Note: This table shows various socio-demographic characteristics of sampled respondents in percentages.

Perception of Park Visitors on Park Service

Perception of individual visitor towards exiting service is subjective phenomenon and definitely differ person to person based on their taste and

preference. Keeping this fact in view, the park visitors were asked different questions on the common dimensions of existing park attributes like physical condition, picnic spot, pleasant environmental, entertainment provision, security condition and park staff treatment towards visitors. The park visitors were requested to respond on Likert Scale from strongly agree to strongly disagree. There was score 5, 4, 3, 2 and 1 for strongly agree, agree, undecided, disagree and strongly disagree respectively. Thus, the mean value would range between 1 to 5. Higher the mean value implies better the condition and vice versa. Regarding existing physical condition of the park, mean value is 2.48 meaning that there is substantial space to improve it. The mean value for picnic spot is 3.46 relatively better than first one. In nutshell, if we consider half of full score 2.5 as cut off score as bench mark for perceived better position, then still two dimensions are below the bench mark. Based on mean value given below, there is big space to increase park quality standard to increase welfare of park visitors (Table 3).

Table 3

Perception of Park Visitors on Tikapur Park Service

Statement on Perceived Quality Status	N	Response %					Mean	Standard Deviation
		SA	A	UN	DA	SD		
Park quality is good in overall	384	3.1	77.9	8.1	10.9	0	2.27	0.69
Physical condition of park is good	384	9.4	58.1	4.9	26.0	1.6	2.48	1.023
Park picnic spot is good in aggregate	384	3.1	26.8	1.6	57.6	10.9	3.46	1.058
Park existing environment is pleasant and comfortable	384	6.5	87.2	0	6.3	0	2.092	0.591
Existing entertainment Provision within the Park is adequate	384	0	53.6	14.1	29.2	3.1	2.81	0.953
There is good security in park for the visitors	384	0	34.4	4.7	59.4	1.6	3.30	0.964
Park staff treatment and attitude towards the park visitors is hospitable and polite	384	0	74	1.6	21.4	3.1	2.61	0.979

Note: This table demonstrates Likert Scale Measurements with mean and standard deviation of the data and N=Total number of respondents, SA=Strongly Agree, A=Agree, UN=Undecided, DA=Disagree and SD=Strongly Disagree.

Perceived Improvement Category of the Park Service

The visitors were asked to respond on few key constructs and dimensions that reflect the quality status of recreational service. The vast majority of respondents of the visitors were in favor of improving the park. The data shows that mostly (96.9 %) pointed out improvement in picnic spot followed by 82.6 percent physical condition of the park, security provision 81 percent, 62.2 percent environmental improvement (Table 4).

Table 4

Perceived Improvement Category of the Park

Statement on Perceived Quality Status	N	Response %	
		Yes	No
There is necessity of Park quality improvement in overall	384	61.5	38.5
There is necessity improvement in Physical condition of park	384	82.6	17.40
Park picnic spot need to be improved	384	96.9	3.10
Park existing environment need to be improved	384	62.2	37.8
Entertainment Provision of the Park need to be improved	384	55.7	44.3
There security in the park need to be improved	384	81.0	19.0
Park staff behavior towards the park visitors need to be improved	384	57.6	42.4

Note: This table illustrates the perceived quality status of the respondents and the responses are in dichotomous way in percentages.

Perceived Physical Improvement Category to Upgrade Park Service Quality

The visitors were asked to state improvement category existing physical condition of the park to increase recreational service. The vast majority of respondents of the visitors were in favor of improving the park. The data shows that mostly (26 %) pointed to construct adequate numbers of clean toilet followed by proper fencing 20.6 percent, playground and facility for children 17.2 percent,

hygienic restaurant 10.9 percent, timely renovation 6.3, adequate parking space 3.1 percent, but 15.9 percent perceived no necessity of improvement (Table 5).

Table 5

Perceived Physical Improvement Category of the Park

S.N.	Improvement Category (n=384)	Response %
1.	Children Playing Provision	17.2
2.	Clean Toilet in adequate number	26.0
3.	Hygienic Restaurant for food and beverage	10.9
4.	Proper fencing and wall around the park	20.6
5.	Adequate Parking space for vehicle	3.1
6.	Timely renovation of the park	6.3
7.	No improvement required	15.9
Total		100

Note: This table illustrates the perceived physical improvement status of the respondents in percentages.

Perceived Improvement Category at Picnic Spot of the Park

The visitors were asked to state improvement category in existing picnic spot condition of the park. The majority of respondents of the visitors indicated clean toilet nearby picnic spot 31.5 percent, 29.7 waste management improvement, 16.7 percent clean drinking water, 12.5 percent addition of picnic house, 6.5 percent proper road to picnic spot, but 3.1 percent stated that there is not necessity of improvement in the picnic spot within the park (Table 6).

Table 6

Perceived Improvement Category at Picnic Spot of the Park

S.N.	Improvement Category (n=384)	Response %
1.	Clean drinking water	16.7
2.	Clean Toilet nearby picnic spot	31.5
3.	Addition picnic house	12.5
4.	Waste food management	29.7
5.	Proper road to the picnic spot	6.5

6.	No improvement required	3.1
Total		100

Note: This table illustrates the perceived improvement status at picnic spot of the park of the respondents in percentages.

Perceived Improvement Category of Park Environment

The visitors were asked to state improvement category in existing status of environment of the park. The majority of respondents of the visitors indicated solid waste management 35.4 percent followed by orchard management 22.1 percent waste management improvement, sanitation and cleanliness 4.7 percent, sound pollution control 1.6 percent but 36.8 percent did not perceive any necessity of improvement (Table 7).

Table 7

Perceived Improvement Category of Park Environment

S.N.	Improvement Category (n=384)	Response %
1.	Solid Waste Management	35.40
2.	Sanitation and cleanliness	4.70
3.	Orchard management	22.10
4.	Sound Pollution control	1.60
5.	No improvement required	36.80
Total		100

Note: This table illustrates the perceived improvement category of the respondents in percentages.

Perceived Improvement Category in Entertainment Provision in the Park

The visitors were asked to state improvement category in existing status of entertainment provision in the park. The majority of respondents of the visitors indicated water fountain 46.4 percent followed by colorful electrical light 7.8 percent, space for games and sport 1.6 percent, but 44.3 percent did not perceive any necessity of improvement existing entertainment provision (Table 8).

Table 8*Perceived Improvement Category in Entertainment Provision*

S.N.	Improvement Category (n=384)	Response %
1.	Water Fountain	46.40
2.	Colorful electrical light	7.80
3.	Space for games and sport	1.60
4.	No improvement required	44.30
Total		100

Note: This table illustrates the perceived improvement category in Entertainment Provision of the respondents in percentages.

Perceived Improvement Category in Security Provision

The visitors were asked to state improvement category in existing status of security provision in the park. The vast majority of respondents of the visitors indicated security guard and CCTV camera provision 76.3 percent followed by temporary check post 3.1 percent, increase in security staff 1.6 percent, but 19 percent did not perceive any necessity of improvement in existing security provision (Table 9).

Table 9*Perceived Improvement Category in Security Provision*

S.N.	Improvement Category (n=384)	Response %
1.	Security guard and CCTV	76.30
2.	Temporary Check post	3.10
3.	Increase in Security Staff	1.6
4.	No improvement required	19.0
Total		100

Note: This table demonstrates the perceived improvement category in security Provision of the respondents in percentages.

Perceived Improvement Category of Park Staff Behaviour

The visitors were asked to state improvement category in the existing status of park staff behavior. The vast majority of respondents of the visitors indicated water guide to new visitor 26.6 percent followed by polite and humble behaviour 18.5 percent, recruiting trained staff 12.5 percent, but 42.4 percent did not perceive any necessity of improvement in behaviour of park staff (Table 10).

Table 10*Perceived Improvement Category of Park Staff Behaviour*

S.N.	Improvement Category (n=384)	Response %
1.	Guide to New Visitors	26.60
2.	Polite and humble behavior	18.50
3.	Recruiting educated and trained staff	12.50
4.	No improvement required	42.40
Total		100

Note: This table illustrates the perceived improvement category in park staff behaviour of the respondents in percentages.

Descriptive Statistics

The data given in table 11 shows that mean visitation rate is 2.62 per year per visitor. The visitors mean RTTC, SRTTC and mean monthly household income are NPR965, NPR 214 and NPR.14283 respectively. Likewise, visitors mean years of schooling are 11.31 years. Average stay hours is found to be about 3.97 hours. Similarly, visitors' maximum Stated Willingness to Pay (SWTP) is about NPR 38.

Table 11*Descriptive Statistics of Key Variables*

Variables	Mean	Minimum	Maximum	Standard Deviation
RTTC (in NPR)	964.51	25.00	5725.00	912.81
HHmi (in NPR)	14282.55	1500.00	55000.00	8443.73
HHs	5.98	2.00	18.00	2.58
YrSch (in Years)	11.31	.00	17.00	3.84
Age (in Years)	27.89	16	70	9.96
Average Stay hours in Park	3.97	1.00	10.00	1.86
SRTTC (in NPR)	213.80	.00	2000.00	144.42
SWTP as entry fee (in Rs.)	38.04	.00	150	6.17
Total Number of Sample Respondents 384				

Note: Descriptive statistics-mean, minimum, maximum and standard deviation are calculated by researcher based on data of field survey 2018/019.

Test Statistics of the Key variables

The variables were included on the logic of underlying economic theory. The included variables were tested for multicollinearity. According to Loomis and Walsh (1997), an absolute value of 0.8 (except principal diagonal) signifies multicollinearity. The correlation matrix displayed in Table 12 shows no correlation higher than 0.61, which is quite lower than 0.8 indicate that multicollinearity is not a problem within our data set. All the variables could initially be included in the analysis.

Table 12

Correlation Matrix of Variables

Variables	RTTC	HHmi	Age	Yrs	HHs	SRTTC	AvStyHr
RTTC	1	-0.19	0.07	-0.01	-0.04	0.24	-0.18
HHmi	-0.19	1	-0.08	0.25	-0.05	0.07	0.05
Age	0.07	-0.08	1	-0.15	0.01	0.03	0.06
YrSch	-0.01	0.25	-0.15	1	-0.07	0.13	-0.03
HHs	-0.04	-0.05	0.01	-0.07	1	0.06	0.05
SRTTC	0.24	0.07	0.03	0.13	0.06	1	-0.01
AvStyHr	-0.18	0.05	0.06	-0.03	0.05	-0.01	1

Note: The table shows that the correlation matrix of various variables.

Willingness to Pay (WTP) for Park Recreational Service

TBP confers varieties of economic benefits to the societies. Direct use benefit is one of them. Several studies have identified WTP as a proxy of direct use value. The round trip travel cost has been applied for estimation of direct use value of recreational park or any other recreational place by researchers. The rationale of the method is that, the time and costs which people are suffered to visit a place, indicates its recreational value. According the method, it is assumed that, the recreational value of a place, reflects the people's WTP to visit it. In this method, the preferences of individuals associated with environmental utility are specified through calculating the time and money that the visitors cost to visit a place (Amirnejad & Ataei Solout, 2011).

Based on OLS regression model output result, the calculated value of R^2 and adjusted R^2 are 0.33 and 0.31 respectively which are comparatively satisfactory in the context of behavioral economics. In general, this value can be seen as a low value, and this would imply that the relationship between the WTP for the TBP Park service and the included variables is relatively strong. These values may be weak for other

natural sciences to assess the fitting of the model. But for human and behavioral sciences these values are sufficient enough to infer that there is goodness of fit of the model. However, we have to identify other factors determining WTP. Darwin-Watson is the test of autocorrelation and its calculated value is D-W is 1.888 which is close to 2. It means the residuals are not auto-correlated. In the model, explanatory variables like, travel cost, household monthly income, age, household size, years of schooling, substitute site travel cost, dummy variables like gender, place of residence, park quality are found statistically significant (Table 13).

Table 13

Estimated Results of OLS Model

Dependent Variable: Round Trip Travel cost as a proxy of WTP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1161.9	244.63	4.75	0.00
HHMI	0.011	0.004	-2.56	0.01
AGE	3.6	4.20	0.85	0.40
HHs	-30.0	15.14	-1.98	0.05
YRSch	11.3	10.77	1.05	0.29
SRTTC	0.6	0.12	4.64	0.00
AvStayHrs	-91.2	21.40	-4.26	0.00
D1Sex	132.6	57.46	-2.31	0.02
D2PR	-76.3	89.20	-0.85	0.39
D3PQ	-74.6	100.96	-0.74	0.46
D4EMP	-78.8	85.03	-0.93	0.35
D5APS	811.7	83.34	9.74	0.00

R²0.33 and Adjusted R²0.31

Darwin-Watson 1.85

F Statistics 16.75

Prob (F- Statistics) 0.000

Note: This table shows the calculation of OLS regression model output result.

Based on the result of model estimation given above regression Equation can be written as:

$$WTP = 1162 + 0.011 (HHmi) - 3.6 (Age) - 0.0423(HHs) + 11.31(YrsSch) + 0.6$$

$$(SRTTC) - 91.17 (AvStyHrs) + 132.57 (Dum1 Sex) - 76.26 (Dum2 Pr) - 74.59 (Dum3 PQ) - 78.79 (Dum4 Emp) + 811.70 (D5 APS) + \dots(4)$$

The estimated coefficient value in equation 4 shows that WTP of visitors is negatively correlated with age, household size, average stay hours, dummy variable sex, dummy variable park quality, dummy variable employment status but positively correlated with household monthly income, years of schooling, substitute site round trip travel cost, and dummy variables such sex, adequacy of park service (APS) quality. Therefore, it can be inferred that, there is significant relationship between willingness to pay (WTP) to enjoy recreation service of TBP and included explanatory variables i.e.; HHmi, age, years of schooling, SRTTC, average stay hours, gender of visitor, place of residence of visitor, employment status of visitor, perceived adequacy of park service. Alternatively, slope coefficients are not equal to zero.

Willingness to Pay and Additional Revenue Stream Generation

The visitors were asked dichotomous question whether they are ready to accept higher entry fee for upgrading park quality. The vast majority (82%) of the visitors responded their readiness to pay higher entry fee to improve existing park quality condition. Likewise, they were asked to open bid their Stated Willingness to Pay (SWTP) as entry fee to access park service if the park quality would be upgraded. The mean value of their stated WTP was NPR 38 which is NPR 18 over its current entry fee. Based on this, we can estimate additional revenue generation by multiplying Rs. 18 with annual park visit which is calculated to be NPR 3.8 million (approx.) that is substantial amount for improvement for existing condition. The calculation procedure as follows:

$$\text{Additional Revenue} = (\text{SWTP as entry fee} - \text{current entry fee}) * \text{Annual Park Visit}$$

$$\text{Additional Revenue} = (\text{NPR}38 - 20) * 2,11,517 = \text{NPR } 38,07,306$$

Conclusion

Public recreational parks are essential parts of modern smart human settlements as they bestow verities of benefits to human society and so does TBP. TBP as a public recreational park provides different arrays of utilities to the people of surrounding area and nation as whole. The study focused on perception analysis of the visitors on the park general quality dimension such as existing physical condition, picnic spot status, entertainment provision and security provision within the park, as well as park staff behavior. The perception analysis result shows that there is substantial space for improvement in the park recreational service by upgrading physical condition, entertainment provision, security provision, park area extension,

sound pollution control and solid waste management and maintaining cleanliness and tidiness. In addition to this, the park visitors also expected visitor friendly behavior of park staff. Likewise, income level, age, years of schooling, household size, substitute site travel cost, gender, place of residence, park quality, average stay hours in the park significantly predicted the WTP of the respondent visitors. Based on stated willingness to pay for the park entry fee, the existing fee is far below than their WTP. In conclusion, there is urgent need of upgrading park recreational quality to ensure increase in recreational utility of the whole society. Besides, TBP has contributed significantly to net value addition of the surrounding areas and economy as a whole.

Acknowledgements

We would like to thank University Grants Commission of Nepal for providing financial support as a faculty Research Fellowship to complete this study work of our interest.

Conflict of Interest

There is no conflict of interest in this research outcome.

References

- Ahmed, S.U., & Gotoh, E., (2006). *Estimation of the willingness to pay for preserving public parks in Nagasaki City by using contingent valuation method*. Nagasaki University Japan.
- Adams, C., da Motta, R. S., Ortiz, R. A., Reid, J., Aznar, C. E., & de Almeida Sinisgalli, P. A. (2008). The use of contingent valuation for evaluating protected areas in the developing world: Economic valuation of Morro do Diabo State Park, Atlantic Rainforest, São Paulo State (Brazil). *Ecological Economics*, 66(2-3), 359-370.
- Anderson, S. T. & West, S. E. (2006). Open space, residential property values, and spatial context. *Regional Science and Urban Economics*, 36, 773-789.
- Aryal, M. R. (2008). *Cost-benefit analysis of buffer zone management in Chitawan National Park of Chitawan, Nepal*. Institute of Agriculture and Animal Sciences, Rampur Chitawan.
- Boardman, A.E., Greenberg, D.H., Vining, A.R. & Weimer, D.L. (2006). *Cost-benefit analysis: Concepts and practice* (3rd ed.), Pearson Prentice Hall.
- Brown, G. (2008). A theory of Urban Park geography. *Journal of Leisure Research*, 40(4), 589-607. DOI: 10.1080/00222216.2008.11950154

- Barnaby, A., Silvia, F., & Ian, B., (2017). Good parks– bad parks: the influence of perceptions of location on WTP and preference motives for urban parks. *Journal of Environmental Economics and Policy*, 6(2), 204-224. DOI:10.1080/21606544.2016.1268543
- Bonnes, M., Lee, T. & Bonaiuto, M. (2003). *Psychological theories for environmental issues*. Burlington, VT: Ashgate Publishing, Ltd.
- Byrne, J., Wolch, J. & Zhang, J. (2009). Planning for environmental justice in an urban national park. *Journal of Environmental Planning and Management*, 52, 365-392.
- Cameron, A.C. & Trivedi., P.K. (1990). Regression-based test for dispersion in the Poisson model. *Journal of Econometrics*, 46(3), 347-364.
- Crompton, J.L. (2005). The impact of parks on property values: Empirical evidence from the past two decades in the United States. *Managing Leisure*, 10(4), 203-218. DOI:10.1080/13606710500348060
- Crompton, J. L. (2001). The impact of parks on property values: A review of the empirical evidence. *Journal of Leisure Research*, 33(1), 1-31.
- Colwell, P. F., Gujral, S.S., & Coley, C. (1985). The impact of a shopping centre on the value of surrounding properties. *Real Estate Issues*, 10, 35-9.
- Coughlin, R., Hammer, T. & Horn, E. (1974). The Effect of a Large Urban Park on Real Estate Value. *Journal of the American Planning Association*, 40, 274-277.
- De, U. K. & Devi, A. (2011). Valuing Recreational and Conservational benefits of a Natural Tourist site : Case of Cherrapunjee. *Journal of Quantitative Economics*, 9 (2).
- El-bekkey, M., Abedellatif, M. & Faïçal, B. (2013). An economic assessment of the Ramsar site of Massa (Morocco) with travel cost and contingent valuation methods. *African Journal of Environmental Science and Technology*, 7(6), 441-447. DOI: 10.5897/AJEST2013.1485.
- Gossner, C. M. E., Schlundt, J., Ben Embarek, P., Hird, S., Lo-Fo-Wong, D., Beltran, J. J. O., ... & Tritscher, A. (2009). The melamine incident: implications for international food and feed safety. *Environmental Health Perspectives*, 117(12), 1803-1808.
- Garrod, G. & Willis, K. G. (1999). *Economic valuation of the environment: Methods and case studies*. Cheltenham, UK and Northampton, MA, USA: Edward Elgar.

- Godden, B. (2004). Sample size formulas. *Journal of Statistics*, 3, 66.
- Hannon, B. (1994). Sense of place: geographic discounting by people, animals and plants. *Ecological Economics*, 10, 157-174.
- Khan, H. & Siddiqui, R. (2003). Economic Valuation of the Environment and the Travell Cost Approach: The Case of Ayubia National Park. *The Pakistan Development Review*, 42, 537-551.
- Kaplan, R. & Kaplan, S. (1989). *The Experience of Nature: A Psychological Perspective*. New York, NY: Cambridge University Press.
- Iamtrakul, P., Teknomo, K., & Hokao, K. (2005). *Public park valuation using travel cost method*. Proceeding of the Eastern Asia Society for Transportation Studies. Vol. 5, pp. 1249- 1264.
- McConnell, K.E. (1992). On-site time in demand for recreation. *American Journal of Agricultural Economics*, 74, 918-925.
- Michelle, H., Loomis, J. B., & Bilmes, B. (2016). Total Economic Valuation of the National Park Service Lands and Programs: Results of a Survey of the American Public HKS Working Paper No. 16-024. <http://dx.doi.org/10.2139/ssrn.2821124>
- Nde, T.P. (2011). *Non-market valuation of beach recreation using the travel cost method (TCM) in the context of the developing world: An application to visitors of Ngoe Beach in Kribi, Cameroon*. Department of Economics, Swedish University of Agriculture Sciences.
- Pant, K.P., Rasul, G., Chhetri, N., Rai, K.R., & Sharma, E. (2012). *Value of forest ecosystem services: A quantitative estimation from the Kangchenjunga landscape in eastern Nepal*. International Centre for Integrated Mountain Development, ICIMOD Working Paper 2012/5.
- Park, C. & Song, H. (2018). Visitors' Perceived place value and the willingness to pay in an urban Lake park. Department of Economics, Hankuk University of Foreign Studies, *International Journal of Environmental Research and Public Health*.
- Pearce, D., Atkinson, G., & Mourato, S. (2006). *Cost-benefit analysis and the environment: recent developments*. Organisation for Economic Co-operation and development.
- Pearce, D. & Moran, D.(1994). *The Economic Value of Biodiversity*. IUCN-The World Conservation Union, Gland Switzerland.
- Rasul, G., Chettri, N., & Sharma, E. (2011). *Framework for valuing ecosystem*

service in the himalayas. International Centre for Integrated Mountain Development, Technical Report.

- Rosato, P. & Defrancesco, E. (2000). *Individual travel cost method and flow fixed costs*. University of Trieste.
- Roeckelein, J.E. (2006). Social perception and the social class-mental illness relationship: New research or beating a dead horse? In J. A. Zebroski (ed.) *New Research on Social Perception* (pp. 127-159). New York, NY: Nova Science Publishers, Inc.
- Roussel, S., Salles, J.M., & Tardieu, Lea (2012). *Recreational Demand Analysis of the Sensitive Natural Areas*. University of Montpellier France.
- Salazar, S.D.S. & Menendez, L.G. (2005). *Estimating the non-market benefits of an Urban park: Does proximity matters?* Department of Applied Economics, University of Valencia.
- Shaw, D. (1988). On-site sample's regression: problems of non-negative integers, truncation and endogenous stratification. *Journal of Econometrics*, 37, 211-223.
- Shaw, D. & Rogers, J. (2005). *Review of non-market value estimation for festivals and events: A Discussion Paper*, Draft report submitted to the Ontario Tourism Board by Research Resolutions Ltd. Inc.
- Tikapur Municipality (2016). *Tikapur Municipality Profile*. Tikapur Municipality.
- Wang, D. (2015). *Rethinking planning for urban parks: Accessibility, use and behavior*. PhD thesis, The University of Queensland, School of Geography, planning and environment.
- Zella, A.Y., & Ngunyali, R. H. (2016). Economic valuation of recreation use value of Kilimanjaro National Park. *Tanzania Journal of Ecosystem & Ecography*, 6 (22). doi:10.4172/2157-7625.1000220)