EVALUATION OF ATTRACTIVENESS RATE OF CULTURAL ECOSYSTEM SERVICES AMONG VISITORS OF ELECTED URBAN GREEN SPACES OF LAHORE

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ABSTRACT

Cultural Ecosystem Services are referred as non-material benefits. Urban Green Spaces in terms of Recreational Parks are one of the major attractions of Lahore. The paper presents two case studies to shed light on the evaluation process. First Case study is from Race Course Park is considered as one of the major urban green spaces of Lahore that is presently providing the Cultural Ecosystem Services to its visitors from the whole city. The second is Model Town Park that is providing CES to the residences of Model Town Society. This research delineates the conceptual analysis of CES and also defines the attractiveness rate of Cultural Ecosystem Services (CES) from people's own perceptions. This paper offers map showing the land use of selected UGS and reveals the importance of CES among the people. Data was collected by the visitors of selected urban green spaces via questionnaire. Total 150 questionnaires are filled by the visitors of Model Town Park and race Course Park. All the characters of CES are important for human well beings. It cannot be neglected. It is as essential for the prosperity of Humans as other Categories of Ecosystem are essential. CES are the non-material benefits but they direct link with quality of life. The assessment of CES provided by selected UGS is done very clearly in this research.

KEYWORDS: Cultural Ecosystem Services, Non-material benefits, Attractiveness Rate, Quality of Life

INTRODUCTION

Urban Green Spaces

Urban green spaces are considered as open spaces for green places including gardens, parks, plantation etc. Urban green spaces are the landscape that is present in the cities or the relaxation open spaces. The valuable effects of green spaces including human health and human wellbeing are supported in this research. (Lee and Maheswaran 2011)

Cure, Urban lifestyle is full of anthropogenic natural risks, inadequate physical movements, and endless pressure. Presence of urban green spaces is very important in this situation. Therefore there is a need to improve urban lifestyle through urban green spaces is important. Presence of urban green spaces provides the same recreational and ecological benefits as natural areas provide. Presence of urban green spaces provides the strong connection between human and nature. (Woolley 2003)

ECOSYSTEM SERVICES

Man is in relationship with nature. (Woolley 2003) Man attaches to his environment strongly. Ecosystem provides benefits to the humans and these benefits are referred as ecosystem services. It is very significant to understand the importance of renovating, handling and protecting ecosystem. For better understanding of ecosystem subject, ecosystem services are categorized into four types i.e. Provisioning ecosystem services, supporting ecosystem services, regulating ecosystem services, and cultural ecosystem services. (Millennium Ecosystem Assessment 2003, Andersson Hylander 2015, Helka 2016)

Provisioning ecosystem services are linked with the basic needs of individual including food and water. Supporting services are related to the formation of soil and recycling of nutrients. Regulating Services are related to water quality and climate regulation. Cultural services are related to non-material benefits. Provisioning ecosystem services are considered as tangible and these services can be measured. Regulating and supporting ecosystem services are secondary services and referred as indirect services. Cultural ecosystem services are not tangible. These are the particular services. These services are different kind of services to measure and quantify. (Helka 2016)

Cultural Ecosystem Services

According to Millennium Ecosystem Assessment, cultural ecosystem services are defined as non-material benefits that people get from ecosystems including spiritual enhancement, perceptive development, consideration, refreshment and artistic experience. There is a great complexity of cultural ecosystem services. It is essential to identify the direct effects on human beings to assess cultural ecosystem services. Cultural ecosystem services play an important role in everyday life of people. This can be strongly examined where man-environment relationship is observed. (Tengberg, Fredholm et al. 2012, Andersson Hylander 2015)

According to Millennium Ecosystem Assessment, cultural ecosystem services are characterized in six characters including spiritual facilities, artistic appreciation, inspiration of nature, cultivated landscape, tourism and recreation. Spiritual services include religious, sacred and other forms of spiritual emotions. Aesthetic appreciation includes the artistic way of display natural landscapes and art work done in ecosystem by artists. Natural includes the natural use of things or objects in art. Cultivated landscape is concerned with the horticultural and arboriculture. Tourism is linked with the travel done for fun and relaxation. Recreation includes the relation and refreshment activities. (Tengberg, Fredholm et al. 2012)
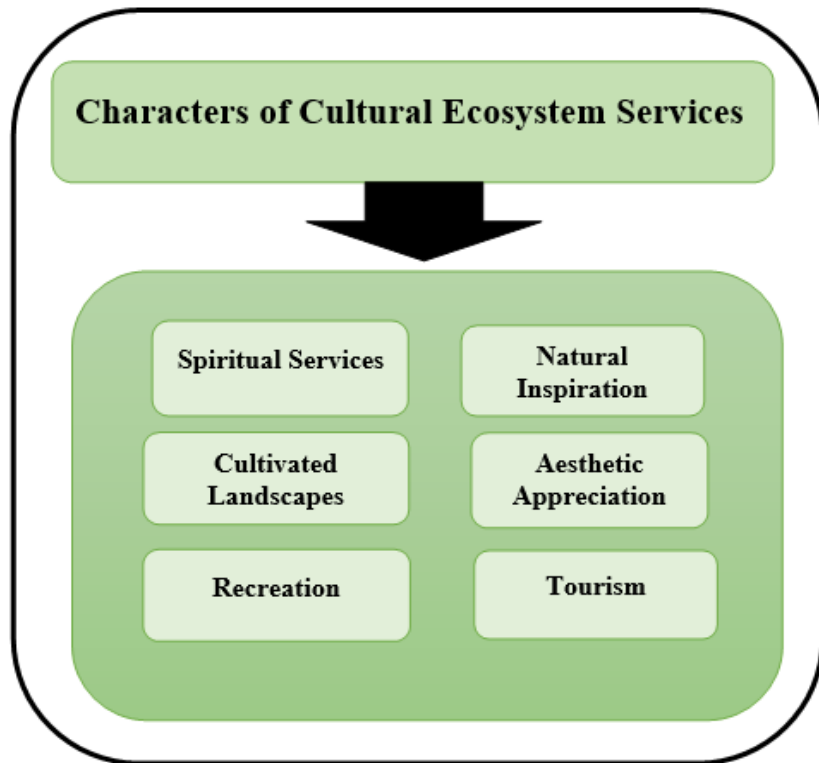
Figure-1: Characters of Cultural Ecosystem Services

MATERIAL AND METHODS

The study was intended to assess the locational characteristics of selected urban green spaces of Lahore. The extent and form of participation was explored. First of all, the field survey was conducted which gave a clear outline about land use and give clear view of study site for the map digitization. Maps of the study site were digitized of the by using Arc Map. Next step was to develop a questionnaire for the visitors and a separate questionnaire was also generated for the structure interview of supervisors of both sites. Data was collected by primary and secondary source as well. Data was collected by the questionnaires. Next step taken is analysis of data. Statistical Analysis was performed to analyse data. 75 questionnaires were filled by the visitors of Model Town Park and 75 questionnaires were filled by the visitors of Race Course Park.   Data was entered in SPSS version 16. Simple frequency tests, bar charts and Regression Model were applied to calculate the data.

Site Description

The study area was the two urban green spaces of Lahore i.e. Model Town Park and Jillani Park (Race Course Park). Lahore is the capital of Punjab Province of Pakistan. It is the second largest city of Pakistan. Lahore is also known as city of gardens.
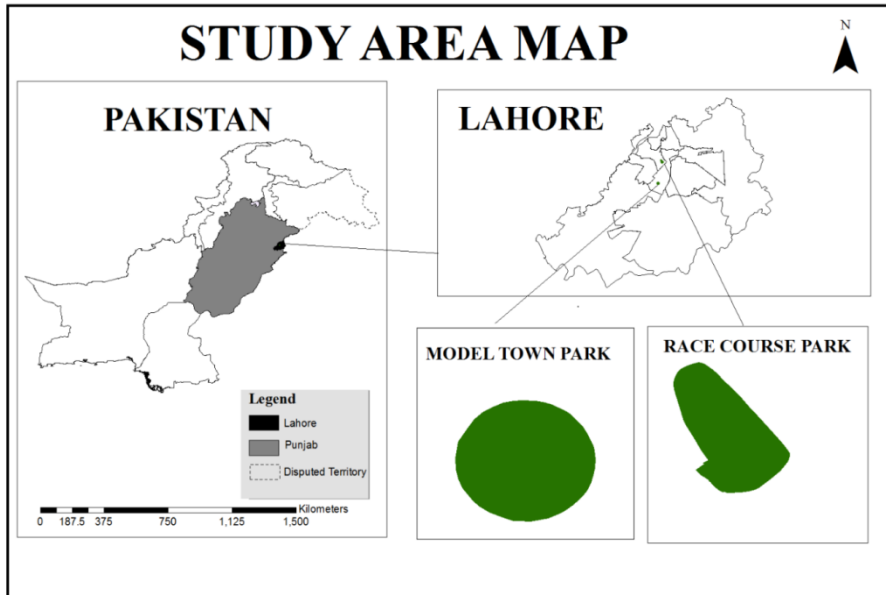

Figure 2: Study Area Map

Case Study 1

Race Course Park was inaugurated by Lt General Ghulam Jillani Khan (Governor Punjab) on 3rd October, 1985. Race Course Park covers 88 acres and 6 canals excluding Polo-grounds. It has two cricket grounds, gym (separate for males and females), a lake, five canteens, a study hall, small open areas, walking and jogging tracks for recreation and refreshment. Jillani park also provides a lot of flowers, shrubs and trees that are included in aesthetic inspiration. The floral exhibitions held in jillani park is very famous. The blue structure includes lake and artificial waterfall also attracts the visitors. Swings and stalls are also available for the visitors. (Department of Horticulture, PHA, Lahore)
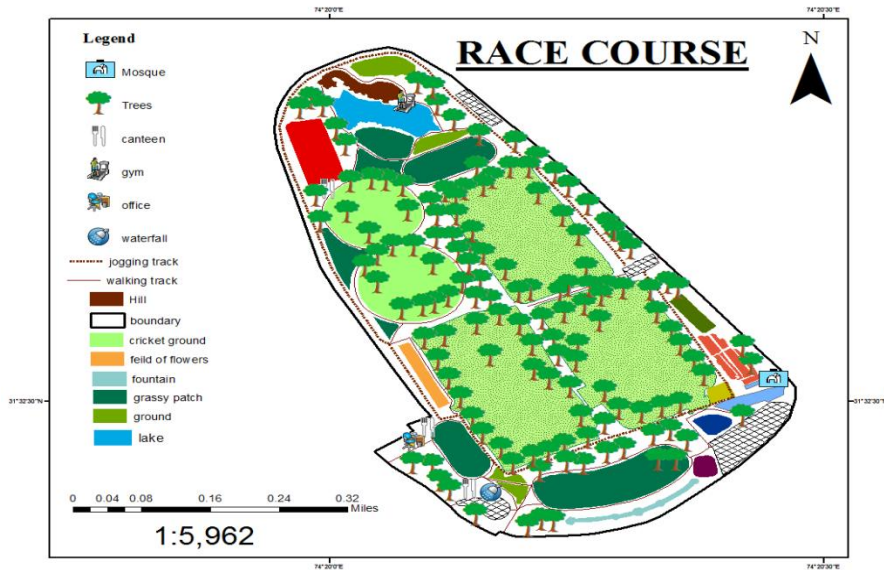
Figure 3: locational characteristics of Race Course Park (Jillani Park)

Case Study 2

Model Town Park is the family park located in Model Town, Lahore, Pakistan. It was also inaugurated by General Jillani Khan in 1990. It was made for the residents of Model Town Society. But at this time, it is so developed that people all over the Lahore visit here. It covers 125 acres area. It is a recreational park having a lot of attractions including a large pattern of greenery, two canteens, a gym (for yoga) for females, small open areas, a lake, walking and jogging tracks, a lot of trees, flowers and shrubs for aesthetic aspiration. (Co-operative Model Town Society Office)
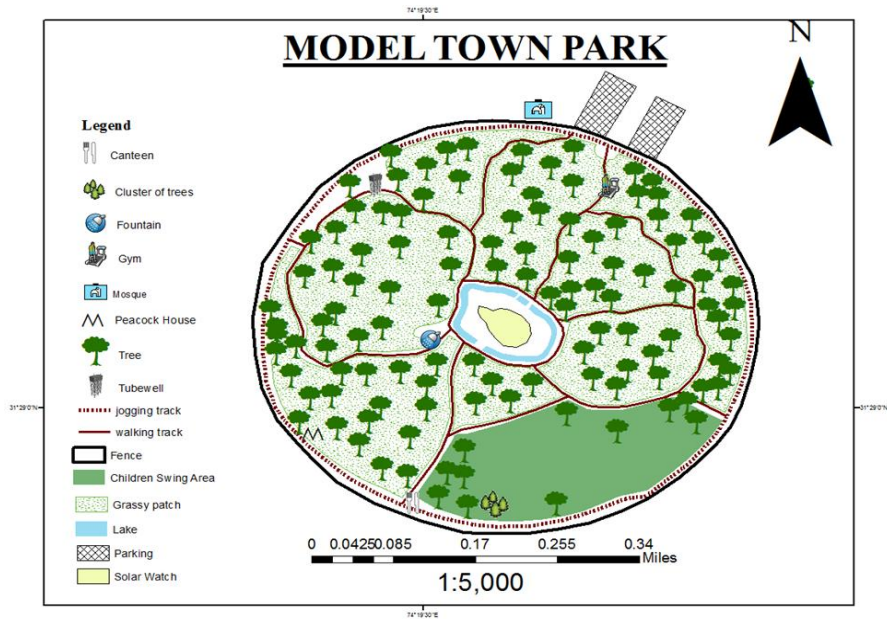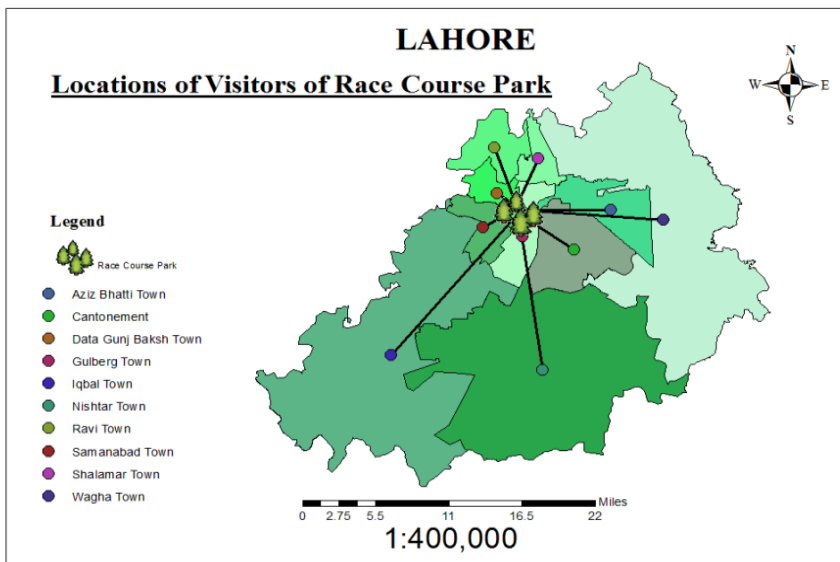
Figure 4: Map showing the locational characteristics of Model Town Park

RESULTS AND DISCUSSIONS

People from all towns of Lahore visit Race Course Park. Visitors of Model Town Park are from nearby places.

Figure 5. Locations of Visitors of Race Course Park
Source: Aslam.A (2018)

As figure5 shows, the map is generated to interpret the locations of visitors of Race Course Park. People from all the towns of Lahore visit the Race Course Park. It is considered as one of the most visiting parks of Lahore.
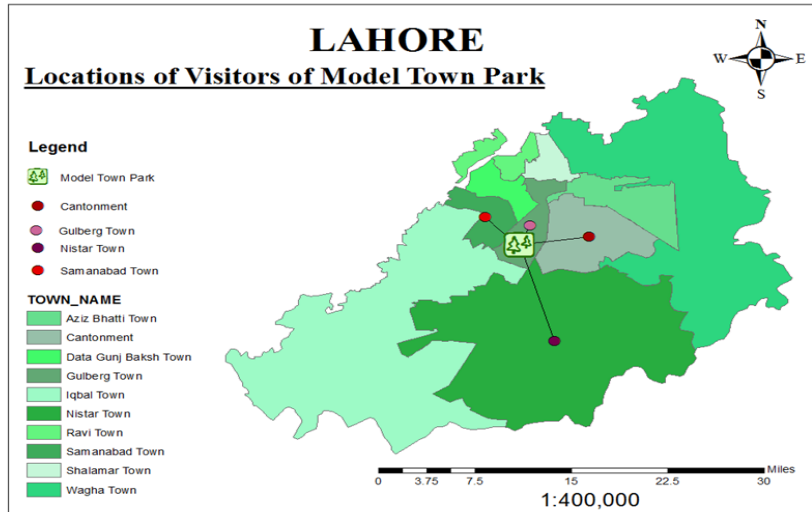

Figure6. Locations of Visitors of Model Town Park
Source: Aslam.A (2018)

The most of the visitors are of Model Town Society as it is shown in above figure. Model Town Park was built for the residents of Model Town Society. Therefore, most of the visitors are from Model Town Society. Very few visitors of other towns visit Model Town Park.

Visitors of nearby places visit Model Town Park mostly. Some of the visitors belong to the outside towns as shown in the figure but their ratio is very little.

A simple linear regression was calculated to predict rating of Race Course Park based on the locational characteristics, presence of sign boards and size of the green space. Standardized coefficient b=.80 for size of park, b=-0.340 for sign boards and b=.110, t=8.923 p<0.000. A simple linear significant regression equation was found F (3,76) = 3.993, p <.000), with an R2 of .136. Participants 'predicted variable is equal to 3.601+0.51+(-0.514) +0.56 (size of area, presence of sign boards, locational characteristics) [Rating]when [size of area, presence of sign boards,

locational characteristics] is measured. [Rating] increased 3.60 for each [participant] of [size of area, presence of sign boards, locational characteristics] as shown in Table.

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.601	.404		8.923	.000
	what are the locational characteristics of this urban green space	.056	.051	.56	1.105	.273
	is there enough space for all the cultural facilities	.051	.069	.51	.741	.461
	are there sign boards to guide you	-.514	.162	-.540	-3.181	.002

Regression Model Calculations for the assessment of CES

The locational characteristics, sign boards and size of race Course Park were the independent variables and dependent variable was rating of visitors. The level of significance was 0.05. It is analyzed that for locational characteristics, the p<0.273. This indicates that locational characteristics of race course are less significant in determining the rating of the park. The p<0.46 for the size of the site that indicates the size of the area is less significant in determining the rating. Therefore, it is concluded that the presence of sign boards plays a more significant role in determining the rating of Race Course Park.

It was analyzed that level of P-value was 0.011 which is less than 0.05. This concludes that there is a significant role of locational characteristics, sign boards and size of selected UGS (Race Course Park) in visitors' ratings.

For Model Town Park, A simple linear regression was calculated to predict rating of Model Town Park based on the locational characteristics, presence of sign boards and size of the green space as well. Standardized coefficient b=.096 for size of park, b=0.26 for sign boards and b=.009 for locational characteristics, t=4.720 p<0.000. A simple linear significant regression equation was found F (3,66) = .266, p < .941 for locational characteristics,0.48 for size of place, 0.85 for sign boards), with an R 2 of .12. Participants 'predicted variable is equal to 2.179+0.174+0.05 +0.66 (size of area, presence of sign boards, locational characteristics) [Rating] when [size of area, presence of sign boards, locational characteristics] is measured. [Rating] increased 2.179 for each [participant] of [size of area, presence of sign boards, locational characteristics] as shown in Table.

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.179	.462		4.720	.000
	what are the locational characteristics of this urban green space	.005	.067	.009	.074	.941
	is there enough space for all the cultural facilities	.174	.249	.096	.698	.488
	are there sign boards to guide you	.046	.240	.026	.190	.850

The locational characteristics, sign boards and size of Race Course Park were the independent variables and dependent variable was rating of visitors. The level of significance was 0.05. It is analyzed that for locational characteristics, the $p<0.941$ that indicates that locational characteristics of race course is less significant in determining the rating of the park. The $p<0.48$ for the size of the site that indicates that size of the area is less significant in determining the rating. The $p<0.85$ is for the presence of sign boards. Therefore, it is concluded that locational characteristics, presence of sign boards and size of Park play a less significant role in determining the rating of the Model Town Park.

Evaluation of frequently using CES

People visit Model Town Park for different purposes including recreation, meditation and relaxation, play and sports or events and exhibitions. This shows that 48.6% participants visit Model Town Park for recreation. 38.6% participants visit for meditation and relaxation. 2.9% participants come to Race Course for play and sports. 10% participants visit there for events and exhibitions. According to this it is analyzed that most of the visitor come to Model Town Park for meditation and relaxation.
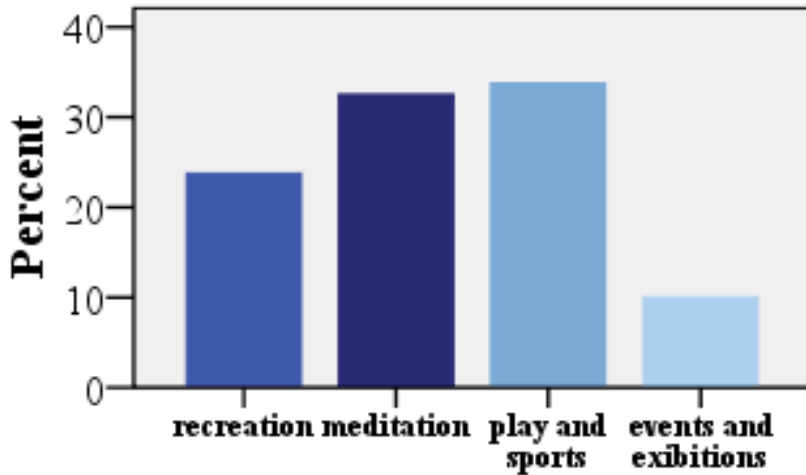
Figure7. Evaluation of frequently using CES in Race Course Park and Model Town Park

A simple linear regression was calculated to predict kind of events visitors like to attend based on the kind of events held in Race Course Park. Standardized coefficient b=.239 for time it takes visitors to reach the park and, t=5.539 p<0.000. A simple linear significant regression equation was found F (1,37) = 2.240, p < .0143), with an R2 of 0.57 Participants 'predicted variable is equal to 1.661+.181 (Visitors favouring events) [Events held in the park] when [Kind of Events held in the park] is measured. [Visitors favouring events] increased 0.662 for each [participant] of Kind of events held in the Race Course Park].

the significance (p-value) is less than 0.05 and it is concluded that there is a significant role of visitors' favouring events in decision making of events held in the park as shown in Table.

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.661	.475		5.539	.000
	which kind of events do you like to attend	.181	.211	.239	1.497	.014

A simple linear regression was also calculated to predict visitors favoring events of Model Town Park based on kinds of events held in the park in Model Town Park. Standardized coefficient b=-.136 for kind of events visitors like and, t=3.551 p<0.001. A simple linear significant regression equation was found F (1, 12) = .227, p < .642), with an R2 of .019 Participants 'predicted variable is equal to 1.835+0.499 (Kind of Events held in the park) [visitors favoring events] when [Kind of Events held in the park] is measured. [visitors favoring events] increased 0.499 for each [participant] of kind of events held in Race Course Park] as shown in Table.

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.835	.719		3.551	.001
	which kind of events do you like to attend	.499	.420	.136	-.476	.642

The significance is greater than 0.05 and it is concluded that there is a less significant role of kind of events held in the park in decision making of kind of events visitors like to attend.

Assessment of religious facilities
According to the survey, 33% participants are aware of religious facilities provided by park. 28% participants said there are no religious facilities provided in the park. 19% participants didn't know about the religious facilities provided by the park. According to survey it was observed that religious facilities (mosque) are present in Race Course Park for males which are well-facilitated. Mosque is also there for female but it is not well-facilitated. That is why most of females don't use the religious Services provided by the Race Course Park management.

In Model Town Park, 53.4% participants are aware of religious facilities provided by park. 32.9% participants said there are no religious facilities provided in the park. 11.6% participants didn't know about the religious facilities provided by the park. According to survey it was observed that religious facilities (mosque) are present in Model Town Park for males which are well-facilitated.

A simple linear regression was calculated to predict moods of visitors of the Park based on the ambience of the park. Standardized coefficient b=.358 for time it takes visitors to reach the park and, t=15.680 p<0.000. A simple linear significant regression equation was found F (1,17) =11.44, p < .001), with an R 2 of .128 Participants 'predicted variable is equal to

3.673+(-0.499) (Ambience of the park) [mood swings of visitors] when [Ambience the park] is measured. [Mood swings of the visitors] increased -0.499 for each [participant] of Ambiance of park as shown in Table.

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.180	.193		21.149	.000
	does the ambience refresh your health	-.919	.135	-.642	-6.901	.000

The significance (p-value) is less than 0.05. And it is concluded that there is a significant role of Ambience of the park in determining the mood swings of the visitors.

The significance is less than 0.00 and concluded that there is a significant role of ambiance of the park in determining the moods of visitors.

A simple linear regression was calculated to predict mood of visitors of the Model Town Park based on the ambience of the park. Standardized coefficient b=-.627 for ambiance of the park and, t=21.149 p<0.00. A simple linear significant regression equation was found F (1, 16) = 44.16, p < .0001), with an R 2 of .394 Participants 'predicted variable is equal to 4.180+(-.919) (Ambience of the park) [mood swings of visitors] when [Ambience the park] is measured. [mood swings of the visitors] increased -0.919 for each [participant] of Ambiance of park as shown in Table.

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.180	.193		21.149	.000
	does the ambience refresh your health	-.919	.135	-.642	-6.901	.000

a. Dependent Variable: please answer how you feel right now at this place

the significance (p-value) is less than 0.05 which means the null hypothesis is rejected. And it is concluded that there is a significant role of Ambience of the park in determining the mood swings of the visitors.

Awareness of CES Significance in UGS of Lahore

According the survey, 66.2% participants thought that CES benefit Human-beings. 7.5% participants said that there is no benefit of CES. 26.2% participants didn't know that CES benefit human-beings or not. It is analyzed that CES benefit human-beings.
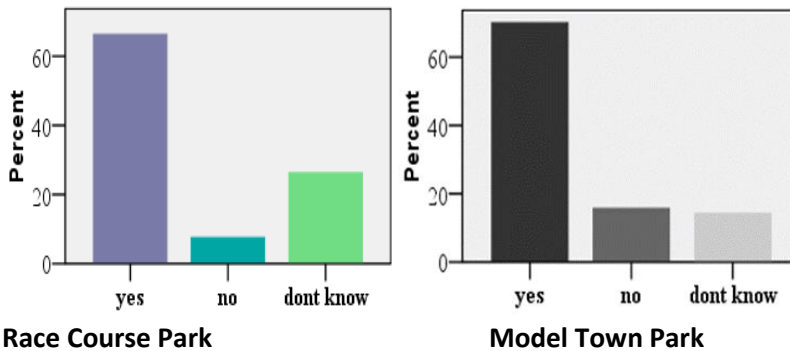

Race Course Park   Model Town Park

Figure8: Participants thinking CES benefit Human-beings

21.2% participants participated in the activities related to CES. Most of these participations were related to flower exhibitions and sports. 78.8% participants didn't participate in the activities related to CES. There are facilities or opportunities in Race Course where people can apply and show their talents.

According to 55% participants the recreational Facilities should be developed in UGS of Lahore. 27% participants want to see improvement in spiritual facilities in UGS of Lahore. 13% participants want to see development in the religious facilities in UGS of Lahore. 3% participants there is need of improvement of cultural facilities in UGS. Therefore, according to the survey there is a need of development in recreational facilities in UGS of Lahore.

According the survey, 70% participants thought that CES benefit Human-beings. 15.7% participants said that there is no benefit of CES. 14.3% participants didn't know that CES benefit human-beings or not. It is analyzed that CES benefit human-beings.

15.7% participants participated in the activities related to CES. Most of these participations were related to flower exhibitions and sports. 84.3% participants didn't participate in the activities related to CES. There are facilities or opportunities in Race Course where people can apply and show their talents.

According to 61.4% participants the recreational Facilities should be developed in UGS of Lahore. 21.4% participants want to see improvement in spiritual facilities in UGS of Lahore. 14.3% participants want to see development in the religious facilities in UGS of Lahore. 3% participants there is need of improvement of cultural facilities in UGS. Therefore, according to the survey there is a need of development in recreational facilities in UGS of Lahore.
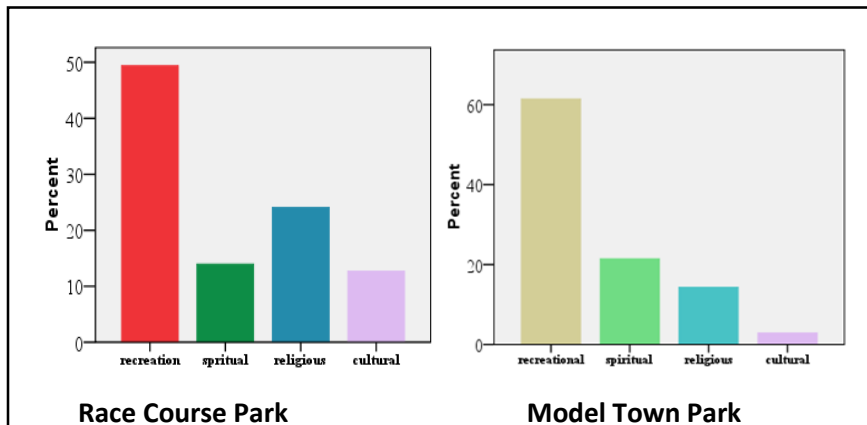

Race Course Park   **Model Town Park**

Figure9: Assessment of development of CES

CONCLUSION

The aim of this thesis was to develop a method to evaluate CES from people's own perceptions, by collecting data from questionnaires and interviews. CES is the very vast category of ES.

CES has been divided into benefits which have been transformed to questions used in questionnaires. Questions regarding physical aspects, cultural aspects and awareness of CES significance were set. These perspectives include activities asked to capture benefit; environmental qualities. CES is the category of ES. CES are further categorized into seven characters. Each of the characters were observed and evaluated in selected UGS of Lahore. The comparison of selected UGS was also taken place. CES are on the basis of visitors' own perceptions. Their feedback towards the CES provided by the UGS was calculated by using statistical methods. CES provided by the UGS were also evaluated on the basis of managements' interviews. The results were interpreted very clearly by including all the aspects of the CES. All the study is concluded that all the characters of CES are very essential for HWB. It cannot be neglected. It is linked with quality of life. There cannot be compromised on CES provided by UGS because these are directly linked with quality of life. Human beings are strongly connected with their environment and CES provided by UGS

are connected the human beings with nature, in other words, these are the source of man-nature relationship.

RECOMMENDATIONS

By including visitors' views, supervisors' interviews and field survey, there are some suggestions for the development of selected UGS and for the development of UGS of Lahore. As far as Race Course Park is concerned, there is a requirement of development in sign boards so that visitors can easily visit their area of interest without any difficulty. Although there are sign boards on the jogging tracks so that visitors can know their distance but visitors want more sign boards for the guidance of places. Events and festivals are very restricted due to the security issues. Therefore, Management needs more security to manage the park so that more facilities can be provided. Government should take the steps to overcome the security issues so that CES can be provided without any hurdles.

In case of Model Town Park, there is a requirement of a lot of development. The area of Model Town Park is large but CES are very limited. There is a need of better management. Visitors complaints about improper cleanliness. There is a need of cleanliness first of all. After that, there is a need of proper management of CES. More facilities should be provided here by means of recreation. The visiting rate of Model Town Park is becoming down day by day just because of mismanagement. If it is managed properly, it will the one of the most attractive UGS of Lahore.

Government should take steps for the development of CES provided by the UGS of Lahore. More recreational services need development. Cultural festivals are disappearing gradually from the UGS of Lahore. Lahore is considered as the cultural heart of Pakistan but cultural events are limited. These events should be at large scale. Government should take the steps to promote CES in UGS of Lahore.

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