

User Satisfaction Assessment To Edu-Eco Tourism Services Of Cibodas Botanical Garden

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Abstract. Cibodas Botanical Garden (CBG) is a government institution which has principal duties and functions as area of conservation *ex situ* of wet highland plants, research, education and tourism, it very closely related to aspect of the services to user. Good services will support the sustainability and existence of CBG as a world class edu-eco tourism destination. The purpose of this study was to measure the quality of services which delivered and improvement which necessary at the future. Assessments were made based on 14 criteria of services aspect for user which need research-education services and regular tourism services activities. The study was conducted by distributing questionnaires to users of these services. Questionnaires distribution was conducted in early August 2015 and August 2016, the respondents were 124 and 207. The results were showed the user satisfaction at good level, there were 77.685 in 2015 and 72.08 in 2016. Although still at a good level, there were a decline in satisfaction levels based on the value. In the future, the managerial needs to continuously to improve it, in order to get a good or very good valuation.

1. Introduction

Cibodas Botanical Garden (CBG) was established on 11 April 1852 by Johannes Ellias Teijsmann, a curator of the Garden at that time, with the name of *Bergtuin te Tjibodas (Kebun Pegunungan Cibodas)*. CBG was initially intended as a place of acclimatization plant species of foreign origin which have value and high economic importance, one of which is Quinine or *Kina (Cinchona calisaya)*. Then CBG was developed into a part of the Bogor Botanical Gardens with name as Branch Office of Cibodas Botanical Garden. Starting in 2003, the status of the CBG become more independent as a Technical Implementation Unit of Plant Conservation Office of Cibodas Botanical Garden under the Center for Plant Conservation of the Bogor Botanical Gardens in Deputies of Life Science of Indonesian Institute of Sciences (*LIPi*). And in February 2016, CBG was re-determined by regulation of the Head of Indonesian Institute of Sciences (*LIPi*) by eliminating the Technical Implementation Unit, and adds structural position in it which is Services and Information Unit, in the expectancy of CBG can be more engaged and improve of public services.

CBG has principal duties and functions as area of conservation *ex situ* of wet highland plants and developing research in tropical plant conservation and utilization of plant particularly wet tropical highlands. It is also developing environmental education to increase public knowledge and appreciation of the importance of plants and the environment for life, and improving the quality of



public services in edu-eco tourism. CBG has also to conduct an inventory, exploration, plants collection, planting and maintenance of plants of the mountains, especially the western part of Indonesia which has a high value of science and economic potential and to be collected in the form of botanical garden.

Besides as ordinary tourism destination which has been famously known regionally even international, in order to improve public knowledge and awareness in the field of conservation, CBG has also developed edu-eco tourism which called "*Wisata Flora*". It was an CBG's attempt to answer the challenge the social changes taking place in contemporary society, which is considering leisure and "back to nature" activities as one of the necessities of life dominated by technology, and incorporate elements of conservation and science. In this case, public services has the most importance role because good services will support the sustainability and existence of CBG as a world class edu-eco tourism destination. Destinations invest considerable amounts of resources into planning and marketing tourism products and services. The assessment of the success of these efforts is thought to be best evaluated based on the satisfaction of tourists who visit the destination [1]. Tourist satisfaction is critical to destination competitiveness and considerably affects destination choice, revisit intention and loyalty [1].

High levels of tourist satisfaction with a tourism destination is seen to result in increased revenues for service providers [2]. The critical implication is that the ability to understand the reasons for tourist satisfaction and the consequences of satisfied tourists is crucial [3] [4]. Establishing a system for measuring tourist satisfaction allows suppliers in a destination to understand and respond effectively to visitor needs [2] [5]. Therefore, the level of user satisfaction is one of important parameter for CBG to evaluate whether the services is good or not. The purpose of this study was to measure the quality of services of edu-eco tourism of CBG which delivered to user and improvement which necessary at the future, and for public, would be used as a description of the performance of the concerned service unit.

2. Edu-eco tourism of CBG

Edu-eco tourism of CBG or *Wisata Flora* is adopting the principles of smart tourism. Its service objects includes tourists, tourism service organizations and local governments in tourism destination [6]. Smart tourism provides varying forms of tourism information to all the entities within the tourism industry [7]. Smart tourism is the typical example of integrated development by combining tourism industry with technological innovations. It can be concluded that smart tourism is the ubiquitous tour information service received by tourists during a touring process. Tour information service is the summation of the common attributes of smart tourism [8].

Edu-eco tourism of CBG is a package of educational tour which offers an introduction to the plants collection in CBG, from morphology (e.g. the shape of leaves, stems, roots, fruits, flowers), seed dispersion, the process of propagation (this introduction is conducted inside and outside the room). The process of propagation learning is how to reproduce the plant by vegetative and generative procedures. Propagation of plants which studied are grafting, inosculating, cutting and seeding. Furthermore, participants are guided to recognized of CBG with a direct view to leisure or attractive spots and theme parks which exist.

Other activities are offers an introduction to the gardens (e.g. function, designation, plant collections, and points of interest) and the tropical rain forest (e.g. forest function description, characteristics and functions of canopy and plants typical of the tropical rain forest). In addition, user also guided into remnant forest at CBG, so they will feel the difference between the garden and forest.

Other package activity is learned to make dried herbarium which guided by a facilitator. Activities are began to introduction of the herbarium and the equipment which needed to make it. Then, the material collected from making in the garden and the practice of making herbarium to complete. Participants can bring home the results of the practice as an instrument of learning in their school. Each group who desires these services can choose what activities they want in a edu-eco tourism package at CBG.

3. Methodology

The study was conducted at CBG which administratively located in Cipanas District, Cianjur Regency, West Java Province (see figure 1). CBG is located at mountainside of Mount Gede and Mount Pangrango at an altitude of approximately 1,300-1,425 meters above sea level, with an area of 84.99 hectares. The average temperature of 20 °C, humidity of 80.82% and an average rainfall of 2,950 mm per year. CBG is a comfortable place to rest while enjoying the beauty of the various types of plants that originated from Indonesia, especially from tropical wet highland, and other foreign countries. CBG \pm 100 km from Jakarta and \pm 80 Km from Bandung.

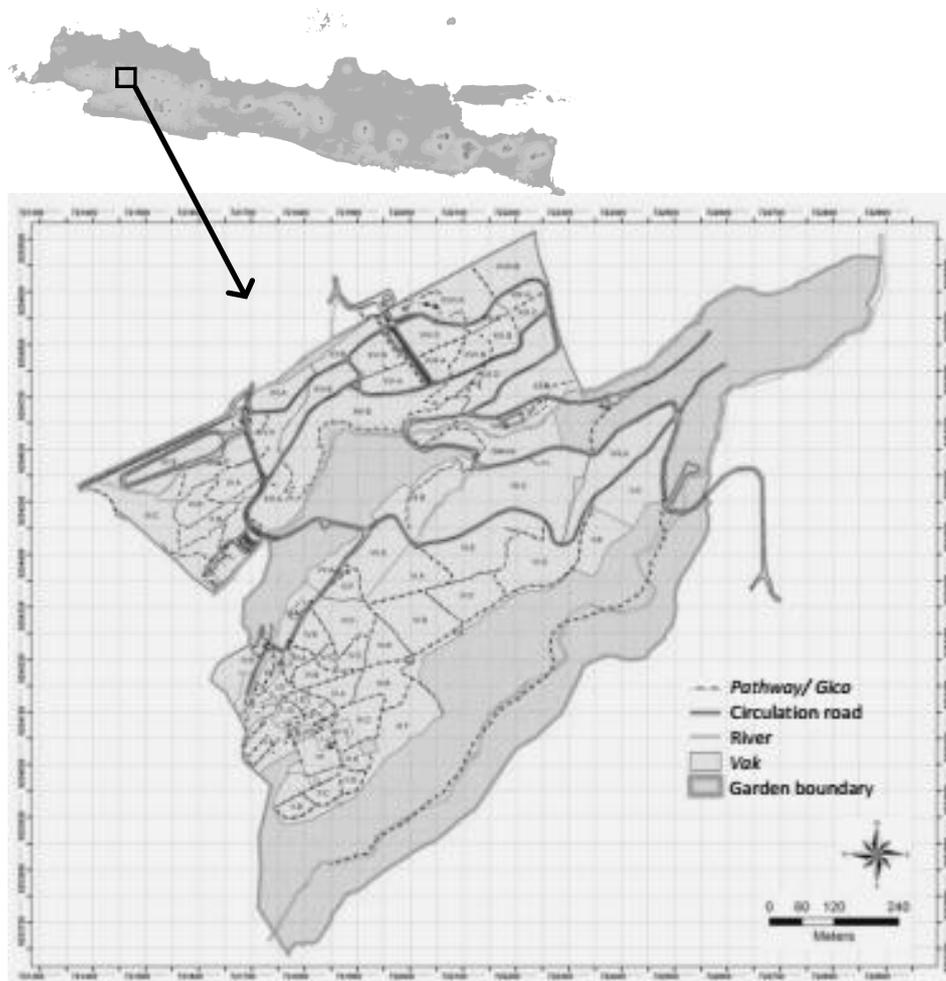


Figure 1. Study area at Cibodas Botanical Garden, Cipanas-Cianjur, West Java. (Courtesy of Agus Darmawan).

The subject of study was the user of edu-eco tourism services which provided by CBG as *Wisata Flora* program. The methods of study was conducted by distributing questionnaires to be filled out by respondents. Questionnaires distribution was conducted in early August 2015 and early August 2016. These both time selected because the user services at CBG were very high, especially for *Wisata Flora* program.

3.1. Questionnaires design and respondents

Questionnaires which compiled was a set of questions that indicate the quality of edu-eco tourism services of CBG. There were 14 questions which part of a service quality, (1) service procedures;

(2) service requirements; (3) a distinct operator; (4) discipline of the operator; (5) responsibility of the operator; (6) operator’s capability; (7) fast response; (8) fairness of service; (9) hospitality; (10) charges fairness; (11) assurance of service charges; (12) assurance of schedule; (13) environment amenity; (14) services comfort.

Each respondents must to provide a value for each indicators. Each indicators has a weight rating from value “1” to “4”, value “1” for services quality at “not good” level, value “2” for “less good” or “poor” level, value “3” for services at “good” level and value “4” for “very good” level of services quality. Respondents in this study were selected randomly from any user who has received the services. In 2015, the number of respondents was 124 and 207 in 2016 (see table 1).

Table 1. Characteristic of respondents in this study.

Respondents characteristic	2015 (N= 124)	2016 (N= 207)
Gender		
Male	39	84
Female	85	123
Age (years old)		
0-17	40	89
18-25	52	62
26-30	11	13
31-35	5	19
36-40	7	20
41-45	2	3
46-50	4	-
> 50	3	1
Education		
Elementary school or under	19	26
Junior high school	18	65
High school	63	85
Diploma	4	7
Bachelor	14	23
Post graduated	6	1
Occupation		
Government employee	6	12
Private employee	16	34
Entrepreneurial	2	24
Student	89	87
Others	11	50

3.2. Data collection and analysis

Each questionnaires which compiled from respondents was a set of values to each services indicators. Average value of each indicators formulated as:

$$\overline{I_s}_i = \frac{\sum I_s_i}{N} \tag{1}$$

$\overline{I_s}_i$ is an average value of indicator of services of i (the value is between 1 to 4); $\sum I_s_i$ is total value number of indicator of services of i ; N is total number of respondents at the period; i is the number of indicators (1,2,3,... 14). Then, each indicators has a weight value, 1/14 or 0.071, so that average weight value of indicator of services i was formulated as $\overline{I_s}_i' = \overline{I_s}_i \times 0.071$. In order to convenient of understanding that the value was expected in range 25-100, each indicators was multiplied with based value or constants (c) of "25". Then, user satisfaction index (USI) can be formulated as:

$$USI = \sum \overline{I_s}_i' \times c \tag{2}$$

User satisfaction index was a quantitative method and an objective parameter to assess the quality of edu-eco tourism services of CBG. Classification of USI based on range 25-100 value, which value 25 to 43.75 has a "D" qualification or quality of services was "not good", value 43.76 to 62.5 has a "C" qualification or quality was "less good" or "poor", value 62.51 to 81.25 has a "B" qualification or "good" quality and value 81.26 to 100 has an "A" qualification or "very good" quality. The assessment was also can be referenced as the level of performance of the related service unit and for further improvement at the future, and it can be as medium of public information. These assessment procedures were consistent with The Decree of the Indonesian Minister of Empowering the State Apparatus which about general guidelines for preparing the public satisfaction index at government services unit [9].

4. Result

The details of 2015 and 2016 questionnaires data which delivered to respondents about their opinions to the edu-eco tourism services of CBG can be seen in table 2.

Table 2. Data analysis of user satisfaction questionnaires of 2015 and 2016.

Indicator of services (I_s_i)	2015 ($N=124$)			2016 ($N=207$)		
	Total value ($\sum I_s_i$)	Average ($\overline{I_s}_i$)	Average weight ($\overline{I_s}_i'$)	Total value ($\sum I_s_i$)	Average ($\overline{I_s}_i$)	Average weight ($\overline{I_s}_i'$)
Service procedures	375	3.024	0.215	597	2.884	0.205
Service requirements	375	3.024	0.215	592	2.860	0.203
A distinct operator	392	3.161	0.224	569	2.749	0.195
Discipline of the operator	393	3.169	0.225	616	2.976	0.211
Responsibility of the operator	400	3.226	0.229	619	2.990	0.212
Operator's capability	403	3.250	0.231	618	2.986	0.212
Fast response	373	3.008	0.214	568	2.744	0.195
Fairness of service	377	3.040	0.216	606	2.928	0.208
Hospitality	411	3.315	0.235	635	3.068	0.218
Charges fairness	383	3.089	0.219	610	2.947	0.209
Assurance of service charges	375	3.024	0.215	569	2.749	0.195
Assurance of schedule	369	2.976	0.211	573	2.768	0.197
Environment amenity	411	3.315	0.235	625	3.019	0.214
Services comfort	390	3.145	0.223	609	2.942	0.209

Based on table 2, the user satisfaction index in 2015 and 2016 were 77.685 and 72.08. These values were indicated that user satisfaction at the “good” level, or it can generated that the performance of services unit at grade "B" [9]. Although it has the same value range, but the difference in the number of respondents and the characteristics in it on which the survey in both years was affected the difference in result. The highest value of the indicators in the both years were “hospitality” (average values were 3.315 and 3.068) besides environment amenity indicator in 2015 was also reached at the same value. In 2015, the lowest value was the assurance of schedule (2.976) and 2016 was fast response with an average 2.744. Nevertheless, on the indicator with the lowest values were only slightly to the value of “3” as limit ratings of good category.

In 2015, except the assurance of schedule, the other indicators has a higher value than 3 (3.008 to 3.315). Furthermore, in 2016, except hospitality and environment amenity indicators, the others were slightly lower than the value of “3” (2.744 to 2.99). The results were showed that the performance of the services unit of CBG to delivered of edu-eco tourism program has been good.

5. Discussion

The results indicated that user satisfaction were declined between 2015 to 2016. Though still in good category [9], it showed a decline in the performance of the related units in satisfying the users. All indicator in 2016 have a lower average value than 2015 (see figure 2). It needs to get the attention of management in order to improve the quality of service in the future, if not, then CBG will be left by their user.

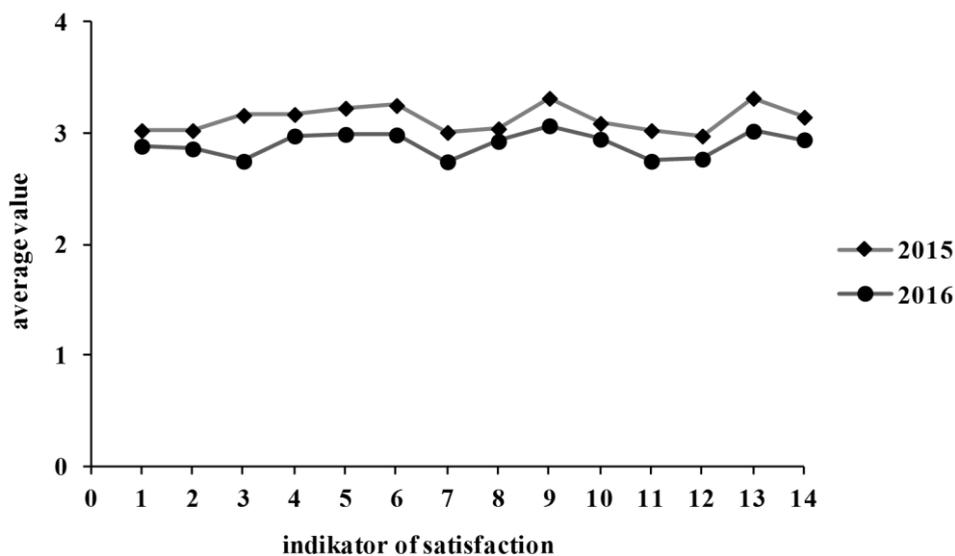


Figure 2. The comparisons of average value per-indicator of user satisfaction between 2015 and 2016.

The biggest gap of average value was at a distinct operator indicator (0.412). This occurs because the users feel operators in the field is limited. When edu-eco tourism activities were involved many participants, while the availability of operator guides just a few, then users will not or just have received less attention, for example, the discussion about plants or surrounding condition is not answered or less satisfactory. The total operators of CBG which run the edu-eco tourism program less than 10 persons. So that when a surge in demand for this service, the policy which taken is recruiting person from other units, which sometimes constrained by availability or other tasks.

This less operator was also impacted to the fast response and assurance of the schedule program, so at the both indicators were also reached a lower value (see table 2). The ideal condition which user can be delivered a satisfaction information, discussion and other needs in edu-eco tourism program of

CBG is 1 operator or guide per-20 persons of user or less. Therefore, this needs to add a sufficient of regular and capable operator to anticipate a surge demand of this service, especially at the peak time of visit like July and August and at the end of year.

Furthermore, both hospitality and environment amenity has a highest value from the user. These indicates that the performance of related unit has been satisfying the user. This was a positive relationship between perceived performance and tourist satisfaction [10]. It also indicates that pre-travel expectations and post-travel experiences of the user has been consistent [11]. This experiences was also evoked positive feelings [11], so both indicators show a highest value. CBG which offers views of the tropical mountains and a fine landscape gives a new experience to visitors. Where most of population lives and works in urban places, landscape values and services take on new meanings, and the economic dimension of landscape becomes increasingly important [12]. These good quality need to be managed and in the future CBG has to increase the quality of service in order to get long-term relationships with the customer. It affects not only immediate repeat purchases but also the reputation and the trust. Enhanced tourist satisfaction may lead to increased revenues and profits for service providers. Thus, recognizing and understanding the cognitive and behavioural consequences of satisfaction has important implications for destination management [2].

6. Conclusion

Generally, user satisfaction on edu-eco tourism of CBG at a good level. This assessment can be generated as early based-value and an objective valuation for the user satisfaction and the performance level of the related unit. In order to increase the appreciation of users, then CBG need to continuously improve the quality of services, since there were indications of a decline, although slightly. It is important to improve this study in the future with involved more respondents and periodically.

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