

## Aesthetic Evaluation of Botanical Gardens, Gampaha

A.A.S.P ADIKARI and K. YAKANDAWALA

*Department of Horticulture and Landscape Gardening, Faculty of Agriculture and Plantation Management, Wayamba University of Sri Lanka, Makandura, Gonawila (NWP).*

### ABSTRACT

Botanic gardens are institutions holding documented collections of living plants for the purpose of scientific research, conservation, display and education. However botanic gardens are widely appreciated for their aesthetic value by the general public. All the botanic gardens in Sri Lanka are serving this primary service. In addition the Gampaha botanic garden has established a recreational area. The present study was undertaken to evaluate the aesthetic preference of the visitors in the park area. One hundred visitors were interviewed using questionnaire while the aesthetic quality was evaluated using photo images. Data were subjected to descriptive statistics and regression analysis. Among the visitors who spent time in park, Japanese garden is the most popular (mean rank 3.19) while children park area was least preferred (mean rank 4.69). Among aesthetic points, Palm Avenue is more popular (2.32), while home garden model was not popular (3.89). There was a significant relationship between visitor's age, educational level and area visited and their level of satisfaction. Almost all the visitors (94 %) were satisfied of their visit with regard to facilities except for plant labeling and information provided by the garden. This information could be utilized to attract more visitors in future while providing optimum satisfaction levels.

**KEYWORDS:** Aesthetic evaluation, Botanical garden, Landscape, Visitation pattern.

### INTRODUCTION

Landscape is an outdoor natural or build environment which can be directly perceived by person visiting and using that environment (Hull and Revell, 1989). The term landscape clearly focuses upon the visual properties or characteristics of the environment, these include natural and man made elements and physical and biological resources which could be identified visually. Thus non visual biological functions, cultural, historical values, wildlife and endangered species, wilderness value, opportunities for recreation activities and a large array of tastes, smell and feelings are not included (Daniel and Vining, 1983). A scene is the subset of a landscape which is viewed from one location looking in one direction (Hull and Revell, 1989).

The landscape quality is defined as including a range of environmental/ ecological, socio cultural and psychological factors. Beauty has been considered important enough to be a legitimate purpose of public landscape management, even to the point of being translated into public policy (Zube et al., 1982). Beautiful landscapes provide unique opportunities for people to achieve special kinds of experiences, often called "aesthetic" that are highly valued and less likely to occur in less beautiful places (Chenoweth and Gobster, 1990).

A botanic garden is a controlled and staffed institution for the maintenance of a living collection of plants under scientific management for purpose of education and research, together with such libraries, herbaria, laboratories and museums as are essential to its particular

undertakings. Each botanical garden naturally develops its own special fields of interests developing on its personnel, location, extent, available funds and the terms of its charter. It may include green houses, lawns, herbarium, an arboretum and other departments. It maintains a scientific as well as a plant growing staff and publication is one of its major modes of expression (Anon, 1976).

In Sri Lanka, department of National Botanic Gardens was established in the early nineteenth century. The Royal Botanic Garden, Peradeniya (1821), Botanic Gardens Hakgala (1861) and Botanic Gardens, Henarathgoda, Gampaha (1876) were established by the British to conduct experiments on exotic economic plants and explore plant wealth in the colony. After the establishment of Department of Agriculture in 1912, the botanic gardens functioned as a division under it and in 2006 the Department of National Botanic Gardens was re-established.

Gampaha Henarathgoda Botanic Garden was established by British rulers in 1876. It is situated about 1km away from Gampaha town. The distance from Colombo is 29 km. The elevation from mean sea level is 33 ft and the total land extent is 43 acres. Today, Henerathgoda Botanical garden functions as an urban Botanic garden or as a site for recreation. Visitors come to this park for education and training, to enjoy sceneries, for boat rides, playing cricket, Bullock cart rides and to conduct research purposes. It gives services such as plant

sales centre, plant identification, play grounds and wheel chairs for disable people.

To attract more visitors for the gaining of more economic benefits and for visitor satisfaction it is important to study the attitudes of visitors, the visitation patterns and the preference for the specially arranged areas in the garden. A Landscape evaluation can be conducted to gather such information. Few methods are available for landscape evaluation, such as Descriptive inventories, Public preference method and Quantitative holistic techniques (Arthur et al, 1977). The specific objective of this study was to analyze visitors' aesthetic preference for the selected aesthetic areas and focal points of Gampaha Henerathgoda Botanic Gardens. The studying of the demographic characters of visitors and their attitude related to the facilities of the park was conducted as general objective.

## MATERIALS AND METHODS

### *Theoretical Framework*

The main study of the research was to evaluate the aesthetic preference of Henerathgoda Botanic Garden visitors. Prior to the study, an initial field study was conducted and two main areas were identified in the garden as recreational area and park area. Only the park area was selected to study the aesthetic preference. From the park area seven aesthetic areas were selected to evaluate the visitor's aesthetic preference viz. Forest, Arboretum, Lawn, Student garden, Japanese garden and children's park. In addition, five focal points were also selected to evaluate the preference viz. palm avenue, plant house, tree hut, home garden model and first rubber tree that was planted in Sri Lanka.

### *Data Collection*

#### *Visitation Pattern*

Visitation pattern was evaluated over period of one week by making observations at the entrance. Under the visitation pattern evaluation, the number of visitors, age distribution, visitor categories and the number of visitors at different time period of a day for each day over a given week was collected.

### *Aesthetic Evaluation*

One hundred visitors were interviewed in June 2010 using a questionnaire. Each questionnaire included questions with regards to demographic characteristics, reasons for the visit, time spent in the park, frequency of visitation and with whom they have visited. To evaluate the facilities available at the garden, special ranking questions were used.

To evaluate visitor's aesthetic preference, from the previously selected areas, over 100 photo images were taken in the morning from 8.00 am to 10.00 am by using Sony digital camera with 10.1 Mega pixels resolution. All the images were stored in to a computer and through a pre- evaluation process seven and five photo images that represent seven aesthetic areas and five focal points were selected respectively. The visitors were asked to rank the photo images according to their preference.

### *Statistical Analysis*

Visitation pattern was analyzed using descriptive statistics. The relationship between the level of satisfaction of visitors and the education level, gender, age and areas visited was analyzed by regression analysis using SPSS statistical software. Preference for the selected aesthetic areas and focal points were analyzed using mean rank value.

## RESULTS AND DISCUSSION

### *Visitation Pattern*

#### *Demographics of Visitors*

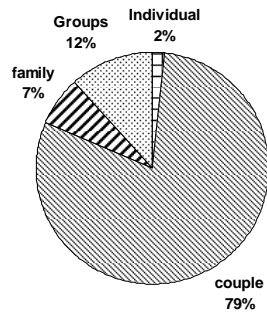
Among the visitors, gender distribution was more or less equal which consisted of 52 % male and 48 % female (Table 1). Majority of visitors (87 %) belong to the age group below 35 years. Therefore, it is important to satisfy these age groups by conducting further studies to identify their interests.

**Table 1. Demographics of visitors**

Variable	Category	Percentage (%)
Age	< 18 yrs	20
	18 – 35 Yrs	67
	35 – 50 Yrs	11
	>50 Yrs	2
Gender	Male	52
	Female	48

### *Categories of Visitors*

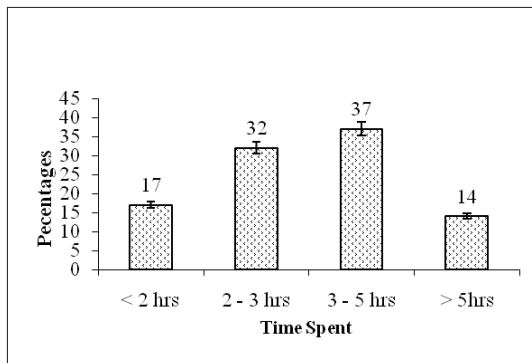
The visitors were categorized based on their social groupings such as single, couples, families and groups, of which couples represent the majority (79 %). This clearly indicates the requirement of a suitable park area other than a botanical garden for youth. Specially, as Gampaha is famous for tuition classes there is a requirement for a suitable area for younger generation. So that, this group will not distract other users such as family groups (Figure 1).



**Figure 1. Distribution of visitor categories**

**Length of Visits**

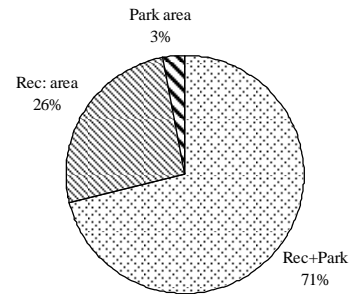
Based on the time visitors spent in the park, they were categorized into four groups (Figure 2) 37 % of the visitors spent 3- 5 hr time period, followed by 2-3 hr time (32 %).



**Figure 2. Distribution of the time length the visitors spent**

**Areas Visited**

Majority of the visitors (71 %) enjoy recreational and park area followed by recreational area only (26 %) and park area only (3 %). This clearly indicated the popularity and the requirement of suitable recreational areas in the park. Therefore, it is important to pay more attention to this area to attract more visitors. However, one must not neglect the park garden as it contribute to education, research and conservation which consider as main reasons for establishment of a botanical garden (Figure 3).

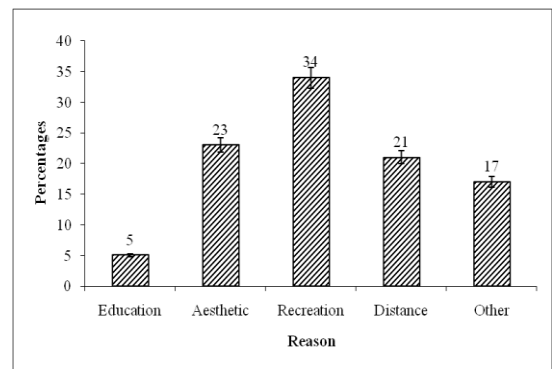


**Figure 3. Percentages of Areas Visited by park visitors**

**Aesthetic Preference of Visitors**

**Purpose of Visitation**

Based on the purpose of visiting, five categories were identified such as educational, aesthetic value, recreation, close proximity and other reasons. Majority visited the park for recreational purposes (34 %) followed by aesthetic value (23 %). Only 5 % visited for educational purposes. However, according to the Botanical Garden Conservation International (BGCI) educational purpose identified as an important function in a Botanical garden (Figure 4). Therefore, it is important to promote educational activities through posters, tree labeling and other outdoor activities.



**Figure 4. Reasons for selecting the park**

**Frequency of Visitation**

According to Figure 5, 37 % visited twice in 6 months followed by once a month (26 %). When consider the cumulative value, 80 % visit the park at least once a year. Therefore, breaking the monotony of the park is important to satisfy the frequent users (Figure 5).

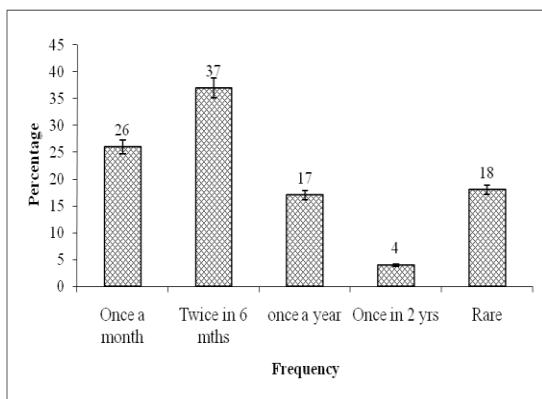


Figure 5. Frequency of visiting to the park

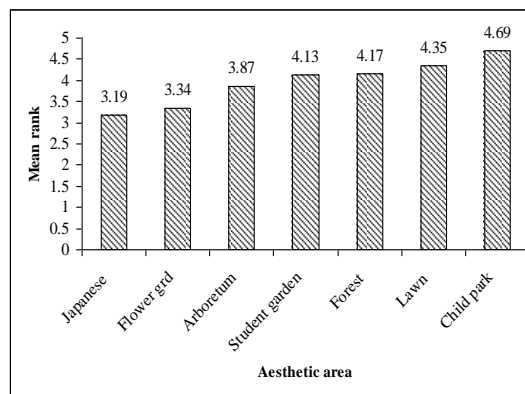


Figure 6. Mean rank of different areas

#### Ranking of Preference for Selected Areas

Seven aesthetic areas and five focal points were selected to evaluate the visitor's preference by mean ranking.

#### Aesthetic Area

The lowest mean rank value of 3.19 recorded for the Japanese garden area (Figure 6). This implies that most visitors prefer Japanese garden area which may be due to the unique landscape style represent in that area. This was followed by flower garden area. Both areas are related to the aesthetic value. Therefore, we can conclude that visitors have given their high preference to aesthetic value. The highest mean rank was recorded for children's park (4.69) followed by Lawn (4.35). Both areas were contributed to the recreation value. As almost 97 % visit recreation area (Figure 3), children's park can be shifted to recreational area. Therefore, a calm environment can be created in the park area while minimizing the maintenance cost of the park. Arboretum, student garden and forest area which is related to education and conservation ranked in between areas valued for aesthetic and recreation.

#### Focal Points

Most visitors prefer Palm Avenue (mean rank, 2.32) which gives elegance to the garden. It is located in the entrance area. Therefore, it is visible for anybody who enters the garden. Further, it can be maintained at minimum cost while keeping aesthetic value throughout the year. Next preferred point was tree house (2.55) which is related to recreation. Home garden model (HGM) ranked last (3.89) after the plant house. Home garden model does not maintained properly and this may be the reason for the poor ranking. Plant house also received a low ranking (3.11) and this could be due to its location in the park (Figure 7).

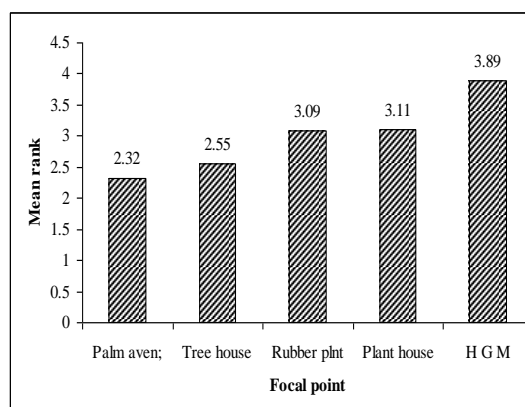
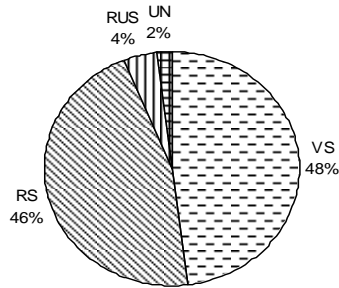


Figure 7. Mean rank of different focal points

#### Facilities of the Park

Almost all the visitors (94 %) were satisfied about their visit to the park (Figure 9). With regards to the facilities provided by the park management, according to the visitors, 60 % and 59 % respectively were satisfied with the cleanliness of the park and seating areas. However, 99 % were not satisfied about the information available provided by the park and labeling of plants. Therefore, this area needs to be improved further. In addition only 8 %, 9 %, 13 % and 15 % satisfactory remarks were given for toilet, dust bins, drinking water facilities and directions provided within the park respectively. Therefore, facilities provided for these areas need to be improved except dust bins. It is a generally accepted norm that anybody who brings waste or garbage to a public landscape should take back garbage with them.

### Satisfaction level of visitors



VS= very satisfied; RS= Relatively satisfied; RUS = Relatively unsatisfied; UN = Unsatisfied

**Figure 9. Visitor's satisfaction about the visit to the park**

#### Regression Analysis for Visitor Satisfaction

The visitor's satisfaction levels were analyzed with relevance to age level, education level, gender and areas visited. There is a significant relationship between age levels and levels of satisfaction (Table 2).

**Table 2. Regression analysis for visitor satisfaction**

Variable	Coefficients	P value
Age	-1.125682 *	0.013(.4554)
O\L	.8342002	0.116(.5309)
A\L	1.32046 *	0.015(.5419)
Male	-.1134496	0.812(.4758)
Rec; area	1.388971 *	0.009(.5354)
Park area	-.1754161	0.882(1.181)

Age (18- 35yrs, > 35) Education levels (O\L, A\L, Higher); Gender (Male, Female); Areas visited (Recreational, Park area, Rec; +park). Standard error is denoted inside the parentheses

In relation to the > 35 years age category, visitors of 18 - 35 years have significantly lower satisfaction. The > 35 years visitors might have visited the park with their family members. This may led to higher satisfaction levels. The 18-35 year age group might have represented by more couples (Figure 1) and the frequent disturbances faced by them might have led to the lower satisfaction. The advanced level qualified visitor's satisfaction level is significantly high followed by ordinary level qualified visitors. However, low satisfaction level was recorded with visitors having tertiary education. This may be due to their exposure to facilities and information available in other parks. A significantly high visitor satisfaction was

recorded by people who visit only recreational area. People who visit Recreation and park area have gained satisfaction level above people who visit only park area. The less satisfactory by visitors in the park area may be due to the off season of the park. The gender has no relationship with the satisfaction levels.

### CONCLUSIONS

According to the study, majority of visitors belong to the age group below 35 years. The main reason for the visit is for recreational followed by aesthetic purposes. Among the visitors who spent time in the park, aesthetic areas viz. Japanese garden followed by flower garden is more popular but not the children park. Among places, Palm avenue is the most popular followed by tree hut. Home garden model is not popular. There is a significant relationship between the visitor's satisfaction with their age, education level and with the parts of the park they have visited.

### ACKNOWLEDGEMENTS

Authors wish to express their gratitude to Ms. Chandrika Jayaweera, curator, and Mr. Athula Nandasiri of the Botanic Gardens Gampaha for their cooperation. The help given by Ms. Menuka Udugama of the Department of Agribusiness Management in statistical analysis is also acknowledged.

### REFERENCES

- Anon, (1976). Botanical Garden definition, Available from [http://en.wikipedia.org/wiki/Botanical\\_garden#cite\\_note-1](http://en.wikipedia.org/wiki/Botanical_garden#cite_note-1), (Accessed 09 March 2010).
- Arthur, L.M., Daniel, T.C. and Boster, R.S., (1977). Scenic assessment: an overview. *Landscape Planning*, **4**, 109-129.
- Chenoweth, R.E. and Gobster, P. (1990). Natural and ecology of aesthetic experiences in the landscape. *Landscape Journal*, **9** (1), 1-9.
- Daniel, T.C. and Vining, J. (1983). Methodological Issues in the Assessment of Landscape Quality. In *Behaviour and the Natural Environment* eds. Altman, I. and Wohwill, J., 39-83.
- Hull, R.B. and Revell, G.R.B. (1989). Issues in sampling landscapes for visual quality assessments. *Landscape and Urban Planning*, **17**, 323-330
- Zube, E. H., Sell, J. L. and Tylor, J. G. (1982). Landscape Perception Research Application and Theory. *Landscape planning*, **9**, 1-33.