Factors Affecting the Tourists' Arrival at Botanical Gardens in Sri Lanka (Peradeniya and Henarathgoda Botanical Gardens)

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Abstract

Currently, tourism is recognized as an emerging industry worldwide. Due to the wide variety of purposes and preferences that tourists have, the industry has grown exponentially over the years, branching out into different areas among which eco-tourism plays a significant role. In Sri Lanka, the tourism industry plays an undisputable role in the country's economic growth. However, it can be observed that the contribution of botanical gardens to the development of the Sri Lankan tourism industry has not been acknowledged by the contemporary studies that concern the industry. Therefore, this study aims to identify the prominent factors that influence the change in tourist arrival in both Peradeniya and Henarathgoda botanical gardens. The present study aims to understand the impact of the factors on tourist arrivals to the selected gardens through a sample of 75 local and 25 international tourists, who were selected via an on-site survey. The results of the exploratory factor analysis revealed that gender and age group are the most influential variables that showed different agreement levels in the Peradeniya Botanical Garden, whereas age group, gender, and educational level demonstrated different agreement levels in the Henarathgoda Botanical Garden. The research identified five factors that significantly influenced tourist visits in the Peradeniya botanical garden including external facilities, natural environment, garden environment, transportation and communication, and safety. Similarly, in the Henarathgoda botanical garden, four factors were identified as influential: facilities, transportation, security, parking, sanitation, and natural attraction.

Keywords: Botanic Tourism, Botanical Gardens, Factors, International Tourists, Local Tourists

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1. Introduction

The tourism industry, unlike other economic sectors, is heavily impacted by challenging socio-economic and political circumstances (Daoudi, 2000). Its high sensitivity to these forces has given it such an exposed position that it already serves as an early warning indicator of critical situations for other sectors (Daoudi, 2000). Tourism garnered high popularity in the decade of 1960 among third-world countries while being recognized as a new opportunity for those nations to secure foreign exchange that stimulated economic growth (Kadt, 1981). According to Kadt (1981) "their sunny climates, sandy beaches, and exotic cultures attracted a stream of vacationers, and resorts multiplied to meet the demand" (p. 14). Botanical Gardens represent the history and the culture of the nations of which they are part of (Shin, 2013).

As Goeldner and Ritchie (2009) argued, "Tourism is a composite of activities, services, and industries that deliver a travel experience that ranges from transportation, accommodations, eating and drinking establishments, shops, entertainment, activity facilities, and other hospitality services" (p.12) which are been made "available for individuals or groups that are traveling away from home". As the United Nations World Tourism Organization (UNWTO) points out, "International tourism comprises the activities of persons traveling to and staying at places outside their usual permanent places of residence for a period not exceeding 12 months for leisure, business, and other purposes" (p.13). However, these visitors do not intend to make a profit in the place they visit (SERIC, 2010). On the other hand, World Tourism Organization (WTO) (2001), observes tourism through rather a general viewpoint, arguing that it moves beyond the common perception of tourism as being limited to holiday activities, i.e., only as people traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business, and other purposes (UNWTO, 2001). Viewed in this light, tourism stands as one of the most important sectors in the world economy, as it intersects almost all the areas of a nation's economic success. Furthermore, the varied impact tourism has on different countries is most acutely felt in the region of South Asia as it has become a central pillar in their economic journey (Shin, 2013).



In 1966, Sri Lankan government established a new lead tourism entity, the Ceylon Tourism Board, with the mandate of "revitalizing the industry and turning the country into a modern tourist destination" (Sri Lanka Tourism Development Authority - SLTDA, 2001, p.12). Visitor numbers saw a dramatic increase following its establishment, largely driven by the country's numerous beach resorts. Tourist arrivals to Sri Lanka grew by 24% annually, between the years 1976 to 1982 (SLTDA, 2001). However, With the civil war that broke out in July 1983, the country entered a period of marked decline, the impact of which was heavily felt in the tourism industry (Weiss, 2012).

In 2005, Sri Lankan government passed Act No. 38 which is known as the tourism act, replacing the 1966 law that had laid the ground for the development agenda of the Sri Lankan tourism sector for the previous four decades (SLTDA, 2007). The new legislation recognized SLTDA (2007) as the primary tourism development entity of Sri Lanka. SLTDA was established under the umbrella of the Ministry of Tourism and Sports, which is referred to as the Ministry of Tourism Development and Christian Affairs after the parliamentary elections in 2015. Several additional entities were also established during this time which include "the Sri Lanka Tourism Promotions Bureau (SLTPB), Sri Lankan Institute of Tourism and Hotel Management, and the Sri Lankan Convention Bureau" (SLTDA, 2007, p.12). The sustained efforts of SLTDA have helped attract visitors interested in Ayurvedic medicine, ecotourism, adventure sports, arts and crafts, volunteering, spices, and food and shopping to Sri Lanka (SLTDA, 2018).

2. Literature Review

A discussion on the development of the tourism industry of Sri Lanka demands us to engage with its central geographic location which remains a key determinant in its historical evolution. As UNDP and WTO (1993) pointed out, the strategic location of Sri Lanka has allowed the country to immerge as a tourist hub over the past centuries. At the end of the 13th century, Marco Polo introduced Sri Lanka as the "Most Outstanding Island for Travel" after his tours in the country (Fernando, 2017a). According to SLTDA (2011), Sri Lanka has been popularly known among explorers and traders as the "pearl of the Indian Ocean" and "Serendib" over the years. The first visitors to Sri Lanka were pilgrims who visited sacred cities such as Anuradhapura and Polonnaruwa (Fernando, 2017a).



The second largest foreign migration to the lands of Sri Lanka took place during the second world war. Critics identify this time as the second period in the history of the Sri Lankan tourism industry (Anjana, 2011). Unlike other British colonies, Close to 50% of Ceylon's volunteers to the Great War were commissioned as officers. Most of those officers had a previous affiliation to the Ceylon Cadet Battalion, had military experience in the British Army, or were associated with a Ceylon Defense Force Formation. During the Second World War, the troops who were engaged in military operations had been primarily placed in the cities of Kandy and Gampaha. Following its independence in 1948, Sri Lanka's entry into the international tourism market took place in the decade of 1960 (Ranasinghe & Deyshappriya, 2010).

During the colonial era, Sri Lankans managed to develop a stable economy through paddy cultivation and were able to lay claim to a large foreign reserve through exports of coffee, tea, rubber, and other minor export crops (Wickremerathne, 2010). However, with the introduction of the closed economic policy in 1970, Sri Lanka faced with a severe financial crisis resulting from a reduction in the reserves which had sustained trade and tourism in the country. Therefore, this time period saw a rapid decline in the tourist industry of Sri Lanka (Athukorala et al., 2007).

Traditionally, areas such as the natural beauty, comfortable climate, historical and cultural heritage, and religious diversity have been considered as growth potential in the Sri Lankan tourism industry (Perera, 2017). These aspects have been seen as attractions that draw tourists to the country. On the other hand, critics argue that the success of tourism is heavily relies on the security and safety of a country. At present, Sri Lanka is recognized one of the few tourist destinations left in the world with no threat of terrorism (Fernando, 2017b). In addition to that, Sri Lanka is blessed with a coastal belt of 1,500 km, even though its potential has not been utilized effectively to boost tourism. Considering these facts, it can be argued that there is a high potential that exists in the niche segments of tourism in Sri Lanka such as "MICE (Meeting, Incentives, Conferences, and Events) tourism, Health tourism, Eco tourism, Adventure tourism, Leisure tourism, Agro tourism, Cruise and Marine tourism, Village and Urban tourism, railway tourism, and Recreational tourism" (CBSL, 2015, p.124). Among various branches of the tourist industry, ecotourism or botanical tourism continues to emerge as an important area. It is closely related to other branches of tourism such as educational

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tourism, urban tourism, and pleasure tourism, botanical tourism thus rests at a central juncture of the Sri Lanka tourist industry as its development can lead to improvements in the other sectors of the industry.

There are over 2500 botanical gardens worldwide which record over 300 million visitors annually (BGCI, 2012). Traditionally, the focus of botanical gardens has centralized on developing the fields of taxonomy and horticulture which have now extended to address wider issues of conservation, "with particular strengths in ex-situ conservation and education" (Donaldson, 2009, p.12).

In Sri Lanka, the highest tourist arrivals are shown in the Peradeniya botanical garden which records a total of 1,525,156 visitors in the year 2019. Among them, there are 412,660 foreign tourists and 1,112,496 local tourists. A closer observation of the Gampaha botanical garden shows 193,264 tourist arrivals in the year 2018. 333 of those tourists are foreigners while 192,934 remain local visitors. These numbers indicate that there is a major gap between tourist arrivals in Peradeniya and Gampaha Henarathgoda Botanical Gardens.

Several social factors have been identified through previous research as having an impact on tourist visits to the botanical gardens. For instance, Crilley (2008) has explored visitor service quality attributes at six Australian city botanic gardens and their importance in influencing behavioral intentions such as recommending the site to others or revisiting the site as the result of a previous visit to a botanic garden. The study identified twenty-three attributes have been influential on tourist visits to the botanical gardens which were then categorized by using factor analysis into four groups which include "aesthetics, engagement and learning, hospitality services and staffing" (Crilley et al., 2010, p. 12). A study by Crilley et al. (2010) that focuses on regional botanical gardens has yielded similar outcomes reaffirming these conclusions. The researchers re-emphasized that aesthetics stands as the critical contributor in predicting tourist visits to botanical gardens.

Another critical factor that is linked to quality visitor service in botanical gardens is visitor safety. Ability to experience a safe ambiance when visiting a garden is recognized as one of the most important factors that affect service quality. As pointed out by Crilley et al. (2010) despite not being recognized as a determinant in motivation and satisfaction levels among visitors previously, safety when engaging in activities at botanical gardens has now emerged as a



key factor, especially among adult visitors. The reason for this renewed attention towards visitor safety is undoubtedly the difficulties they may face when relaxing, enjoying their experience, and connecting with an aesthetically pleasing environment if their safety is not assured. Helping with understanding the significance of a particular site that a tourist visit has also garnered the attention of contemporary researchers to have an impact on the tourist industry that surrounds botanical gardens. In their recent study, Packer, Ballantyne and Hughes (2014) argued that tourists, particularly international tourists, require assistance when understanding the site and its significance within the local culture.

According to Wassenberg (2012), most participants in one of his research studies had indicated a need to transfer the benefits and outcomes of their visits to other areas of their lives such as applying their knowledge about plants or new plant species when making decisions about their personal or business landscape designs and enriching their academic courses. According to Wassenberg (2012) an extensive collection of plants and well-designed garden spaces increase the possibility of introducing visitors to new plants and providing learning opportunities. Viewed in this light, accommodating activities such as guided tours, self-guided tours, and classes, allow visitors to gain additional and in-depth knowledge.

According to Shin (2013), botanical gardens today lead to horticultural and environmental education. An example of this would be the North Carolina Botanical Garden which focuses on educational programmes that include "plant identification, botanical arts, and exercise in nature for all ages" (Shin, 2013, p.42). Moreover, Shin (2013) has used his survey data to argue that tourists regard education programmes that focus on areas such as conservation as essential for tourist experiences. Therefore, with its wide variety of sources, Korean De-Militarized Zone (DMZ) Native Botanical Garden will become an ideal place to indulge such tourist requirements.

Another key economic factor that needs to be considered is the garden's appeal as a tourism attraction which in turn calls for more marketing surrounding botanical tourism (Borsch & Lohne, 2014). Apart from the issues that concern budgetary restrictions, the management of botanical gardens needs to focus on maintaining a clear brand vision and brand identity that utilizes existing botanic spaces to develop a product and segment portfolio matrix that is



matched to experiences sought by visitors (Williams et al., 2015). Certain other issues that need to be addressed include ongoing evaluation of the usefulness and effectiveness of the garden's website in facilitating visitor decision-making and constant re-evaluation of the objectives set regarding which visitor segments are to be targeted, and which products are to be marketed (Payer & Prideaux, 2015).

Bansal and Kumar (2011) point out that the contributions of communities to locally managed ecotourism have the potential to produce successful economic opportunities. These include high-level positions of management that can lead to reduced poverty and unemployment in the areas where the tourist destinations are located. Furthermore, ecotourism led to facilitate and infrastructure that are comparatively simpler and inexpensive than Western standards of tourism, creating more impact on the economy as they are sustained through local products, materials and labour (Dinç & Kocan, 2012).

Environmental factors become another key area that requires attention when developing botanical tourism. As Payer and Prideaux (2015) mention, the feel of the garden is an issue that needs further consideration. Given the importance of recreation as a motivation to visit gardens, areas that provide space for reflection should be designed to be consistent with the need for a peaceful, relaxing, and reflective experience.

3. Research Methodology

The tourists who visited the Peradeniya and Henarathgoda gardens within a selected time period constituted the population of the current study. This research sample consists of both national and international tourists. Under probabilistic sampling, a simple random sampling technique was used to select the research sample.

Yamane method was used to calculate the sample size, resulting in the selection of 20 international and 50 local tourists from the Peradeniya botanical garden. Similarly, 5 international and 25 local tourists from the Henarathgoda garden, were used as the research sample. A questionnaire has been distributed among the tourists to gather primary data for the study. Moreover, a literature review was also utilized to collect secondary data.



4. Results and Discussion

4.1 Distribution of Demographic Information in the Research Sample

Table 1: Demographic Information of the Botanical Garden Tourists

Demographic Characteristics	Factors	Percentage
Tourists' Status	International	25
	Local	75
	•	
Gender	Male	47
	Female	53
Age Group	18-24 years old	36
	25-30 years old	34
	31-40 years old	13
	41-50 years old	13
	Above 50 years old	4
Marital Status	Single	50
	Married	42
	Divorced	7
	Separated	1
Educational level	Elementary	1
	High School	46
	University Undergraduate	25
	Degree	28
Occupation	Business personnel	19
	Professional	15
	Executive	13
	Scientist and Technicians	6
	Educationists	7
	Other occupation	13
	No occupation	30
	Retired Person	26

Source: Survey Data, 2022

The demographic information mainly considered six (6) criteria, tourist status, gender, age, marital status, education level and occupation. According to table 1, there were 25% of international tourists and 75% of local tourists in the research sample. Among the research participants, 47% of the research participants were male while 53% of them were females. A majority of the

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tourists who arrived at the selected botanical gardens (36%) were in the age group of 18-24 years. The total arrivals between the age groups of 31-40 and 41-50 recorded a similar percentage while the lowest tourist arrivals were identified in the age group of over 50 years. Furthermore, majority of tourists who arrived were single (50%). Moreover, most of the tourists have had a high school education while only 1% of them had an elementary education. Similarly, most of the tourists who were selected for the study did not have an occupation, 30% and 6% of the selected tourists were identified as scientists and technicians.

4.2 Attributes influencing the Tourists' Arrivals at the Botanical Gardens.

The study identified nine (9) attributes that influence tourists' arrival at the Peradeniya and Henarathgoda Botanical Gardens. These attributes include attending parties or sporting event, stress relief and relaxation, experiencing fun and enjoyment, studying planting methods, observing gardening techniques, enhancing the knowledge of plant diversity, conducting scientific research and to participating educational programs as horticulture courses. Table 2 shows notable differences between local and international tourists, as well as between the two selected gardens. In the Peradeniya Botanical Garden, the majority (90%) of local tourists visited for fun and enjoyment. However, in the Henarathgoda Botanical Garden, stress relief and relaxation emerged as the major attribute influencing tourists' arrival (53%). None of the tourists visited the Peradeniya Garden for educational programs (horticulture courses), while none visited the Henarathgoda garden for scientific research. Less proportion (10%) of tourists visit to participate in educational programs (Horticulture courses) and other purposes.

Conversely, among international tourists (75%) visited Peradeniya botanical garden for fun and enjoyment. None of them visited for a parties or sporting event, do scientific research, educational programs (Horticulture courses). 45% of international tourists visiting the Peradeniya botanical garden sought stress relief and relaxation. As for the Henarathgoda Botanical Garden, the primary reason for international tourists' visits was to observe botanic gardening techniques, accounting for 55% of their visits.

	Local		
	Peradeniya	Henarathgoda	
	(%)	(%)	
For a party or sporting event	7	20	
To destress and relax	69	53	
For fun & enjoyment	80	50	
To study planting methods	13	17	
To observe gardening techniques	20	13	
To improve the knowledge of plant diversity	2	17	
To conduct scientific research	1	0	
To participate in educational programmes	0	10	
(Horticulture courses)			
Other	0	10	
	International		
	Peradeniya	Henarathgoda	
	(%)	(%)	
For a party or sporting event	0	0	
To destress & relax	45	52	
For fun & enjoyment	75	50	
To study planting methods	30	0	
To observe gardening techniques	40	55	
To improve the knowledge of plant diversity	5	20	
To conduct scientific research	0	0	
To participate in educational programmes	0	0	
(Horticulture courses)			
Other	0	0	

Table 2: Attributes Influencing the Tourists' Arrivals

Source: Survey Data, 2022

The above table aptly summarizes the different factors that affect tourists' (local and international) visits to the selected botanical gardens.

4.3 Exploratory Factor Analysis and Reliability Testing in the Peradeniya Botanical Gardens

As illustrated in table 3, the results of the exploratory factor analysis in the Peradeniya Botanical Garden have identified five (5) main factors among eleven (11) variables that were defined by the thirteen (13) variables. These five factors, which were analysed through a combination of the thirteen variables, reveal their contribution to the tourist visits. The five factors that influenced tourist visits to the Peradeniya Botanical Garden are external



facilities, natural environment, garden environment, transportation, and communication, and safety.

These results indicate that the external facilities, natural environment, garden environment, transportation and communication and safety are the key factors that affect tourists' decision to visit the Peradeniya Botanical Garden.

Attributes	Factor Loading					
	1	2	3	4	5	
External Facilities						
Restaurant Facilities	0.806	0.653	0.632	0.528	0.229	
Accommodation Facilities	0.714	0.598	0.654	0.258	0.367	
Banking / Finance Facilities	0.826	0.239	0.297	0.569	0.659	
Natural Environment						
Peaceful Atmosphere	0.369	0.698	0.325	0.609	0.602	
Climate	0.236	0.719	0.293	0.258	0.392	
Garden Environment						
Natural Attraction	0.700	0.623	0.834	0.609	0.622	
Drinking Water	0.422	0.029	0.538	0.289	0.399	
Transportation						
Transportation	0.698	0.379	0.278	0.808	0.722	
Communication and Security						
Telecommunication facilities	0.235	0.269	0.569	0.495	0.664	
Safety and Security	0.524	0.725	0.752	0.652	0.825	
Proper Guidance Services	0.752	0.663	0.625	0.752	0.776	
Variance (%)	23.091	14.875	12.109	10.225	8.427	
Cumulative Variance	23.091	37.967	50.076	60.300	68.728	
Cronbach's Alpha	0.756	0.761	0.718	0.709	0.794	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy .819						
Bartlett's Test of Sphericity $p=0.000$ (240.659, df = 78)						

Table 3: Factor Analysis in the Peradeniya Botanical Garden

Source: Survey Data, 2022

According to table 3, Bartlett's Test of Sphericity has revealed a score of 140.659, and the significance of the correlation matrix (p-value) is 0.000. These numbers were obtained by analyzing data through exploratory factor analysis. 68.73% of the cumulative variance of the data and more than 0.7 of Cronbach's Alpha values show the reliability of factors.



4.4 Exploratory Factor Analysis and Reliability Testing in Henarathgoda Botanical Gardens

Attributes	Factor Loading				
	1	2	3	4	
Facilities					
Restaurant Facilities	0.780	0.699	0.362	0.458	
Accommodation Facilities	0.866	0.270	0.793	0.622	
Banking / Finance Facilities	0.687	0.529	0.029	0.298	
Telecommunication Facilities	0.855	0.691	0.620	0.731	
Transportation and Security					
Transportation	0.694	0.744	0.609	0.623	
Safety and Security	0.600	0.540	0.528	0.369	
Proper Guidance Services	0.658	0.724	0.621	0.509	
Parking and Sanitation					
Vehicle Parking Facilities	0.692	0.722	0.844	0.412	
Sanitation	0.522	0.497	0.562	0.329	
Natural Attraction					
Natural Attraction	0.396	0.802	0.688	0.900	
Variance (%)	24.693	19.233	13.517	10.485	
Cumulative Variance	24.693	43.926	57.927	67.927	
Cronbach's Alpha	0.717	0.751	0.742	0.749	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy .768					
Bartlett's Test of Sphericity $p = 0.000$ (400.091, df = 78)					

Table 4: Factor Analysis in Henarathgoda Botanical Garden

Source: Survey Data, 2022

According to the table 4, 4there are only four (4) main factors that have been identified through exploratory factor analysis in the Henarathgoda Botanical Gardens. These four factors can be explained through eleven (11) variables that were defined by the original thirteen (13) variables. Compared to the Peradeniya Botanical Garden the impact of these variables upon the identified 4 factors indicates a marked difference. The main four factors thus identified include facilities, transportation, internal safety, parking and sanitation as well as natural attraction. As stated in the table 4, Bartlett's Test of Sphericity has recorded a score of 400.091, while the significance of the correlation matrix (p-value) is 0.000, numbers that were obtained after conducting the exploratory factor analysis. 67.927% of the cumulative variance of the data and more than 0.7 of Cronbach's Alpha values show the reliability of factors.



These results indicate that the facilities such as transportation, security, parking and sanitation, along with the natural attraction of the garden are the key factors that barely influence tourists' decisions to visit Henarathgoda Botanical Garden.

5. Conclusion and Recommendations

5.1 Conclusion

Using exploratory factor analysis, the study has identified key factors that impact tourist arrivals in the selected botanical gardens. For instance, through an analysis of 13 attributes, it has identified five (5) factors that influence tourists' decisions to visit Peradeniya Botanical Garden which can be listed as external facilities, natural environment, garden environment, security and transportation and communication. Four (4) main factors that play a similar role in the Henarathgoda Botanical Gardens are also identified which include facilities, transportation and security, parking and sanitation and natural attraction of the garden. Therefore, it can be argued that the key objective of this study, which was to identify the factors that affect tourist arrivals in the two botanical gardens, has been successfully achieved.

5.2 Recommendations

A close examination of the suggestions made by the tourists reveals that it is important to develop sanitation facilities in both botanical gardens. Especially, garden maintenance teams should focus on improving sanitation facilities to match the different habits and requirements of international tourists. A case in point is one international tourist who visited both Peradeniya and Henarathgoda gardens. They highlighted the importance of making toilet paper available in the washrooms of the gardens when facilitating international visitors. Comparatively, there is a potent necessity to improve vehicle parking facilities in the Peradeniya Botanical Garden given that it attracts more tourists than the Henarathgoda botanical garden. This calls for making enough parking facilities available in the garden to avoid traffic congestion. Moreover, the inadequacy of the information that is available to tourists has had a drastic impact on the arrival of international tourists at the Henarathgoda Botanical Garden. On the other hand, the availability of information for the tourists at the Peradeniya Botanical Garden remains satisfactory, working to attract more visitors. Thus, it points to the need to improve information availability at the



Henarathgoda Botanical Garden. Therefore, this study concludes that sustained attention to such issues as raised in this study would help policymakers to improve the tourism industry that surrounds these botanical gardens.

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