Evaluation of the Quality of Green Open Space as a Tourism Destination. Case Study: Mahakam Riverside Tenggarong

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Abstract. Green open space is one part of urban space that functions to improve environmental quality, city aesthetics, and social interaction. Tenggarong city in East Kalimantan Province, which is located on the riverside of the Mahakam River, has green open spaces along its riverbanks. The beginning of the concept of developing this riverside area is The Waterfront Park of Tenggarong City or tourism on the Mahakam Riverside. This green open space aims to restore the function of city space and places that have a linear typology, as well as a city icon and tourism destination to increase tourist visits to Tenggarong City. The purpose of this paper is to find out how the quality of green open space and to find out the factors that must be added in green open spaces to influence the visitors to the Mahakam Riverside in Tenggarong City. The result of this research is in "Quite Satisfied" category. This illustrates that tourists are quite satisfied with the availability of public open space on the Mahakam Riverside in Tenggarong City, but they are still not optimal as a whole. To provide a better level of tourist satisfaction in the future, the Tenggarong City Government must be improve the quality of public open spaces that have not satisfied visitors.

Keywords: Green Open Space · Public Space · Tourism Destination · Riverside

1 Introduction

Public open space is one part of urban space that functions to improve environmental quality, city aesthetics, and social interaction. Social life in cities will be better and healthier if there are planned and organised green open spaces. These open spaces offer healthy and positive spiritual growth for all ages. Children can play safely in parks instead of on dangerous roads. Teenagers can also move and grow with a healthy body and soul. The people of the city can recreate and be creative so that they can work energetically for the welfare of their families. People organise the environment with greening and landscaping so that the environment provides benefits for human life. Green open spaces play a very important role in restoring the creativity of people's lives from the routine and boredom of working in urban areas [1].

Green open space is an open space filled with vegetation to support ecological, architectural, and socio-cultural benefits that can provide economic benefits for the

community. Meanwhile, non-green open space can be in the form of hardened open space or blue open space in the form of rivers, lakes, or areas designated for retention ponds [2].

The purpose of developing Green Open Space as green infrastructure in urban areas is to improve the quality of urban living environment that is comfortable, fresh, beautiful and clean, as an environmental facility which is the principle of sustainable development [3]. In addition, green open space will create a harmonious natural environment and built environment that is useful for the benefit of urban communities.

Based on the Spatial Planning Law No. 26/2007 and the Regulation of the Minister of Public Works No. 05/RRT/M/2008 on Guidelines for the Provision and Utilisation of Green Open Space in Urban Areas, it is stated that the definition of green open space is a grouped area whose use is open, where plants grow naturally or intentionally [4, 5]. Specifically, the law also regulates the need for the provision and utilisation of green open space, the portion of which has been set at a minimum of 30% of the total city area.

If the total area of public and private green open space in the city is already greater than the regulation or law, then this proportion must be maintained. The 30% proportion is the minimum size to ensure the balance of the city ecosystem, the balance of the hydrological system and the balance of the microclimate and other ecological systems that can increase the availability of clean air needed by the community and can increase the aesthetic value of the city.

According to the Minister of Public Works Regulation No. 5/2008, Green Open Space (RTH) in urban areas consists of several types, as follows [6]:

- City Park Green Space. City park green space is a park that is intended to serve the residents of one city or part of the city area. City park green space can be in the form of green space (green field), equipped with recreational and sports facilities, and sports complexes with a minimum of 80%–90% green space.
- Urban Forest. The provision of urban forests aims to buffer the urban environment that functions to improve and maintain microclimate and aesthetic value, absorb water, create balance and harmony of the city's physical environment and support the preservation and protection of biodiversity. Urban forests can be clustered or piled up, spread out and in the form of paths.
- Green Belt. Green belts are green spaces that function as buffer areas and to limit the development of a land use (city boundaries, regional separators, etc.) or limit one activity to another so as not to interfere with each other as well as security from surrounding environmental factors.
- Road Greenway. Road green belt consists of road islands and road medians. Road islands are green spaces formed by road geometrics such as at triple junctions or roundabouts. While the road median is a dividing line that divides the road into two or more lanes. Road medians or islands can be in the form of parks or non-parks.
- Pedestrian Space. Pedestrian space is space provided for pedestrians on the right-left of the road or in the park.
- Railway green open space is a green space that has the main function to limit the interaction between community activities and the railway.
- River border green open space is a green belt located on the left and right side of the river that has the main function to protect the river from various disturbances that can damage the condition of the river and its sustainability.

- Shoreline green space. Coastal RTH is a green space that has the main function as a barrier to the growth of settlements or other activities so as not to interfere with the preservation of the beach. Shoreline green space is a coastal safety area from damage or disasters caused by sea waves.

Raw Water Source/Water Spring. Green spaces for water sources include rivers, lakes, reservoirs and springs. Provisions for lakes and reservoirs, green space located on the boundary line set at least 50 m from the highest tide point to the land. As for springs, it is set at least 200 m around the springs.

2   Methods

2.1   Research Location

This research location of green open space on the Mahakam Riverside is located along Jl. Wolter Mongindisi to Jl K.H. Akhmad Muksin which consists of many function spaces, such as parks, parking lots, and pedestrian paths. This area consist of Enggang Park, Skate Park, and Creative Park Tenggarong.

However, the most visited green open space on the banks of the river is around the Kutai Kartanegara Bridge because it has the most attractive garden compared to other parts of the green open space also known as Kota Raja Park. The number of tourist visits on the riverside also makes the number of street vendors who fill the riverside area, even some street vendors who stay to sell at certain points. Until now, the area on the Mahakam Riverside is growing and is still a favorite tourist attraction for tourists when visiting Tenggarong City (Fig. 1).

2.2   Research Procedures

This study aims to evaluate the quality of green open space as a tourism destination on the banks of the Mahakam River in Tenggarong. The quality of green open space
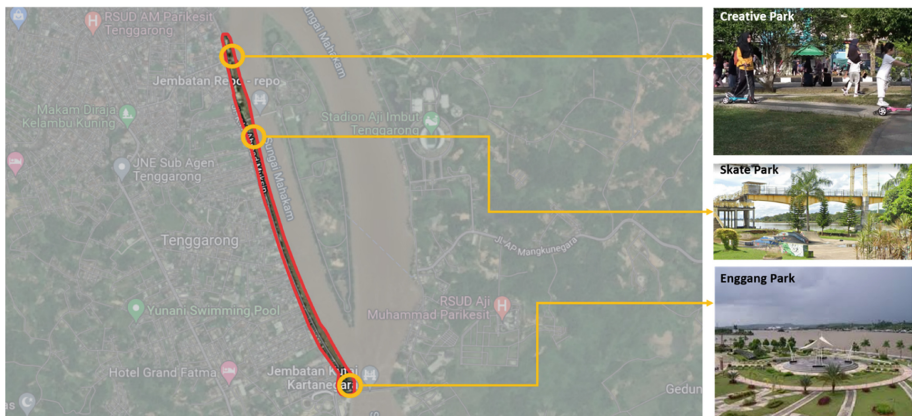

Fig. 1. Mahakam Riverside Tenggarong

is measured by tourist satisfaction and tourist expectations of the quality of green open space. In this study, the data collection techniques used were primary data and secondary data. Primary data conducted by interview (interview) to find out how far the quality of green open space is on tourist satisfaction and from the results of a tourist questionnaire in the Mahakam Riverside Tenggarong. In addition, it is also to find out the characteristics of tourists visiting this area.

The questionnaire used in this study is a data collection technique that is done by giving a set of written questions to respondents to answer [7]. This questionnaire is aimed at visitors to the Mahakam Riverbank area in Tenggarong. In this study, respondents as the unit of observation were tourists visiting the banks of the Mahakam River in Tenggarong by considering tourists over 18 years of age who were used as respondents, because at that age the respondents were able to formulate and answer the questionnaire responsibly.

The population sampled in this study were tourists visiting the banks of the Mahakam River in Tenggarong, whose number was unknown. Because the population in this study is not known accurately, the number of samples in this study refers to the opinion of Joseph Hair (2010) where it is said that the number of samples is more than 30 or a sample with a ratio of 5:1 to the number of research variables [8]. Therefore, this study determines 100 samples that will be tested on respondents.

This research uses Customer Satisfaction Index/CSI analysis. According to Siagian (2002), Customer Satisfaction Index/CSI is a measurement scale that describes the level of consumer satisfaction with a product [9]. This analysis is used to measure the overall level of customer satisfaction by looking at the level of importance and aspects/products/services [10]. By knowing the level of customer satisfaction, it can be used to monitor service improvements, a reference for determining goals in the coming year because without a customer satisfaction index, top management is difficult to determine goals to improve customer satisfaction, it is needed because the customer satisfaction measurement process is continuous, and there is a need for benchmarking between the level of customer satisfaction of a company and the level of customer satisfaction of competitors.

The results of the overall level of tourist satisfaction can be seen from the value of the tourist satisfaction index criteria in the Table 1.

3   Result and Discussion

3.1   Descriptive Analysis of Research

Based on the results, it can be seen that from 100 tourist respondents, it can be seen that the number of tourists aged 20–50 years is 65 respondents or 65%, more if seen in the table above while the age above > 50 years is 15 people (15%) and at least 15 tourists under the age of 20 years or 15% on public open space tourism visits green open along Mahakam Riverside (Figs. 2 and 3).

On the result, for the frequency of how many times (visits) tourists to tourist attractions in public open spaces on the Mahakam Riverside in Tenggarong City, it can be seen that the most tourists are about 2–5 times as many as 80 tourists or 80% while the

Table 1. Value of Customer Index Satisfaction

No	Customer Index Satisfaction	Interpretation
1	X ≤ 64%	Very dissatisfied
2	64% < X ≤ 71%	Not satisfied
3	71% < X ≤ 77%	Somewhat dissatisfied
4	77% < X ≤ 80%	Quite satisfied
5	80% < X ≤ 84%	Satisfied
6	84% < X ≤ 87%	Very satisfied
7	87% < X	Perfect

X = customer satisfaction index number

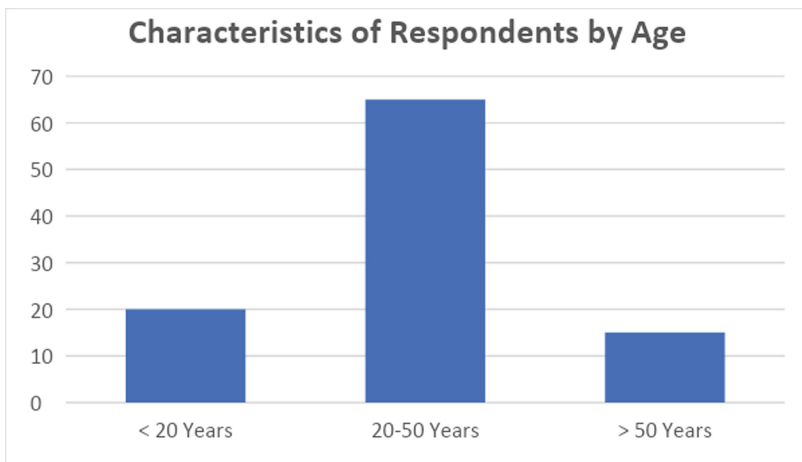Source: Costumer Satisfaction Measurement [11]

Fig. 2. Characteristics of Respondents by Age. Source: Primary data processed from SPSS 26

number of respondents who visit only once or first time as many as 20 (20%) of people (Fig. 4).

Based on the result, Characteristics of Respondents by Region, it can be seen that from 100 tourism respondents it can be seen that tourists from the Kutai Kartenegara area themselves were 70 respondents, and the rest are from nearby towns.

Based on the results of Fig. 5, it can be explained that of the 100 tourist respondents, it is known that tourists who have the aim of gathering with friends are 70 respondents or 70%, more when compared to tourists who aim to exercise, namely 20 people (20%) and the fewest tourists who have the purpose of travel as many as 10 tourists or 10% on public open space tourism visits on the banks of the Mahakam River Tenggarong.
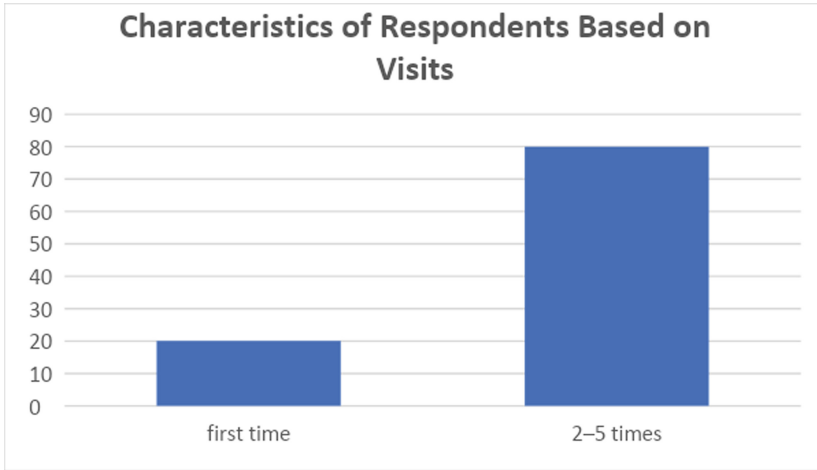
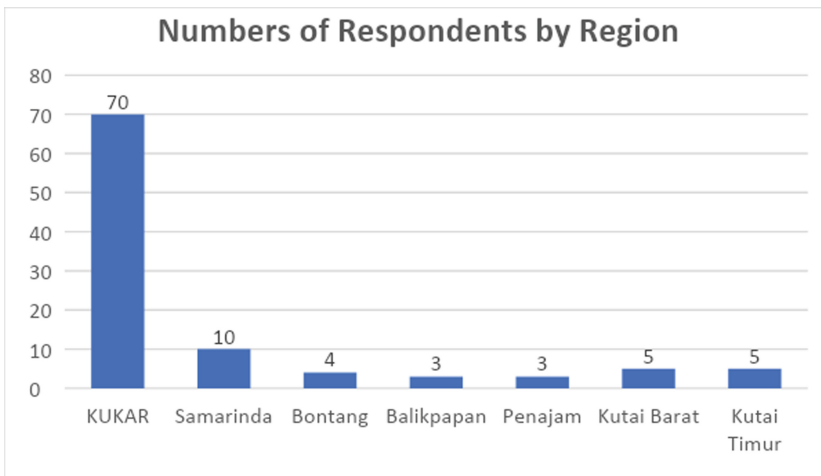**Fig. 3.** Characteristics of Respondents Based on Visits. Source: Primary data processed from SPSS 26

Fig. 4. Numbers of Respondents by Region. Source: Primary data processed from SPSS 26

3.2 Average Data Scoring

There were 33 questions from 100 respondents. The score of each question was then averaged from 100 respondents' answers. The results of the average data scoring are presented in Table 2.

Based on the scoring results of the average data in Table 2, it shows a minimum score of 1.56 or (Less Satisfied) in terms of "Availability of space for people with disabilities" and a maximum score of 4.81 or (Very Satisfied) on the question "Availability of access" for respondents' perceptions in assessing the availability of public open space for parks in Tenggarong City while for expectations (expectations) from respondents' assessments,
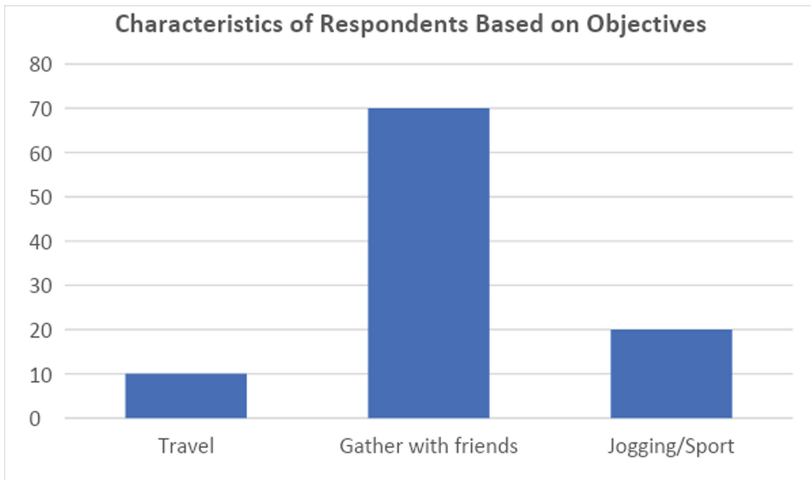
Fig. 5. Characteristics of Respondents Based on Objectives. Source: Primary data processed from SPSS 26

a minimum score of 2.05 or (Less Important) was obtained in terms of "Availability of space that can be used by certain ethnicities" and a maximum score of 4.73 or (Very Important) is "The concept of spatial planning contains cultural elements".

3.3   Customer Satisfaction Index (CSI)

Measurement of the Customer Satisfaction Index (CSI) is used to determine the amount of satisfaction index generated by a service. Measurement of the level of tourist satisfaction is very important to find out how much expectations can be met by the Tenggarong City Government. The Customer Satisfaction Index (CSI) calculation uses the average score of the level of expectations and the level of perception of each attribute. The results of the Customer Satisfaction Index (CSI) calculation are shown in Table 3.

Find the value of *Customer Satisfaction Index* (CSI) as follows:

$$CSI = \frac{489.28}{5(134.63)} \times 100\%$$

$$CSI = 72,68\%$$

Based on the analysis of Customer Satisfaction Index (CSI) obtained a satisfaction index is 72.68%. Based on the tourist satisfaction index table, this figure falls into the interval X > 50%–80% which indicates that the satisfaction tourists index to the quality aspects of green open space on the Mahakam riverside are in the "quite satisfied" criteria.

Table 2. Average Results of Data Scoring

No	Indicator	Symbol	Perception (P)	Hope (H)
1	Availability of shade from heat and rain	COM1	2.31	4.55
2	Availability of seats	COM2	4.54	4.61
3	Availability of pedestrians	COM3	4.50	4.62
4	Availability of eating/drinking facilities	COM4	4.75	4.68
5	Availability of lighting (lamp)	COM5	4.58	4.69
6	Park availability	COM6	4.53	4.60
7	Distance from seat to noise source	REL	3.22	3.35
8	Ease of observation	PAS1	3.67	3.43
9	Ease of enjoying the view	PAS2	4.68	4.60
10	Ease of walking in the park	ACT1	4.70	4.30
11	Availability of places for events	ACT2	4.67	4.23
12	Availability of children's play area	ACT3	3.28	4.27
13	Availability of space for the elderly	ACT4	1.61	3.51
14	Availability of space for the disabled	ACT5	1.56	2.11
15	Availability of attractive ornaments in public spaces	DIS	4.70	4.32
16	Access availability	AKS1	4.81	4.42
17	Availability of physical boundaries (fence/safety)	AKS2	2.63	4.63
18	There is a zoning of activities	KEB	4.62	4.42
19	Availability of information room	RUA1	2.32	3.41
20	Availability of information regarding public space regulations	RUA2	1.81	3.40
21	Availability of space quality development policies	CHA	2.65	4.55
22	Availability of markers/ area boundaries	LEG1	2.51	4.63
23	Availability of landmarks	LEG2	4.11	4.63
24	Location, function and character are reflected in the design	LEG3	3.53	4.58
25	The concept of spatial planning contains elements of function	RVC1	4.02	4.54
26	The spatial concept contains elements of the user's character	RVC2	3.47	3.50
27	The concept of spatial planning contains elements of management/layout	RVC3	3.43	3.52

(*continued*)

Table 2. (*continued*)

No	Indicator	Symbol	Perception (P)	Hope (H)
28	The concept of spatial planning contains cultural elements	RVC4	2.40	4.73
29	Availability of space that can be used by individuals	IND	2.25	2.60
30	Availability of space that can be used by groups	GRP	4.51	4.65
31	Availability of space that can be used by certain ethnicities	LAR	1.59	2.05
32	Have a free space section	BIO	4.51	3.55
33	Maintenance program	MAI	3.75	4.54

Source: Primary data processed from SPSS 26

Table 3. Result of Customer Satisfaction Index (CSI)

No	Symbol	Perception (P)	Hope (H)	Skor (P x H)
1	COM1	2.31	4.55	10,51
2	COM2	4.54	4.61	20,93
3	COM3	4.50	4.62	20,79
4	COM4	4.75	4.68	22,23
5	COM5	4.58	4.69	21,48
6	COM6	4.53	4.60	20,84
7	REL	3.22	3.35	10,79
8	PAS1	3.67	3.43	12,59
9	PAS2	4.68	4.60	21,95
10	ACT1	4.70	4.30	20,21
11	ACT2	4.67	4.23	19,75
12	ACT3	3.28	4.27	14,01
13	ACT4	1.61	3.51	5,65
14	ACT5	1.56	2.11	3,29
15	DIS	4.70	4.32	20,30
16	AKS1	4.81	4.42	21,26
17	AKS2	2.63	4.63	12,18

Table 3. (*continued*)

No	Symbol	Perception (P)	Hope (H)	Skor (P x H)
18	KEB	4.62	4.42	20,42
19	RUA1	2.32	3.41	7,91
20	RUA2	1.81	3.40	6,15
21	CHA	2,65	4,55	12,06
22	LEG1	2,51	4,63	11,62
23	LEG2	4,11	4,63	19,03
24	LEG3	3,53	4,58	16,17
25	RVC1	4.02	4,54	18,21
26	RVC2	3,47	3,50	12,15
27	RVC3	3,43	3,52	12,07
28	RVC4	2,40	4,73	11,35
29	IND	2,25	2,60	5,85
30	GRP	4,51	4,65	20,57
31	LAR	1,59	2,47	3,93
32	BIO	4,51	3,55	16,01
33	MAI	3,75	4,54	17,03
Total			134,63	489,28

Source: Primary data processed from SPSS 26

4   Conclusion

Based on the results of the analysis that has been carried out through the CSI (Costumer Index Satisfaction) method which assesses the overall tourist satisfaction index shows the value of tourist satisfaction with green open space on the banks of the Mahakam River Tenggarong with a value of 72.68%. Based on the tourist satisfaction index table, this figure falls into the interval X > 50%–80% which indicates that the satisfaction tourists index to the quality aspects of green open space on the Mahakam riverside are in the "quite satisfied" criteria.

From the results of this study it can be concluded that with this value, the quality of green open space is a very big influence on the low overall tourist satisfaction with green open space on the banks of the Mahakam River in Tenggarong.

The results of this green open space evaluation research on tourist satisfaction on the banks of the Mahakam River Tenggarong illustrate the need for directions in development and policy making to improve and maximise the performance of green open space in this area. To improve the quality of green open space, coordination of stakeholders from the government and local communities is needed.

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