

## Competitiveness city parks on river banks: Google review analysis of city parks in Kalimantan Island



Boby Rahman \*

Urban and Regional Planning Department, Sultan Agung Islamic University, Java, Indonesia

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### ABSTRACT

This research was conducted on Kalimantan Island, an island with many geomorphological rivers and a comparative regional and cultural development history, with a number of parks on the river banks. This research is different from most other competitive location studies because it examines competition based on differences in the number of different park types. This study utilized a quantitative method, with big-data-based and google review footprint as the basis for the number of visitors and evaluates location rankings. The results show that city parks on the river bank have high competitiveness. However, they have a weakness in the relatively high quantity ratio, which is 14: 100 parks compared to river bank city parks. Based on the study results, at the provincial level, city parks on the river banks were still able to dominate the most visited and location satisfaction ratings in three of the five existing provinces. The percentage level of park distribution at a minimum of above 15-16% has provided dominant competitiveness for city parks on river banks. This result shows that city parks on river banks have unique competitiveness. This study has a location discussion of a comprehensive park location with an island coverage, the weakness of this research is that it uses internet review to track information on the number of visitors.

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### 1. Introduction

There is potential for river banks to be utilized as green open spaces such as parks, and it becomes a good option for river bank land management. Therefore, it can be utilized and does not become built-up land (residential) (Kautsary et al., 2021). The trend continues by developing various forms of city parks on river banks, either multipurpose park models, tourist parks, recreation, economy, or environment, to become the core of the waterfront city concept (Tisnawati and Ratriningsih, 2017; Prameswari, 2018; Wahyuningsih, 2021; Sulistyaningsih and Mentayani, 2021).

City Parks on river banks have existed in the urban center on Kalimantan Island for a long time. Kalimantan Island has a history of being very close to rivers, and many things can describe its proximity to rivers. The closeness can be seen in the aspect of

the community that has always lived and been active on the river bank. Many river cultural events have arisen because of the activity system and culture of the community on the riverbank. Another aspect of the closeness is the development of space on Kalimantan. The majority of riverbank settlements become the beginning of settlements and the forerunner of urban areas. The city's development will concentrate and condense starting from the river towards the outside of the river (Hartatik, 2017; Murti et al., 2020; Syahrin et al., 2020; Rahman, 2022; Purwanto, 2018). However, with river bank regulations, the increasing urban development cannot be accommodated by the linear development of rivers and growing land transportation patterns. The city is developing towards the middle (away from the river), thus giving rise to city parks outside the river area (non-border river city parks).

There is a trend of using river banks as parks, and the history of city development in Kalimantan is oriented towards rivers. This study aims to measure the competitiveness of city parks on river banks and parks on non-river banks, with Kalimantan Island as the scope of its location. There are no studies that are similar to this study. Much research on competitiveness tends to focus on the business

\* Corresponding Author.

Email Address: [bobyrahman@unissula.ac.id](mailto:bobyrahman@unissula.ac.id)

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Corresponding author's ORCID profile:

<https://orcid.org/0000-0001-8526-8628>

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aspect, while the research we are going to do is oriented toward the park's location and its comparison.

There is a trend of using river banks as parks, and the history of city development in Kalimantan is oriented towards rivers. This study aims to measure the competitiveness of city parks on river banks and non-river banks, with Kalimantan Island as the scope of its location. There are no studies that are similar to this study. Much research on competitiveness tends to the business aspect, while this research is location-oriented.

Previous research related to the competitiveness of parks mostly carried out on national parks, examined the competitiveness of the tourism, socio-cultural, and sustainability aspects (Maisiri, 2017; Eddyono et al., 2020; 2021; Fernandes et al., 2021; Wibowo et al., 2021). However, these studies have very clear differences from our research, where the parks we mean in this study are city parks which are extensively managed differently from national parks. The next research on park competitiveness is oriented towards the competitiveness of technoparks, which discusses global competitiveness and innovation systems that can help value competitiveness (Kim and Park, 2018; Valiev et al., 2017). However, technoparks are different from our research located in city parks, with the main characteristics being more of a socialization function, in contrast to technoparks that have strategic value politically and help economic development based on science and technology.

Previous research that was oriented to location studied more about tourism competitiveness, rarely did anyone compare locations. Mustafa et al. (2021) examined the comparison of two geoparks by measuring the competitiveness of destinations by integrating the perspectives of tourists and tourism practitioners. In Mulyadi's (2019) research comparing the concept of two-state parks, the findings are in the form of distinguishing elements. It differs from our research, which analyzes the comparative competitiveness of community visits to city parks on river banks and non-river banks.

This research is important despite the relatively sparse literature on the competitiveness between park sites. It is crucial because of the strategic value of city park innovation on river banks to protect river banks from non-built land, unused land, and river sustainability. This study will provide input related to the competitiveness of city parks on the river bank based.

On visits and satisfaction assessments by the community compared to parks that are not on the river in a city. The results of this study can contribute by becoming a reference for initial studies in making decisions for developing city parks on river banks.

## 2. Material and method

This research conducted an initial assessment through google maps to identify the number of city

parks on the river banks. The use of Google review can assist in big data recording (Kong and Heacock, 2020) with thousands of reviews from every place. It can describe the state of a place, a visit, or a branch. It creates a new space in the era of big data that can classify locations and human experiences through user-provided content. Google review is one of the features of Google maps. This simple feature that can have a big impact gives a place a numerical value and text and photo reviews. In this era of big data, users easily assign values according to visitor satisfaction factors. Google Review is important because it is a description of a location that is considered to provide real product services when visitors come and to be able to serve online to build a good reputation in front of citizens or potential visitors (Haq, 2020).

### 2.1. Data collection and preparation

Data collection was carried out on March 27, 2022, using the tool data scraper from Google Chrome, with the keyword "Taman Kota" (Citypark in English) followed by "names of 60 districts/cities on the island of Kalimantan." From the results of the google chrome data scraper, it is saved in the form of xls to be opened in Microsoft Excel, then the coding is made for the name, address, and number of reviews, especially location information, to bring up the coordinates of the park obtained. The data obtained will be stored in csv form to be processed and analyzed in excel media.

### 2.2. Data processing

Attribute data is processed through excel, with the scraper data taken for processing are the name of the park, the address of the park, the type of use of the location, ratings, and reviews. Then the data is added to the park category based on the results of primary and secondary identification, whether it is in the category of river bank or non-river bank. The data is arranged in the form of Table 1 and then processed into a graph and interpreted as the results.

Spatial data is processed by applying the "QGIS" geospatial information system. The data obtained from the scraper is entered into a google sheet, with the data entered is the name and address of the park. They were using the "Geocode by Awesome Table" extension from Google Sheets, and the processing of retrieval of park coordinate information was carried out. After the coordinate information is obtained, the data is saved to a csv file type to be opened in QGIS. The results of this data processing illustrate the spatial distribution of the park on the river bank.

### 2.3. Data extracting

Data Extracting is carried out in three stages. The first stage is Data Extracting data to identify districts/cities that have parks on river banks. The

second stage of Data extraction is based on the identification of the number of parks in districts/cities identified as having parks on river banks, and the third stage is Data Extracting based on the collection of the number of visitors and evaluates location rankings based on google reviews in all parks in the regency/city identified as having parks on the river bank. The three stages of data collection are the number of visitors and evaluate location rankings based on Google reviews.

In the first stage, the results of the coordinate points are used as material for studying which districts/cities have river bank parks by looking at their proximity to the river and Google review photos to see the condition of the location description. The results are summarized in Table 1 and the spatial distribution is depicted in Fig. 1, resulting in 43 city parks in 24 districts/cities. The author uses a primary survey approach on several sample locations. The total primary sample visited is 12 districts/cities with a list of 20 parks on the river bank. Due to the data scraper carried out, the identification results are 23 parks according to the river bank.

the number of reviews as the basis for the number of park visits. The results of the stages of taking this number of reviews will be the basis for statistical analysis of the competitiveness of city parks on river banks.

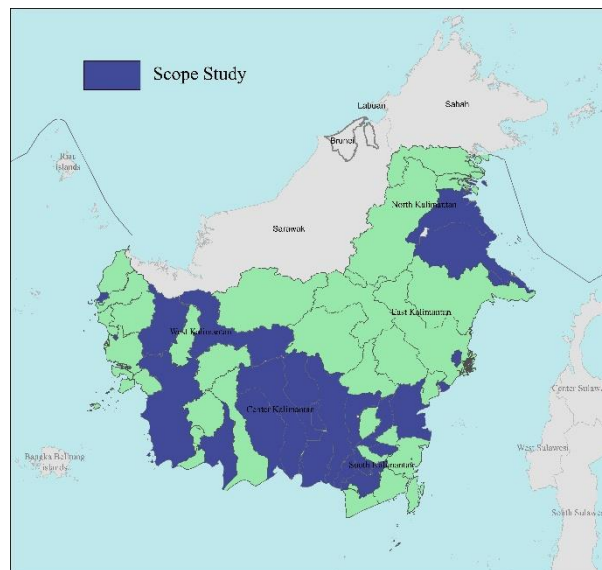


Fig. 1: Distribution map of city parks on river banks

Table 1: Areas that have river banks

No	Province	Districts that have parks on the riverbank	Number of districts in scope
1	South Kalimantan	Barito Kuala	6
		Hulu Sungai Tengah	
		Hulu Sungai Utara	
		Tabalong	
		Tapin	
2	Centre Kalimantan	Banjarmasin	8
		Barito Selatan	
		Gunungmas	
		Kapuas	
		Kasongan	
		Kotawaringin Barat	
		Kotawaringin Timur	
		Pulang Pisau	
3	West Kalimantan	Palangkaraya	5
		Sintang	
		Ketapang	
		Pontianak	
		Sanggau	
4	East Kalimantan	Singkawang	4
		Berau	
		Paser	
		Balikpapan	
5	North Kalimantan	Samarinda	1
		Bulungan	
Total			24

The second stage is collecting data to identify the number of parks in the Regency/City that have parks on the river borders. Identification is carried out on the data scraper that has been carried out in stage one, with a focus on Regency/City data that have city parks on river banks. The results found 302 park samples consisting of 43 city parks on the river bank and 259 city parks on the non-river bank. This data will illustrate the competitiveness between city parks on the river bank and city parks on non-river banks.

The third stage collects the number of visitors and evaluates location rankings based on Google reviews of all parks in the Regency/City identified as having parks on the river bank. This stage takes all

## 2.4. Data analysis procedures

Competitiveness is carried out by comparing the performance of the number of reviews as a visitor and evaluating location rankings data between city parks on the river bank and city parks on the river bank. The data comparison is reviewed again by looking at the distribution between river bank city parks and non-river bank city parks. The distribution of the number of visitors evaluates location rankings, and the number of the park distribution become the basis for reading the results of the competitiveness analysis. The research framework is shown in Fig. 2.

## 3. Result and discussion

Kalimantan Island has 43 city parks located on river banks. These city parks are spread over 24 of the total 56 districts and cities, or about 42.85% of districts and cities on Kalimantan Island have city parks on river banks. Fig. 3 shows the distribution of City Parks on the river bank, which is massively spreading in Kalimantan. The total distribution of non-river-border parks in regencies and cities with river-border parks reaches 259 city parks. Table 2, Compared to 43 city parks located on river banks, the percentage of river-border parks reaches 14.22% of the total number of parks. However, the number of visits to city parks on the river bank based on review trails from google reached 50,918 review trails. Compared to the total review trails from google in all parks, the review trail numbers in River bank Parks reached 42.88% of the total reviews in all parks. It shows that with a fairly even distribution, although the percentage of City Parks in the border area is only 14% compared to the total of all parks, it means that for fourteen city parks on the

river bank, there are one hundred non-border city parks. However, with a small percentage, it still has a competitive advantage in attracting visitors with a

total review footprint that is almost half of the total review footprint.

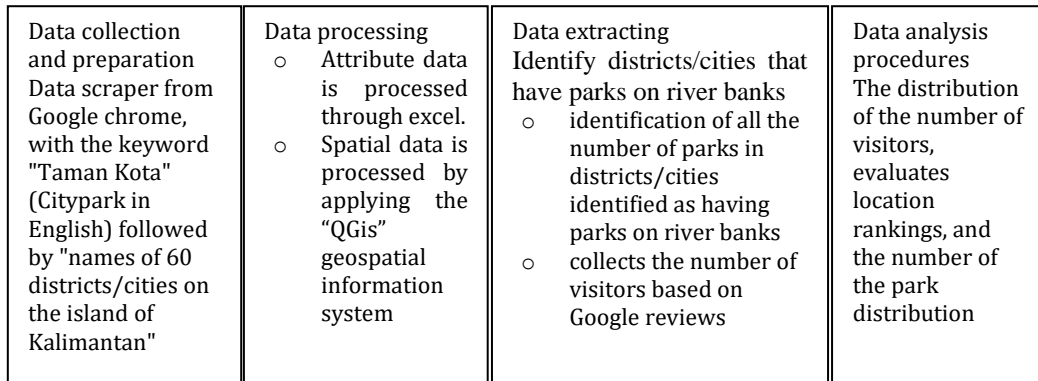


Fig. 2: Research framework

Table 2: Comparison of total parks

No	Province	District	Parks on river bank	Parks on non-river banks
1	South Kalimantan	Barito Kuala	2	15
		Hulu Sungai Tengah	3	11
		Hulu Sungai Utara	2	1
		Tabalong	1	14
		Tapin	1	10
		Banjarmasin	4	28
		Barito Selatan	1	3
		Gunungmas	1	2
		Kapuas	1	7
		Katingan	1	4
2	Center Kalimantan	Kotawaringin Barat	1	12
		Kotawaringin Timur	1	10
		Pulang Pisau	1	3
		Palangkaraya	1	35
		Sintang	2	9
3	West Kalimantan	Ketapang	2	5
		Pontianak	3	14
		Sanggau	2	8
		Singkawang	1	13
		Berau	3	6
4	East Kalimantan	Paser	2	7
		Balikpapan	1	19
		Samarinda	4	15
5	North Kalimantan	Bulungan	2	8
Total			43	259

Based on the distribution of provinces, in terms of quantity, South Kalimantan Province has the most significant number of parks on the river bank, with a total of 13 parks on the river bank. However, in terms of total availability, North Kalimantan Province, as a new province in Kalimantan, has the highest percentage of park distribution at 20.69%. However, with a low availability percentage, the competitive attractiveness of river bank parks has a pretty good score in the two provinces. In West Kalimantan Province, the number of visitors based on the review trail reached 23,745 reviews, or 65.17% compared to non-river bank parks. In North Kalimantan Province, the number of visitors based on the review trail reached 9,251 reviews or 51.44% compared to non-river bank parks. In these two provinces, parks on the river bank can attract more visitors than parks on the non-river bank.

Based on Table 3 about the distribution percentage, city parks on river banks have lower visits than city parks on non-river banks in provinces, where the distribution of city parks on river banks is less than 16%. This percentage is aimed at South Kalimantan and Central Kalimantan provinces, which have a park distribution rate of less than 16%. For the provincial level, Fig. 4 finds the competitiveness constraint of city parks on riverbanks.

From Table 4 and Fig. 5 about the district level, the competitive power of parks on the river banks based on the review trail was able to dominate reviews in 37.50% of districts and cities. Although in terms of quantity, the number of parks on the river bank and non-river bank parks differs greatly (14 in 100 parks), river bank parks dominated more than 50% of visits based on reviews in nine districts and cities. The competitive level of attractiveness of parks on riverbanks can also be seen from the performance of the attraction per park. There are 12 (28%) city parks on the riverbank that are able to be the most visited parks based on reviews, 11 (25%) city parks on the riverbanks that are able to be the second most visited parks based on reviews, and 5 (12%) parks riverfront cities that were able to be the second most visited parks based on reviews, and 5

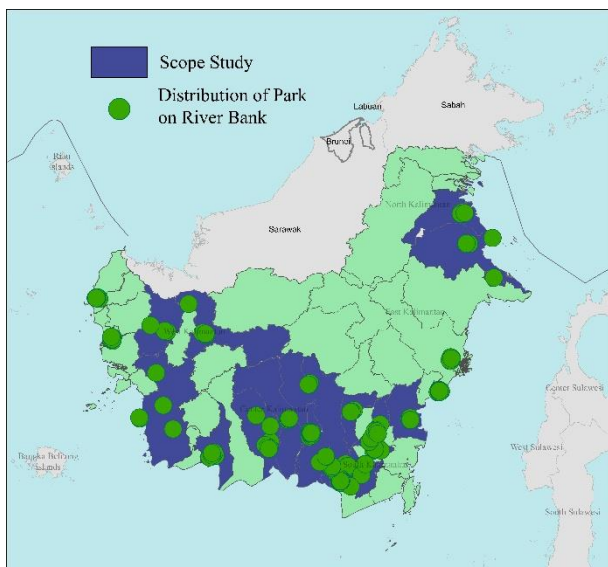


Fig. 3: Distribution of parks on river bank



(12%) riverfront city parks that were able to be the third most visited parks based on reviews. This shows that 28 (65%) city parks on the riverbank are

able to become the first, second, or third favorite parks in each district.

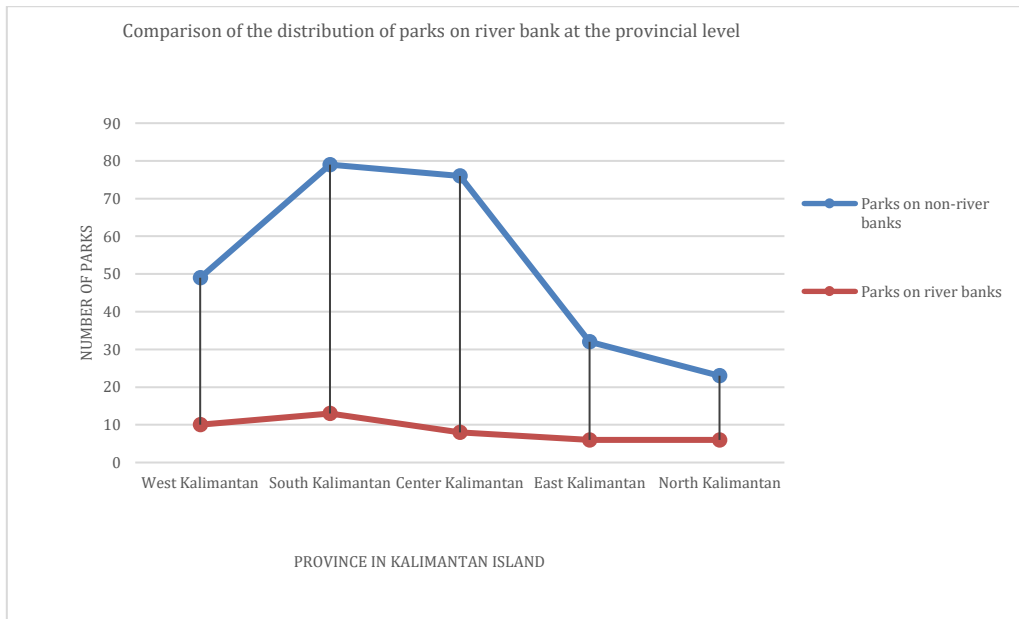


Fig. 4: Comparison of the distribution of parks on river banks at the provincial level

Table 3: Visitors and percentage distribution province level

	Visitors			Percentage		
	Parks on non-river banks	Parks on river bank	Total	Parks on non-river banks	Parks on river bank	Percentage distribution
West Kalimantan	12.712	23.745	36.457	34.87%	65.13%	16.95%
South Kalimantan	13.978	4.994	18.972	73.68%	26.32%	14.13%
Center Kalimantan	21.971	7.471	29.442	74.62%	25.38%	9.52%
East Kalimantan	10.432	5.457	15.889	65.66%	34.34%	15.79%
North Kalimantan	8.732	9.251	17.983	48.56%	51.44%	20.69%
Total	67.825	50.918	118.743	57.12%	42.88%	14.24%

Table 4: The order of favorite parks on the river banks based on the number of visits at the district level

Province	District/City	Most visited	Second most visited	third most visited	Unfavorite	Total
South Borneo	Barito Kuala	1	0	0	1	2
	Hulu Sungai Tengah	0	0	0	3	3
	Hulu Sungai Utara	1	1	0	0	2
	Tabalong	0	0	0	1	1
	Tapin	0	0	0	1	1
	Banjarmasin	0	1	0	3	4
Center Borneo	Barito Selatan	1	0	0	0	1
	Gunungmas	1	0	0	0	1
	Kapuas	0	1	0	0	1
	Katingan	1	0	0	0	1
	Kotawaringin Barat	0	0	0	1	1
	Kotawaringin Timur	0	1	0	0	1
	Pulang Pisau	1	0	0	0	1
	Palangkaraya	0	0	1	0	1
West Borneo	Sintang	1	0	1	0	2
	Ketapang	1	1	0	0	2
	Pontianak	1	1	1	0	3
	Sanggau	0	1	0	1	2
	Singkawang	1	0	0	0	1
East Borneo	Berau	0	1	1	1	3
	Paser	1	0	0	1	2
	Balikpapan	0	1	0	0	1
	Samarinda	1	1	0	0	2
North Borneo	Bulungan	0	1	1	2	4
	Total	12	11	5	15	43

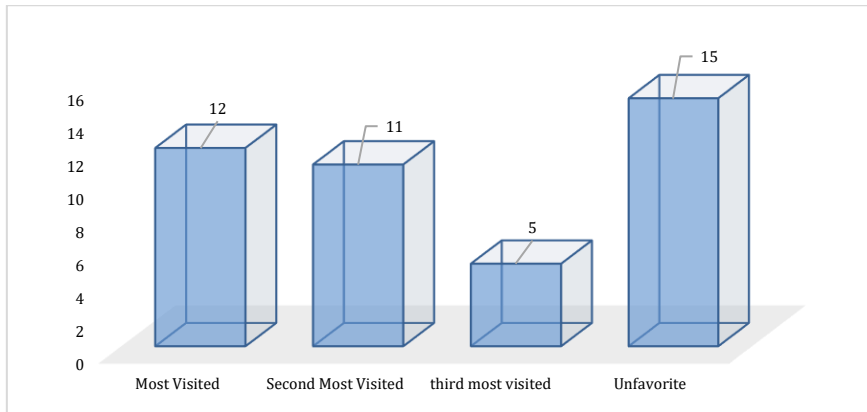


Fig. 5: The order of favorite parks on the river banks based on the number of visits at the district level

Google Review also provides a menu review at a location, using a 1 to 5-star scale. A 1-star level indicates the presence of the location, and the like will decrease as the more satisfied the number rises to the highest, very satisfied at number 5. At City

Parks on the river bank. Based on Table 5, a study of the entire island of Kalimantan shows that its rating is at 4.24 stars or still below the rating for non-border parks which has a 4.26-star rating.

Table 5: Location rating satisfaction assessment and percentage distribution

Province	Average of rating		Percentage distribution
	Parks on non-river banks	Parks on river bank	
West Kalimantan	4.29	4.33	16.95%
South Kalimantan	4.36	3.98	14.13%
Center Kalimantan	4.29	4.26	9.52%
East Kalimantan	4.29	4.30	15.79%
North Kalimantan	4.09	4.35	20.69%
Total Average	4.26	4.24	14.24%

Many competitive studies exist regarding location but are comparative in quality between two or more locations. While this research is different from other competitive location research, because it examines the competition based on differences in the quantity of park availability, by comparing the competitive ability of parks on river borders and non-river borders. So that the novelty value in this research is the percentage level of park distribution at a minimum of above 15-16% has provided dominant competitiveness for city parks on river banks.

#### 4. Conclusion

This research provides a new perspective on urban parks on the river banks of Kalimantan Island. Its competitive ability in attracting visitors can pass the relatively large availability quantity comparison limitation. It can provide an overview and input related to areas that want to plan the development of parks on river banks, especially in areas that have historical and cultural proximity to rivers.

The results showed that with a comparison of the availability of 14: 100 (14%) parks, city parks on the river bank could reach 42.8% visits based on a total review of 302 existing parks. From the provincial scope, the competitiveness of city parks along the river banks can still be seen with the same pattern, with the highest availability level of 20.69%, but still dominating more than 50% of visits based on reviews in two of the five provinces. In terms of location satisfaction, in a total park, city parks on non-river banks are still better than city parks on

river banks, with a rating of 4.26 and 4.22. However, at the provincial level, the rating for city parks on river banks can obtain better location satisfaction in three of the five provinces on the island of Kalimantan.

The results of the data collected on the competitiveness of city parks on river banks on the island of Kalimantan show several indicators of the percentage of park distribution. It was found that in terms of visitor competitiveness, at the provincial level, the number of percentage distribution parks along the river bank is above 16%, making parks on the river bank able to become parks that are most visited. On the competitiveness of location satisfaction at the provincial level, the number of percentage distribution parks on the river bank also shows the same thing where the distribution is above 16%, which will make parks on the river bank able to become parks with a higher location satisfaction rating. This result shows that 15-16% of the number of parks on the river bank is the minimum limit to competitiveness with non-river bank city parks.

The results of this study provide a positive picture regarding the competitiveness of city parks on river banks. The results of this study can also be used as a reference for various innovation plans that are starting to use non-built river bank areas as meeting points for people to the river. However, this study has a weakness because it used the review footprint as the number of visitors, making the assessment only on a particular cluster of groups (active internet users).

## Compliance with ethical standards

## Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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