



Correlation between satisfactory level and visitors number in Cibodas Botanic Gardens, Indonesia

Imawan Wahyu Hidayat^{1*}, Winarni² and Dwi Novia Puspitasari³

¹Research Center for Plant Conservation and Botanical Gardens - National Research and Innovation Agency (BRIN) the Republic of Indonesia, Indonesia

²Directorate of Scientific Collection Management - National Research and Innovation Agency (BRIN) the Republic of Indonesia, Indonesia

³Bureau for Public Communication, General Affairs, and Secretariat - National Research and Innovation Agency (BRIN) the Republic of Indonesia, Indonesia

*Correspondence email: imawan.wahyu.hidayat@brin.go.id

ARTICLE INFO

► Research Article

Article History

Received 1 November 2021

Accepted 5 January 2022

Published 31 January 2022

Keywords

ecotourism; public service;
satisfaction; service quality;
tourism management

JEL Classification

Z30; Z32; Z38

ABSTRACT

The level of service quality delivered to the customers in a tourism business might be represented by a satisfaction index. A higher index means that the service is more satisfying and eventually might attract more customers. However, does the increasing number of customers always reflect a better service quality? This study aims to analyze the level of customer satisfaction and its correlation to the number of visitors to Cibodas Botanic Gardens. The satisfaction index was analyzed based on nine criteria, complying with the regulation of the Minister of State Apparatus Utilization and Bureaucratic Reform, Republic of Indonesia. The analysis started by distributing the questionnaires, which gained results from 1,321 respondents from 2017 to 2019. The number of visitors was obtained by inventorying the number of the sold tickets monthly. Pearson test (r) was used to examine the correlation between the satisfaction index and the number of visitors, and a t -test was used to evaluate the level of significance ($\alpha = 0.05$). The findings show that the index from 2017 to 2019 was relatively stable: 80.8, 80.15, and 80.93 (scale of 25 to 100), respectively. On the other side, the number of visitors tended to rise each year by 24% to 26% instead. The test shows that the correlation was positive but weak ($r = 0.236$) with no significance. These results provide an overview description and for operators' consideration to manage the site in their policies. The efforts focus not only on attracting more visitors but also on enhancing the quality of the services.

To cite this article: Hidayat, I. W., Winarni, & Puspitasari, D. N. (2022). Correlation between satisfactory level and visitors number in Cibodas Botanic Gardens, Indonesia. *Journal of Socioeconomics and Development*, 5(1), 13-23. <https://doi.org/10.31328/jsed.v5i1.3070>

ISSN 2615-6075 online; ISSN 2615-6946 print
©UWG Press, 2022



INTRODUCTION

The increasing demand for sightseeing has driven a significant leap in the tourism industry, making it one of the economy's leading sectors in many countries. In 2019, tourism had crucial impacts on world economies

with USD 8.9 trillion contributions to the worlds' GDP (World Travel and Tourism Council, 2019a). The tourism industry has also developed rapidly, gives prosperity, provides numerous job opportunities, and serves visitors with various recreational events and experiences (World Tourism Organization, 2019). In

Indonesia, tourism contributed 5.7% of the total economy to GDP or USD 63.6 billion, providing over 12.5 million jobs or 9.7% of the entire employment (World Travel and Tourism Council, 2019b).

Next, the value of tourism needs to enhance day by day. Therefore, the destination image must be well managed through planning and good maintenance, and be well organized by the stakeholders (Rosa *et al.*, 2018). Understanding tourist preferences is a valuable input for tourism operators in planning and business processes (Sohrabi *et al.*, 2020). Destination image is an impression created by tourists in their minds through some compression, i.e., cognitive, affective, and conative. These are also matters related to how someone sees a destination (Lai & Li, 2016). This image, when meeting the tourists' expectations, can result in certain level of satisfaction and willingness to visit again. Tourist loyalty is a more challenging and demanding matter because the determinants of this behavior are more complicated. The studies on destination loyalty indicate that one of the most decisive factors in the next visit to a tourist destination is their satisfaction with prior experiences staying there (Engeset & Elvekrok, 2015). To discover how a tourist knows about a location, most of these studies assume that it is essential to examine the satisfaction level (Engeset & Elvekrok, 2015).

The satisfaction of tourism customers provides an apparent description of the product of tourism and the tourism operator's ways of developing services based on the accepted feedback (Kanwel *et al.*, 2019). A particular characteristic that can help with customer satisfaction can be achieved when destinations fulfill or replace the expectations when tourists visit a destination (Hill & Alexander, 2016).

Cibodas Botanic Gardens (CBG) is a government unit conducted under the National Research and Innovation Agency (BRIN) (Presidential Regulation Republic of Indonesia, 2021). It has primary duties and obligations as an ex-situ conservation site of wet tropical mountainous plants, a facility for developing related research and education, and also tourism spot, especially ecotourism. CBG ecotourism provider offers not only regular sightseeing through the beautiful scenery of the garden landscape but also educational tours (such as introduction to its plant collections, plant morphology, and their characteristics, as well as explanation and practice of the plant propagation process via vegetative and generative procedures). The activities also involve introduction to the gardens

and tropical rain forest description, where tourists are guided into a particular area of pristine forest that still exists in the CBG. Another activity is one where tourists receive explanation about plant herbarium and the equipments to create it, and then practice making it.

As a public service provider in ecotourism, it is crucial for CBG to offer a good quality of service for the customers. Hundreds of thousands of tourists visit CBG each year. To preserve the loyalty of visitors, customer satisfaction is one of the critical values to achieve it. Previous studies describe that tourist satisfaction is the most crucial indicator of visitors' loyalty to any attraction (Canny, 2013; Chen *et al.*, 2016; Chiu *et al.*, 2016). However, public services performed by government officials has not yet met the expectations (Minister of State Apparatus Utilization and Bureaucratic Reform Republic of Indonesia, 2017). It is apparent from the complaints submitted through various media. If the complaints are not well handled, the low reputation may cause social distrust in the quality of the government's services. One of the efforts to enhance the public service is to conduct a satisfaction survey by measuring customer satisfaction regarding the services' quality.

A previous study has examined the level of satisfaction of services delivered by CBG, using lesser respondents and earlier version of regulation guidance (Hidayat & Winarni, 2017). However, it failed to describe its correlation with the visitor's number phenomenon. Therefore, this study aims to analyze the level of customer satisfaction with CBG's service quality, represented by the index of satisfaction using the latest guidance, and to analyze the relationship between this index and the number of visitors: are they inter-correlated or independent? This study is expected to be able to describe the performance of the concerned service unit to be a valuable input for future development.

RESEARCH METHOD

The study was conducted at Cibodas Botanic Gardens (CBG), Cianjur, West Java. CBGs' geographical location is at 6.735 to 6.748 South and 107.003 to 107.016 East. It is located at the eastern mountainside of Mount Gede-Pangrango, West Java. CBG occupies an area of ± 85 hectares with an altitude ranging between 1,300-1,425 meters above sea level. It has a wet tropical climate with the rainfall rate of

2,950 mm per year, approximate temperature of 20 °C, and humidity of 80.82%. In a year, there are seven to eight wet months there (Sujarwo et al., 2019). Based on the Schmidt-Ferguson classification, the climate of CBG is the type of C to B, or less wet to wet, based on Koppen, and thus CBG can be included in tropical rainforest climate or wet tropic 'Af' (Beck et al., 2018).

The study was conducted by distributing questionnaires to be filled out by respondents. This process was performed in 2017, 2018, and 2019. The questionnaires consisted of two sections. The first section was related to the respondent demographic characteristics. The questions were about gender, age, education, and occupation. In section two, the respondents were asked to evaluate their satisfaction regarding the received services. These questions indicate the quality of the services by CBG as a government public service unit (Minister of State Apparatus Utilization and Bureaucratic Reform Republic of Indonesia, 2017). There were nine questions regarding the service quality, i.e. (1) service requirements; (2) service procedures; (3) service completion time; (4) service charge; (5) service-specific suitability; (6) operator's competence; (7) operator's behavior; (8) management of complaints/suggestions/ inputs; (9) supporting infrastructures. The description of each service quality variable is explained in Table 1.

The respondents must supply a value for each variable. Each variable had a weight rating based on

the Likert scale of importance, from 1 to 4. Value 1 is for 'poor' service quality, value 2 for 'fair' level, value 3 for 'good' service, and value 4 for service quality at an 'excellent' level. The study randomly selected respondents from the garden customers who had been served by the CBGs' operator.

The number of respondents was calculated using the Krejcie and Morgan equation (Riyanto & Hatmawan, 2020), with the formula:

$$n = \frac{x^2 \cdot N \cdot P \cdot (1 - P)}{(N - 1) \cdot \alpha^2 + x^2 \cdot P \cdot (1 - P)} \quad (1)$$

n is the minimum size of the sample or the number of respondents, x^2 is chi-square, N is the population's size, P is the proportion of the population ($P = 0.5$), and α is the level of error ($\alpha \leq 0.1$). In 2017, it begins to apply the new regulation of the survey procedures. Then to fulfill the requirements, the CBG operator established that the survey plan used $\alpha = 0.1$ and $N = 500,000$. Then, $x^2 = 2.7055$, so the minimum of respondents (n) is 68. Next, in 2018 and 2019, the accuracy has been raised. The value of $\alpha = 0.05$ then $x^2 = 3.8415$, with the range of N from 500,000 to 1 million, so the minimum of respondents (n) is 384. The number of respondents was 1,321, with details: 296 respondents in 2017, 589 in 2018, and 429 in 2019. Therefore, the number of respondents in those three years has fulfilled the requirement.

Table 1. The Description of Service Quality Variables

No	Variable	Description
1	Service requirements (SR)	Requirements that must be fulfilled in administering a type of service, both technically and administratively.
2	Service procedures (SP)	Standardized service procedures for service operators and recipients, including complaints.
3	Service completion time (CT)	The period required to complete the entire service process for each type of service.
4	Service charge (SC)	Fees are charged to service recipients in administering and, or obtaining the services from the operators.
5	Service-specific suitability (SS)	Results of services provided and received following the provisions that have been determined.
6	Operator's competence (OC)	Abilities possessed by the operators include knowledge, expertise, skills, and experience.
7	Operator's behavior (OB)	The attitude of operators when providing the services.
8	Managing the complaints/suggestions/inputs (MC)	The procedures in the management of customer complaints and the follow-up.
9	Supporting infrastructures (IS)	Any materials which can be used as a tool in achieving goals and objectives and the availability of the proper infrastructures to support the services.

Source: Minister of State Apparatus Utilization and Bureaucratic Reform Republic of Indonesia (2017)

The next set of data was the number of visitors to CBG. The CBG tourists are charged in the form of entrance tickets. Therefore, the number of visitors was acquired from the number of sold tickets recorded monthly from 2017 to 2019 by the Subunit of Services and Information of CBG. The data were processed by a series of calculations. The average value of each variable was formulated as:

$$\bar{X}_i = \frac{\sum X_i}{N} \quad (2)$$

\bar{X}_i is an average value of a variable of service of i (the value is between 1 to 4); $\sum X_i$ is the total value number of the variable of service of i ; N is the total number of the respondents at the period; i is the number of variables (1,2,3, 9). Each variable has a weight value, 1/9 or 0.11 so that the average weight value of the variable of services i was formulated as $\bar{X}_i' = \bar{X}_i \times 0.11$. To simplify the interpretation, the value was expected in range 25-100, each average weight value was multiplied with constants (c) of '25'. Then, the satisfaction index (SI) was formulated as:

$$SI = \sum \bar{X}_i' \times c \quad (3)$$

The stratification of SI is based on a value range of 25 to 100. The value of 25 to 64.99 is a 'D' level, meaning the quality of services is 'poor'; value 65.00 to 76.6 has a 'C' level or 'fair' or low; value 76.61 to 88.30 has a 'B' level, meaning 'good' quality; and, value 88.31 to 100 has an 'A' level or 'very good' quality.

Furthermore, to analyze the correlation between SI (x) and the number of visitors (y), a Pearson correlation coefficient test was conducted with the formula:

$$r = \frac{n \sum x_i y_i - \sum x_i \sum y_i}{[(n \sum x_i^2 - (\sum x_i)^2)^{1/2} [(n \sum y_i^2 - (\sum y_i)^2)^{1/2}]} \quad (4)$$

To test their relationship, a hypothesis was then arranged that $H_0: r = 0$; $H_1: r \neq 0$. The value of $r = 0$ means no correlation between the satisfaction index (x) and the number of visitors (y). In reverse, the value of $r \neq 0$ means that there is a correlation. If r -value does not exceed $|1|$ when approaching the value of -1, it means that there is a negative linear relationship. When it approaches the value of 1, it means that there is a positive linear relationship. A strong correlation occurs when $r \geq 0.6$, strong positive and $r \leq -0.6$, strong negative; $0.4 \leq r \leq 0.59$ is

moderate positive, $-0.59 \leq r \leq -0.4$ is moderate negative; $0.2 \leq r \leq 0.39$ is weak positive, $-0.39 \leq r \leq -0.2$ is weak negative; and, $0 < r \leq 0.19$ is very weak positive, $-0.19 \leq r < 0$ is very weak negative (Meghanathan, 2016).

Next, there was also a significant degree evaluation with a t -test ($\alpha = 0.05$). If, $r \neq 0$, and p -value $< \alpha$, it means that the correlation between two variables is significant. On the other hand, p -value $> \alpha$ means that the correlation between two variables is not significant.

RESULT AND DISCUSSION

Characteristics of the Respondents

Table 2 provides the detailed characteristics of the respondents of the study. This study indicates that questionnaire respondents were seemingly dominated by female visitors all year. Next, almost 90% of the respondents were dominated by young (≤ 17 to 30 years old) and adults (≥ 31 to 45 years old), or 60% and 29%, respectively. Only a few visitors were in the middle-age, ≥ 46 years old (6.8%).

Table 2. Respondent Characteristics

Variable Category	2017 ^a (<i>n</i> =296)	2018 ^b (<i>n</i> =596)	2019 ^b (<i>n</i> =429)
Gender			
Male	117	251	182
Female	179	332	247
Not answered	0	13	0
Age			
≤ 17 years	51	91	30
18-25 years	168	160	96
26-30 years	20	68	110
31-35 years	20	122	107
36-40 years	15	56	11
41-45 years	6	22	23
46-50 years	10	47	11
> 50 years	6	12	4
Not answered	0	18	37
Education			
Elementary school	2	0	1
Junior high school	21	55	60
High school	146	319	233
Diploma	10	43	18
Bachelor & Post graduate	113	150	93
Not answered	4	29	24
Occupation			
Government employee	42	52	33
Private employee	33	123	116
Entrepreneur	10	89	37
Student	184	171	179
Others	27	161	64

^a error = 0.1; ^b error = 0.05

Data in Table 2 show that young and adult individuals are concerned with educational tours, ecotourism, and other similar tourism because they are enthusiastic in pursuing their curiosities and sense of environmental awareness, as well as learning new things while traveling (Canosa et al., 2020; Petroman et al., 2016). Nature-based tourism is one of the methods to achieve people's affective necessities and maintain individual mental health (Cheng et al., 2014).

The most substantial number of respondents is in the young cluster who are still studying in school or college, so the highest education level group is high school or below (63.4%), followed by diploma, bachelor and post graduate (32.3%). These young respondents also impact the occupation group characteristic where the most dominant group is the student (40.4%) followed by private employees (20.6%).

Satisfaction Index (SI)

Next, the detailed results of 2017 to 2019 questionnaires data regarding the service quality of CBG so can be explored in Table 3. Based on the average weight sum, the calculations of the satisfaction index ($\sum \bar{X}_i \times 25$) from 2017 to 2019 were 80.8, 80.15, and 80.93, respectively. All the values indicate that the satisfaction index was in the 'good' level, meaning that the CBG's quality service was in the 'B' grade (Minister of State Apparatus Utilization and Bureaucratic Reform Republic of Indonesia, 2017). A slightly lower value occurred in 2018 but the value then rose again next year, still in the same range.

All variables in all years have a good evaluation value (≥ 3). Nevertheless, the highest and the lowest variable in each year are different. In 2017, the operator's behavior received the highest valuation. Some studies have also suggested the importance of the operator's good responsibility in serving the customers to build their loyalty and willingness to pay more (Chan et al., 2015; Mody et al., 2017). Next, ways of managing the complaints/suggestions/inputs received the highest appreciation by the respondents in 2018 and 2019. In the service business, complaints should be appreciated as a sign of a unit's achievement evaluation, and a tool of expressing some issues or errors in internal operations that require a fast response to prevent the customers from leaving (Ozkan & Boz, 2020). Evaluation from customers is essential to achieve customer satisfaction. It also allows possible future customers to consider from the shared previous experiences (Massawe, 2013).

While still categorized within the 'good' evaluation, the lowest variables from 2017 to 2019 were service procedures, supporting infrastructures, and service completion time, respectively. The operators should pay more attention to these variables because this can be an initial signal of consumer dissatisfaction in the future if not appropriately managed. The proper treatment to the issue will not only immediately replicate purchases but also earn the institution a reputable name and customer loyalty (Su et al., 2018; Wang et al., 2014).

Table 3. Data Analysis of the Service Quality Satisfaction Questionnaires

Variable (X_i)	2017			2018			2019		
	Total value ($\sum X_i$)	Average (\bar{X}_i)	Average weight (\bar{X}_i')	Total value ($\sum X_i$)	Average (\bar{X}_i)	Average weight (\bar{X}_i')	Total value ($\sum X_i$)	Average (\bar{X}_i)	Average weight (\bar{X}_i')
Service requirements (SR)	948	3.203	0.356	1902	3.191	0.355	1376	3.207	0.356
Service procedures (SP)	917	3.097 ^b	0.344	1906	3.198	0.355	1385	3.228	0.359
Service completion time (CT)	961	3.245	0.361	1830	3.071	0.341	1324	3.087 ^b	0.343
Service charge (SC)	991	3.349	0.372	1897	3.183	0.354	1384	3.227	0.359
Service-specific suitability (SS)	922	3.116	0.346	1891	3.172	0.352	1364	3.179	0.353
Operator's competence (OC)	963	3.254	0.362	1911	3.206	0.356	1397	3.257	0.362
Operator's behavior (OB)	1019	3.444 ^a	0.383	1973	3.311	0.368	1440	3.356	0.373
Managing the complaints/suggestions/inputs (MC)	922	3.116	0.346	2092	3.510 ^a	0.390	1489	3.471 ^a	0.386
Supporting infrastructures (IS)	965	3.260	0.362	1796	3.013 ^b	0.335	1338	3.120	0.347
Total (Σ)			3.232			3.206			3.237

^a the highest of \bar{X}_i in a year.

^b the lowest of \bar{X}_i in a year

Visitors Number

Furthermore, based on the number of visitors from 2017 to 2019 (Table 4), the number tends to rise by year, approximately 24% to 26%. This fact also potentially increases revenues for CBG. The highest visits occurred from June to August. This period contributes 31.2% to 39.6% of the total visitors in a year. It coincided with long school holidays.

Table 4. The Number of Visitors to CBG, 2017-2019

Month	2017	2018	2019
January	56,654	62,488	54,053
February	25,154	17,891	41,612
March	34,539	24,677	52,417
April	42,785	35,497	69,474
May	44,701	50,760	24,864
June	37,653	97,123	165,515
July	80,527	95,167	99,342
August	49,637	63,902	67,306
September	43,382	55,530	63,594
October	37,307	51,048	58,809
November	30,270	43,056	60,695
December	54,457	69,655	82,019
Total	537,066	666,794	839,700

Based on sold tickets recorded from Subunit of Services and Information of CBG

In every January and December, the number of visitors is also high. It occurred due to the impact of the end-of-year holidays and the possibility of the leave taken by employees at the beginning of the year. This dynamic number of visitors can also be explored in other nature-based tourism (Siswantoro et al., 2012; Wahid et al., 2016). The holidays and leave of the employee affect the tourist behavior in making decisions in their traveling periods. The dynamics can be included as a seasonal behavior (Sofiyani et al., 2019). On the contrary, the lowest visiting occurred from February to March and from October to November each year.

Relationship between Satisfaction Index and the Number of Visitors

Based on the satisfaction index, the level of CBG's quality services remained at a 'good' level. There was no significant increase in the respondent's appreciation of the quality of service they experienced while in CBG. There was even a slight decrease in the index in 2018, although it remained in the same category. Based on the average values of each variable in all years, the highest scoring variable was managing the complaints/suggestions/inputs in year 2018, with a score of 3.51. The lowest scoring

variable, supporting infrastructures, was also achieved in 2018 with a score of 3.013 (Table 3). Managing the complaints in 2018 had the highest positive gap compared to that in 2017, with $\Delta = 0.394$. The operator considers this issue seriously and gives various outlets for customer complaints. CBG's operator accepts not only direct or face-to-face complaints but also several electronic media, making it easier for customers to submit their inconveniences while being in the garden.

Some advantages to constructing appropriate complaint management are stimulating customers' loyalty, enhancing the connection between customers and the provider, and maintaining the reputation. It might also prevent customer migration to other providers, resolve the same problems that might repeat in the future, and lead to more profitability (Magatef et al., 2019; Ogbeide et al., 2017; Ozkan & Boz, 2020). Complaints are not always a harmful matter for the unit even they could supply an opportunity for the division to recognize its issues and weaknesses of processes, in the definition of services to come up with solutions to manage these problems (Magatef et al., 2019).

In 2017, four variables were higher than in other years: service completion time, service charge, operator's behavior, and supporting infrastructures. But, in 2018, only one variable was higher than in other years. It was managing the complaints/suggestions/inputs. And, in 2019, their service procedures were appreciated higher than in other years. The service requirements, service-specific suitability, operator's competence were slightly higher than in other years.

These facts show that the operator has not significantly been able to increase customer satisfaction year by year. It is still too far, and a lot of work has to be improved by the operator to gain the service quality to be an excellent level. However, to meet customer satisfaction, CBG is unable immediately to attempt the improvement without considering the standard regulations. CBG as a government unit is attached to several regulations and bureaucratic obstacles that must be obeyed. For example, improving and (or) increasing the quality of infrastructure(s), especially at medium or large scale must have been planned and approved in advance by the higher authority a year earlier, likewise with budgeting policy. The bureaucratic culture has

become a weak point of Indonesian tourism. The bureaucratic system appears to be rigid and inadapted, addressing the world's tourism development (Hernanda et al., 2018; Yusriadi et al., 2019).

Furthermore, although the satisfaction index tended to be stable in the same period, the number of customers for CBG kept increasing year by year. These facts then were tested using the correlation test, resulting in r as many as 0.236. The value indicated a correlation between the satisfaction index and the number of visitors. The number was positive; it means that the increase of satisfaction index was linear with the number of visitors. However, this is a lower positive linear relationship that includes those in the range of $0.2 \leq r \leq 0.39$, or weak positive (Meghanathan, 2016). Next, the t -test showed that the correlation has no significance (p -value $> \alpha$). This can be inferred that the correlation between the satisfaction index and the number of visitors is positive but weak and has no significance.

The above assessments indicate that the high number of visitors is not always related or depends on the satisfaction level, and vice versa. These might be gained by an intensive promotion and publicity, the availability of time of vacation or holidays (seasonal behavior), a short distance, a reasonable cost, the uniqueness of the attraction, etc. (Marsiglio, 2015; Poduska et al., 2014; Stemberk et al., 2018). Advances in media, especially social media, are also suspected of influencing promotion and publicity to a broader range of potential consumers of CBG. In late 2021, it was recorded that more than ten thousand followers of the CBG's Facebook page and more than 176,000 people checked in CBG. Social media marketing efforts might have an indirect impact on satisfaction through social identity and perceived worth (Chen & Lin, 2019).

Nevertheless, in the service business, customer satisfaction must not be ignored. To keep the loyalty of the customers, the values of satisfaction must be maintained on a high level. A high level of satisfaction may emerge as a positive experience for customers. The customers' expectations at pre-travel and post-travel have been consistently fulfilled (Chiu et al., 2016).

A customer-oriented organization is better protected from the competition. Loyal customers are less affected by a new product in the market or by a lower-priced competitor. If there is any change in

customer needs, the company can anticipate, or the customers are willing to wait. There is no genuinely loyal customer if a company is too slow. Still, even in such a situation, a customer-oriented company has a higher chance of regaining its lost customers and its position in the market (Massawe, 2013). A positive "word-of-mouth" from satisfied customers is good advertising and publication. This destination image straightly influences the visitors' perception of the meaning and revisit motives, and it implicitly guides to satisfaction and recommendation purposes (Kanwel et al., 2019; Lai & Li, 2016; Rosa et al., 2018).

The 'good' service quality which has been gained by CBG needs to be managed and needs to be enhanced to gain a sustainable relationship with the customers. The increase in tourist satisfaction may lead to an advance in the income and benefits of CBG. Therefore, identifying and acknowledging the perceptive and behavioral outcomes of customer satisfaction has significant intentions for destination management.

Research Implication

This study presents an advanced knowledge of tourism activities in CBG by investigating the level of visitor satisfaction and also its link with the number of visitors. Findings indicate the satisfaction level is at the 'B' grade or 'good' quality. CBG has been successful to maintain their good quality services delivered to visitors at all variables of satisfaction. Furthermore, there is a correlation between satisfaction level and the number of visitors, and the value is positive. However, this correlation is insufficient to describe the increase of visitors' number that occurs in the period. The current research has various implications for marketing and tourism research from a theoretical standpoint.

First, a positive destination image has put CBG in a competitive advantage over other similar nature-based tourism destinations. Destination image, tourist satisfaction, and perceived value can be crucial factors of destination loyalty in the context of tourism. Destination image refers to a tourist's overall perception of a location and is connected to their decision-making, destination selection, subsequent assessments, and future plans (Jeong & Kim, 2020). This destination image might be the other predominance of CBG compared to other nature-based tourist destinations surrounding Puncak, West Java. CBG offers beautiful scenery and a fresh atmosphere

of typical views of the mountains of West Java, with trees and plants configurations that might not be found in others. According to Lu et al. (2020), one of the essential sources of such a pleasurable experience is the destination's aesthetic features, which are viewed as image metrics in tourism. Destination aesthetics are among qualities and attributes that a tourist appreciates from a place that is different from their recognizable surroundings. CBG visitors, who are dominated by urban people, demand a different atmosphere compared to their daily lives, which is rushed, crowded, and intense. These individuals desire isolation or relaxation during vacation experiences to meet psychological demands and to get away from the monotony of everyday life (Yu et al., 2019).

CBG's sceneries and circumstances promote a sense of companionship and a sense of passion. These perceived values might be supported as a motivation for the visitors to consider revisiting in the future (Filep & Matteucci, 2020). As one of the tourist destinations established in the colonial era, CBG also has an advantage in the memorable experience for their visitors. Memorable experience refers to pleasant travel experiences that are remembered and reminisced over after the activity has ended (Yu et al., 2019). This positive memory is a corresponding policy for developing a competitive benefit in the tourism market sector (Coudounaris & Jafarguliyev, 2021). With so many tourists having visited CBG, their experiences have largely been passed down through their groups, families, and even across generations. Visitors who are pleased with their experience are more likely to tell others about it, plan a return visit, and even suggest them to their groups (Nugraha et al., 2021).

Second, the use of social media needs to be developed in a more intensive promotion and publicity effort. This study has suspected that the promotion and publicity efforts carried out on social media might influence tourist attractions to visit CBG. With CBG's limited budget in terms of promotion and marketing, social media is one of the most reasonable solutions, which might be developed as an important part of the online marketing strategies. Social media marketing is interpreted as commercial marketing occasions or operations that use social media in an effort to acquire positively impact consumers' investment behavior (Chen & Lin, 2019). GBG's staff, especially in the Subunit of Services and Information, should be able to

deliver various information regarding general conditions, the attractiveness of CBG, events, and other beneficial news to customers and potential customers. A one-way information transmission of traditional mass media has transformed into a form of interactive two-way direct communication (Kaplan & Haenlein, 2010).

Third, the improvement of supporting infrastructures in the garden. This study has shown that the condition of the CBG infrastructure has received complaints and received low ratings from respondents. Even though it has become a classic problem, infrastructure development still has to be done. Recreational facilities are an integral part of physical infrastructure, which is fundamental for overall economic and tourism development. Each of these components encourages tourism development, particularly by increasing the attractiveness and competitiveness of a destination. Visitors would expect infrastructures and the facilities in their chosen destination to be comparable to what they enjoy at home, especially those that have become the essential element of everyday life recreation (Mandic et al., 2018).

The fourth implication is that this study suggests that the CBG operator or management office establish a comprehensive and easy-to-understand procedure for visitors. CBG's operator should make it easier for the public to access information about the type of procedures for its services. That way, tourism services can run more effectively and efficiently with clear and transparent information to tourism service users, including cost information and open resolution procedures. A good service system will result in good service quality as well. With clear and definite process and procedures implementation, any form of deviation that might occur in the beginning can be identified (Sahid et al., 2019).

CONCLUSION AND SUGGESTION

The study results indicate that the quality service of CBG is at a 'good' level. The quality tends to be stable, but the number of visitors keeps increasing. The correlation between the satisfaction index and the number of customers is positive, but the degree is weak and insignificant. The rise in the number of visits in this study is unrelated to the visitors' perception of service quality. CBG's efforts to attract visitors are on the right track. However, they still require a significant

effort to maintain and enhance customer satisfaction to a higher level.

Some performances that need to be improved immediately are service procedures, completion time, and supporting infrastructures. The operator might utilize the advance of the current information technology to improve their efforts. That way, CBG does not only rely on face-to-face service. The infrastructures improvement must also be planned and well-conducted to ensure the visitors' convenience in the garden. This evaluation can lead to a standardized value and impartial assessment for the performance of CBG's related units.

REFERENCES

- Beck, H. E., Zimmermann, N. E., McVicar, T. R., Vergopolan, N., Berg, A., & Wood, E. F. (2018). Present and future Köppen-Geiger climate classification maps at 1-km resolution. *Scientific Data*, 5(1), 1–12. <https://doi.org/10.1038/sdata.2018.214>
- Canny, I. U. (2013). An empirical investigation of service quality, tourist satisfaction and future behavioral intentions among domestic local tourist at Borobudur Temple. *International Journal of Trade, Economics and Finance*, 4(2), 86–91. <https://doi.org/10.7763/IJTEF.2013.V4.265>
- Canosa, A., Graham, A., & Wilson, E. (2020). Growing up in a tourist destination: developing an environmental sensitivity. *Environmental Education Research*, 26(7), 1027–1042. <https://doi.org/10.1080/13504622.2020.1768224>
- Chan, A., Hsu, C. H. C., & Baum, T. (2015). The impact of tour service performance on tourist satisfaction and behavioral intentions: A study of Chinese Tourists in Hong Kong. *Journal of Travel & Tourism Marketing*, 32(1–2), 18–33. <https://doi.org/10.1080/10548408.2014.986010>
- Chen, C.-C., Huang, W.-J., & Petrick, J. F. (2016). Holiday recovery experiences, tourism satisfaction and life satisfaction—Is there a relationship? *Tourism Management*, 53(1), 140–147. <https://doi.org/10.1016/j.tourman.2015.09.016>
- Chen, S. C., & Lin, C. P. (2019). Understanding the effect of social media marketing activities: The mediation of social identification, perceived value, and satisfaction. *Technological Forecasting and Social Change*, 140(November 2018), 22–32. <https://doi.org/10.1016/j.techfore.2018.11.025>
- Cheng, M., Jin, X., & Wong, I. K. A. (2014). Ecotourism site in relation to tourist attitude and further behavioural changes. *Current Issues in Tourism*, 17(4), 303–311. <https://doi.org/10.1080/13683500.2013.800030>
- Chiu, W., Zeng, S., & Cheng, P. S.-T. (2016). The influence of destination image and tourist satisfaction on tourist loyalty: A case study of Chinese tourists in Korea. *International Journal of Culture, Tourism, and Hospitality Research*, 10(2), 223–234. <https://doi.org/10.1108/IJCTHR-07-2015-0080>
- Coudounaris, D., & Jafarguliyev, F. (2021). The effects of personality traits on memorable tourism experiences and behavioral intentions. *Journal of Business Research*. <http://dx.doi.org/10.2139/ssrn.3973825>
- Engeset, M. G., & Elvekrok, I. (2015). Authentic concepts: Effects on tourist satisfaction. *Journal of Travel Research*, 54(4), 456–466. <https://doi.org/10.1177/0047287514522876>
- Filep, S., & Matteucci, X. (2020). Love in tourist motivation and satisfaction. *Journal of Hospitality and Tourism Research*, 44(6), 1026–1034. <https://doi.org/10.1177/1096348020927072>
- Hernanda, D. W., Mindarti, L. I., & Riyanto. (2018). Community empowerment based on good tourism governance in the development of tourism destination (Case study of Kawah Ijen tourism buffer zone 'Kampung Kopi' Gombongsari Village, Kalipuro District, Banyuwangi Regency). *Journal of Indonesian Tourism and Development Studies*, 6(2), 126–135. <https://doi.org/10.21776/ub.jitode.2018.006.02.08>
- Hidayat, I. W., & Winarni. (2017). User Satisfaction Assessment to Edu-Eco Tourism Services of Cibodas Botanical Garden. *IOP Conference Series: Earth and Environmental Science*, 91(1), 012015. <https://doi.org/10.1088/1755-1315/91/1/012015>
- Hill, N., & Alexander, J. (2016). *The Handbook of Customer Satisfaction and Loyalty Measurement* (3th ed.). New York: Routledge. <https://doi.org/10.4324/9781315239279>
- Jeong, Y., & Kim, S. (2020). A study of event quality, destination image, perceived value, tourist satisfaction, and destination loyalty among sport tourists. *Asia Pacific Journal of Marketing and Logistics*, 32(4), 940–960. <https://doi.org/10.1108/APJML-02-2019-0101>
- Kanwel, S., Lingqiang, Z., Asif, M., Hwang, J., Hussain, A., & Jameel, A. (2019). The influence of destination image on tourist loyalty and intention to visit: Testing a multiple mediation approach.

- Sustainability, 11(22), 6401.
<https://doi.org/10.3390/su11226401>
- Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons*, 53(1), 59–68.
<https://doi.org/10.1016/j.bushor.2009.09.003>
- Lai, K., & Li, X. (Robert). (2016). Tourism destination image: Conceptual problems and definitional Solutions. *Journal of Travel Research*, 55(8), 1065–1080.
<https://doi.org/10.1177/0047287515619693>
- Lu, C. S., Weng, H. K., Chen, S. Y., Chiu, C. W., Ma, H. Y., Mak, K. W., & Yeung, T. C. (2020). How port aesthetics affect destination image, tourist satisfaction and tourist loyalty? *Maritime Business Review*, 5(2), 211–228.
<https://doi.org/10.1108/MABR-12-2019-0056>
- Magatef, S. G., Momani, R. A., & Altrjman, G. (2019). The evaluation of complaint handling processes in five star hotels and its reflection on customers' satisfaction. *African Journal of Hospitality, Tourism and Leisure*, 8(2), 1–21. Retrieved from https://www.ajhtl.com/uploads/7/1/6/3/7163688/article_2_vol_8_2_2019.pdf
- Mandic, A., Mrnjavac, Ž., & Kordic, L. (2018). Tourism infrastructure, recreational facilities and tourism development. *Tourism and Hospitality Management*, 24(1), 41–62.
<https://doi.org/10.20867/thm.24.1.12>
- Marsiglio, S. (2015). On the carrying capacity and the optimal number of visitors in tourism destinations. *Tourism Economics*, 23(3), 632–646.
<https://doi.org/10.5367/te.2015.0535>
- Massawe, D. (2013). Customer satisfaction and complaints as a means of gaining a competitive advantage in hospitality industry. *Eastern African Journal of Hospitality, Leisure and Tourism*, 1(1), 25–33. Retrieved from https://www.academia.edu/3444802/Customer_Satisfaction_and_Complaints_as_a_Means_of_Gaining_a_Competitive_Advantage_in_Hospitality_Industry
- Meghanathan, N. (2016). Assortativity analysis of real-world network graphs based on centrality metrics. *Computer and Information Science*, 9(3), 7–25.
<https://dx.doi.org/10.5539/cis.v9n3p7>
- Minister of State Apparatus Utilization and Bureaucratic Reform Republic of Indonesia. (2017). The Regulation Number 14/2017 about the Guidelines for Creating the Public Satisfaction Survey At Administration Unit of Public Services. Retrieved from https://jdih.menpan.go.id/data_puu/permen 14 2017.pdf
- Mody, M., Day, J., Sydnor, S., Lehto, X., & Jaffe, W. (2017). Integrating country and brand images: Using the product-Country image framework to understand travelers' loyalty towards responsible tourism operators. *Tourism Management Perspectives*, 24(1), 139–150.
<https://doi.org/10.1016/j.tmp.2017.08.001>
- Nugraha, K. S. W., Suryaningsih, I. B., & Cahyanti, I. D. (2021). Destination quality, experience involvement and memorable tourism experience: Is it relevant for rural tourism? *Management and Marketing*, 16(1), 69–85.
<https://doi.org/10.2478/mmcks-2021-0005>
- Ogbeide, G. C. A., Böser, S., Harrinton, R. J., & Ottenbacher, M. C. (2017). Complaint management in hospitality organizations: The role of empowerment and other service recovery attributes impacting loyalty and satisfaction. *Tourism and Hospitality Research*, 17(2), 204–216.
<https://doi.org/10.1177/1467358415613409>
- Ozkan, C., & Boz, M. (2020). Managing consumer complaints: The case of TripAdvisor. *Journal Socio-Economic Analysis*, 12(1), 122–128. Retrieved from <http://journals.uni-vt.bg/sia/eng/vol12/iss1/14>
- Petroman, C., Mirea, A., Lozici, A., Constantin, E. C., Marin, D., & Merce, I. (2016). The rural educational tourism at the farm. *Procedia Economics and Finance*, 39(November 2015), 88–93.
[https://doi.org/10.1016/s2212-5671\(16\)30245-3](https://doi.org/10.1016/s2212-5671(16)30245-3)
- Poduska, Z., Rankovic, N., & Keca, L. (2014). Influence of selected factors on number of visitors in National Park Đerdap. *Journal of Agriculture and Forestry*, 60(3), 123–136. Retrieved from <http://89.188.43.75/agricultforest/20140929-10> Poduska et al Final Glance.pdf
- Presidential Regulation Republic of Indonesia. (2021). The Regulation Number 78/2021 about National Research and Innovation Agency. Retrieved from <https://peraturan.go.id/common/dokumen/In/2021/ps78-2021.pdf>
- Riyanto, S., & Hatmawan, A. A. (2020). Metode Riset Penelitian Kuantitatif Penelitian Di Bidang Manajemen, Teknik, Pendidikan Dan Eksperimen. Yogyakarta: Deepublish Publisher. Retrieved from https://www.google.co.id/books/edition/Metode_Riset_Penelitian_Kuantitatif_Pene/W2vXDwAAQB AJ?hl=id&gbpv=1&printsec=frontcover

- Rosa, P., Carvalhinho, L., & Soares, J. (2018). Developing a destination image through the perceptions of stakeholders: A case study. *International Journal of Tourism Research*, 20(1), 60–71. <https://doi.org/10.1002/jtr.2153>
- Sahid, A., Amirullah, I., Yusriadi, Azis, A., Rachman, A. A., & Bin-Tahir, S. Z. (2019). Application of bureaucratic accountability in public service. *Advances in Social Science, Education and Humanities Research*, 265(Eropa 2018), 87–90. <https://doi.org/10.2991/eropa-18.2019.11>
- Siswanto, H., Anggoro, S., & Sasongko, D. P. (2012). Strategi optimasi wisata massal di Kawasan Konservasi Taman Wisata Alam Grojogan Sewu. *Jurnal Ilmu Lingkungan*, 10(2), 100–110. <https://doi.org/10.14710/jil.10.2.100-110>
- Sofiyan, A., Hidayat, W., Winarno, G. D., & Harianto, S. P. (2019). Analisis daya dukung fisik, riil dan efektif ekowisata di Pulau Pisang, Kabupaten Pesisir Barat. *Jurnal Sylva Lestari*, 7(2), 225–234. <http://dx.doi.org/10.23960/jsl27225-234>
- Sohrabi, B., Vanani, I. R., Nasiri, N., & Rud, A. G. (2020). A predictive model of tourist destinations based on tourists' comments and interests using text analytics. *Tourism Management Perspectives*, 35(1), 100710. <https://doi.org/10.1016/j.tmp.2020.100710>
- Stemberk, J., Dolejs, J., Maresova, P., & Kuca, K. (2018). Factors affecting the number of visitors in national parks in the Czech Republic, Germany and Austria. *ISPRS International Journal of Geo-Information*, 7(3), 124. <https://doi.org/10.3390/ijgi7030124>
- Su, L., Swanson, S. R., & Chen, X. (2018). Reputation, subjective well-being, and environmental responsibility: The role of satisfaction and identification. *Journal of Sustainable Tourism*, 26(8), 1344–1361. <https://doi.org/10.1080/09669582.2018.1443115>
- Sujarwo, W., Gumilang, A. R., & Hidayat, I. W. (2019). List of Living Plants Collections Cultivated in Cibodas Botanic Gardens 2019. Cibodas: Cibodas Botanic Gardens-LIPI. Retrieved from https://www.researchgate.net/publication/338353007_List_of_Living_Plants_Collections_Cultivated_in_Cibodas_Botanic_Gardens_2019
- Wahid, S. D. M., Aliman, N. K., Hashim, S. M., & Harudin, S. (2016). First-time and repeat visitors to Langkawi Island, Malaysia. *Procedia Economics and Finance*, 35(October 2015), 622–631. [https://doi.org/10.1016/s2212-5671\(16\)00076-9](https://doi.org/10.1016/s2212-5671(16)00076-9)
- Wang, L., Law, R., Hung, K., & Guillet, B. D. (2014). Consumer trust in tourism and hospitality: A review of the literature. *Journal of Hospitality and Tourism Management*, 21(1), 1–9. <https://doi.org/10.1016/j.jhtm.2014.01.001>
- World Tourism Organization. (2019). World tourism barometer and statistical annex: November 2019. *World Tourism Barometer*, 17(4), 1–44. <https://doi.org/10.18111/wtobarometereng>
- World Travel and Tourism Council. (2019a). Economic impact reports: Travel and tourism regional performance, 2019. Retrieved from <https://wtcc.org/Research/Economic-Impact>
- World Travel and Tourism Council. (2019b). Indonesia 2019 Key Data. Retrieved from <https://wtcc.org/Research/Economic-Impact/moduleId/704/itemId/131/controller/DownloadRequest/action/QuickDownload>
- Yu, C. P., Chang, W. C., & Ramanpong, J. (2019). Assessing visitors' memorable tourism experiences (MTEs) in forest recreation destination: A case study in Xitou Nature Education Area. *Forests*, 10(8), 1–15. <https://doi.org/10.3390/f10080636>
- Yusriadi, Farida, U., Bin-Tahir, S. Z., & Misnawati. (2019). Bureaucratic reform of tourism sector public services in Tana Toraja Regency. *IOP Conference Series: Earth and Environmental Science*, 340(1), 012045. <https://doi.org/10.1088/1755-1315/340/1/012045>