



Systematic Literature Review on Sustainable Ecotourism and Marketing Management: a Case Study

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Abstract: The National Botanical Garden, Mirpur (Bangladesh), was established in 1961 with a wide landscape of 214 acres. The garden is located in one of the fastest-developing communities of Mirpur 1, at the center of the capital, Dhaka. The garden has a large herbarium with 100,000 samples, including rare collections of mammals (70 species), birds (190 species), and various plants and trees (1042 species), as well as six water bodies. Despite such a wonderful collection, the garden attracts only about 100,000 visitors annually. The main visitors are local senior citizens, some students, and a couple of tourists, according to witnesses. However, reports say the ecotourism market valuation was USD 235.54 billion in the year 2023. It is expected to reach around 665.20 billion USD within this decade (till 2030). Additionally, global market reports say that garden tourism alone accounts for USD 5.02 billion of the ecotourism industry. Besides these, scholars have reported that the current generations (Millennials and Generation Z) have serious concerns and an attraction to natural sustainability, as well as sensitivity to animal lives worldwide. Considering the potential of the botanical garden in Dhaka, the authors found that a gap in public relations and marketing is a major barrier to the garden reaching its full capacity as a tourist attraction. This paper is based on a systematic literature review (SLR) and participant observation to analyze the current situation and develop a marketing model specific to the national botanical garden in Mirpur.

Keywords: Sustainable tourism, garden tourism, ecotourism, tourism marketing, sustainable marketing model

1. Introduction

Bangladesh National Botanic Garden and Herbarium is a botanical cum zoological garden with a wider landscape of 214 acres, established in 1961 to create a recreational and relaxing site within nature near the capital, Dhaka (Tahzeeda et al., 2018). The garden is a major center for plant conservation, research, and recreation in the busy city of Dhaka. This garden is home to a rich diversity of plant species, including trees, shrubs, herbs, aquatic plants, and fungi. Studies have reported a high diversity of lichens, with at least 7 genera identified; notably, *Parmelia* has been found in all surveyed blocks (Kaium et al., 2023). The abundance of lichens peaks during the monsoon (June-October) and rapidly declines in the dry season. This suggests an indirect relationship with climate change (Kaium & Shamsi, 2020).

In macrofungus surveys, *Ganoderma applanatum* was the predominant species in the garden, alongside over 31 macrofungus species; this highlights the garden's role in fungal biodiversity conservation (Mulka et al., 2022; Tanni et al., 2020; Rubina et al., 2017). The garden plays a significant role in carbon sequestration. Scholars estimated that above-ground carbon stocks were 192.67 Mg/ha and below-ground carbon stocks were 31.34 Mg/ha. The diversity among tree species is also high, with an average of 128 species per hectare and



a positive correlation between basal area and biomass carbon. Confirms the garden's ecological value in urban carbon storage and biodiversity (Hossain et al., 2019).

The garden was first established on an 84-hectare area in 1961 and housed more than 56,000 individual plants, which are managed and cared for by the forest department (Reza et al., 2009). The garden serves in multiple ways as a scientific resource, a natural conservation area, a place for recreation, and a study site. Scholars have also argued that the entrance fee is underpriced, so a modest increase might support national revenue and improve the current management. Tahzeeda et al. (2018), Oben et al. (2025), and Edeh et al. (2025) noted that modest moderation in the current management structure and infrastructure development can optimize benefits and tourism potential.

Focusing on the tourism and relational aspects, Jashimuddin et al. (2004) found that 38% of total visitors were students. Most visitors are from the local community, so there is a lack of visitors from urban and suburban areas. A high-potential point is that the rate of third-time visitors is 40%, while the rate of second-time visitors is 33%, leading to a high number of return visitors.

Studies found that botanical gardens support regional economic metrics through measurable, tangible effects, such as higher demand for local goods and services and opportunities for the local community's participation in conservation and educational programs (Benfield, 2021; Voznyuk et al., 2022; Bayev et al., 2022). Rahmatin & Tsuruya (2025) stated that the advancement of digital tourism and the rapid spread of social platform content are evident in the Surabaya Mangrove Botanical Garden, which has impacted visitor numbers and contributed to significant growth in the regional economy and economic sustainability.

This study aims to identify a marketing model that will attract tourists not only from the city but also from the county's rural areas. Moreover, a huge portion of the international tourists. To utilize the maximum possible benefits from the botanical garden in aspects of economy and business, as well as the social and cultural development.

Table 1. Summary of biodiversity, ecosystem, and economic research on the National Botanical Garden, Dhaka

| Focus Area | Key Findings | Citations |
|-----------------------|---|--|
| Lichen Diversity | 7 genera, seasonal abundance, Parmelia most frequent | (Kaium et al., 2023; Kaium & Shamsi, 2020) |
| Macro Fungi | 32 species, Ganoderma applanatum predominant | (Tanni et al., 2020; Rubina et al., 2017) |
| Tree Species & Carbon | 128 species/ha, high carbon stock, positive basal area-biomass correlation | (Hossain et al., 2019) |
| Economic Valuation | Underpriced entry, potential for increased revenue, and a major recreational site | (Tahzeeda et al., 2018) |

Source: formed by the authors

2. Literature Review

2.1. Botanical Garden Marketing

Botanical gardens are important tourist sites for their ongoing contributions to environmental education and biodiversity conservation. Researchers have highlighted those gardens with unique plant collections and recreational arrangements for visitors. If the target community and audiences are effectively made aware of the presence (Niziaieva et al., 2022; Ostapchuk et al., 2021; Ballantyne et al., 2008; Connell, 2004). Famous gardens often diversify their offerings into segments like thematic gardens, seasonal events, and interactive exhibits. On the other hand, innovative products such as eco-tours, workshops, and family-friendly activities have been reported to be successful in attracting repeat visitors and increasing the visitor volume (Ward et al., 2010). Connell (2004) also noted that unique branding is more important for botanical gardens than for other tourism attractions because gardens with a clear image that emphasizes biodiversity and conservation, flora and fauna, and are friendly to education attract more local and international tourists.

The introduction of digital marketing has changed the marketing methods almost from top to bottom. Digital platforms such as social media, websites, and mobile applications have become obvious marketing platforms. Scholars have noted that the success of online content engagement, regular updates, and interaction has significantly boosted social awareness and tourist involvement (Ballantyne et al., 2008; Nitsenko et al., 2019; Bezdushna et al., 2023). Aleinikova et al. (2023), Ward et al. (2010), and Connell (2004) stated that a marketing partnership among educational institutions (schools, colleges, and universities), tourism authorities (tourism boards, tourism ministries), and local businesses can amplify the campaign's impact. Additionally, the roles of community-based projects and educational outreach programs can enhance local support and word-of-mouth promotion.



Fig. 1. Dynamics to Consider for Botanical Garden Marketing
Source: Authors' Compilation

2.2. Challenges in the Bangladeshi Context

Bangladesh's botanical gardens face unique challenges, including limited funding, a lack of marketing expertise, and infrastructural constraints. Despite their economic potential, some botanical gardens face challenges in covering maintenance costs solely through tourism revenue, necessitating additional funding or policy support (Garrod et al., 1993; Kim & Che, 2018; Mulita & Sefa, 2025). The COVID-19 pandemic underscored the vulnerability of tourism-dependent economies, highlighting the need for adaptive strategies and diversified income streams (Zos-Kior et al., 2017; Rosento, 2022; Gupta et al., 2023; Mainka et al., 2023).

2.3. Economic Contributions of Botanical Garden Tourism

Botanical gardens generate economic value directly through entrance fees and associated tourism activities; supporting businesses also generate additional income by selling essentials like food, drinks, and other amenities to visitors. For example, the Bogor Botanical Gardens earns more than 51 million USD in economic benefits per annum. This clarifies the potential economic impact a botanical garden can have on society (Affandi et al., 2020). Another botanical garden, Ewanring Botanical Gardens in Zimbabwe, generates over 19,000 USD in revenue from recreational value creation during peak seasons each year (Mahlatini et al., 2024). These earnings simply enhance the community's economic status and underscore the importance of effective pricing strategies (Benfield, 2013). Patel (2024) mentioned that the garden tourism market was USD 5.2 billion in 2024. The flow of tourists to the botanical garden can subconsciously generate additional economic benefits through property value increases and new job opportunities (Habumuremyi & Habimana, 2023). Festivals and events held in botanical gardens, such as the Zagara plant fair in Italy, Tree Plantation Week, and botanical exhibitions, provide seasonal recreational value for tourists. These additions attract more visitors than usual and get a consumer surplus (Nitsenko et al., 2018; Hutorov et al., 2018; Perevozova et al., 2021; Funsten et al., 2022; Obolenska et al., 2024).

The role of gardens is not limited only to the direct income streams; they also make multiple indirect contributions to social education, inclusion, and cultural identity. This additionally enhances economic resilience by fostering community pride and attracting diverse visitor groups from all around the world (Vergou & Willison, 2016). Paiva et al. (2020) added that the botanical gardens can motivate investors, develop infrastructure, and provide value to both residents and tourists. Maranisya (2024) argued that good management is key to

maintaining the economic viability and sustainability of botanical gardens. Many studies have emphasized the need for balanced tourism growth alongside conservation goals to maintain ecological carrying capacity (Zamula et al., 2020; Maulidatur et al., 2022; Chukurna et al., 2022; Pokataiev et al., 2023). For a better, more economically balanced, and sustainable approach, a public-private partnership (PPP) could deliver outcomes such as adequate training and management strategies (Shovkun-Zablotska et al., 2024; Maranisya et al., 2025).

Botanical gardens impact the substantial economic value through entrance fees, events, and increased property valuation (Affandi et al., 2020; Petrychenko et al., 2022). Research on 'willingness-to-pay' found that consumer surplus and revenue potential support the case for strategic fee adjustments and investments in service quality development (Funsten et al., 2022; Ingram et al., 2025). Besides financial value, society derives other benefits such as enhanced well-being, opportunities for community engagement, and awareness of environmental sustainability (Williams et al., 2015; Tanasiichuk et al., 2020; Catahan et al., 2024).

Table 2. Highlights of economic impacts from botanical garden tourism

| Economic Impact | Description/Example | Citations |
|--------------------------------|--|----------------------------|
| Direct revenue | Entrance fees, events, and visitor spending | (Funsten et al., 2022) |
| Indirect/local economic growth | Higher demand for local goods/services, property value | (Rahmatin & Tsuroya, 2025) |
| Employment | Job creation in gardens and related sectors | (Benfield, 2021) |
| Social and educational value | Community engagement, education, and cultural identity | (Vergou & Willison, 2016) |
| Sustainability challenges | Balancing revenue with conservation, funding gaps | (Kim & Che, 2018) |

Source: formed by the authors

2.4. Potential Tourist Market for Botanical Garden

Botanical gardens are now recognized as valuable tourism sites for the unique experiences they offer, blending recreation, education, natural conservation, safety, and cultural engagement (Sirant et al., 2022; Chandrathilaka et al., 2024). Relaxation, recreation, and natural beauty are the primary drivers for visiting botanical gardens (Utama, 2025), whereas education, family bonding, and cultural engagement play a side role (Deepak et al., 2024). Salvarci & Aylan (2021) added that events and festivals within gardens further enhance their appeal by attracting diverse audiences and fulfilling their entertainment and recreational requirements. The largest group of visitors is young to middle-aged, well-educated, and motivated by leisure and learning opportunities (Funsten et al., 2022). Although domestic tourists, such as students and residents, are the primary target audience, international tourists are attracted to gardens with a strong cultural or historical image (Saoualih et al., 2024).

Particular marketing strategies with a clear goal can have a greater impact, especially social media marketing, shaping the destination image and stimulating the desire to visit among new audiences (Gaffar et al., 2020). The addition of versatile activities, such as recreational, educational, and conservation functions, as well as nature preservation, is more supported by sustainable design and inclusive amenities (Ballantyne et al., 2008). Putra et al. (2024) added that these initiatives broaden the appeal of botanical parks and gardens and may foster repeat visitation. It would be helpful for them to develop facilities, accessibility, and functionality with serious attention to both economic viability and conservation goals as they are met (Silva & Carvalho, 2019).

Table 3. Insights on the Market Segment

| Key Aspect | Findings | Citations |
|-----------------------|---|---------------------------|
| Visitor Motivation | Relaxation, recreation, education, family, cultural interaction, and participation | Utama (2015) |
| Market Segments | Young to middle-aged people, highly educated, family, both inbound and outbound tourists | Funsten et al (2022) |
| Economic Value | Revenue from entry fees, event deposits, high consumer surplus, and local economic benefits through supportive or additional businesses | Affandi et al, (2020) |
| Social Impact Factors | Community engagement, environmental awareness, and health and mental wellness | Williams et al (2015) |
| Marketing Strategies | Sustainable model/design, events, social media, and additional amenities | Rahmatin & Tsuruya (2025) |

Source: formed by the authors

2.5. Role of Interactivity and Participation

Interactive opportunities could include technological participatory activities, scientific activities, and cultural activities that have been tracked to enhance the experience. Interactivity boosts the engagement. Tourists are willing to pay a premium for the experience (Brockova et al., 2021; Nguyen et al., 2023). Zhang et al. (2022) reported that post-visit behaviors using smart technologies that emphasize tourist interaction at tourist sites lead to greater tourist satisfaction. Wiguna et al. (2023) added that augmented reality in agrotourism settings can accelerate the destination's appeal towards visitors. Lucrezi et al. (2025) & Lucrezi (2024) found that open participation leads to a more engaging and reflective experience than the traditional, passive tourism model. These experiences foster a sense of inclusion and stewardship, making the destinations more attractive.

Balanovska et al. (2021) and Jeong (2023) advised that we have to focus on marketing tourism experiences and fostering destination loyalty. Active participation and tourist interaction are the key to this, physically and psychologically. Tourism facilities, combined with functional and interpersonal interactions, have a direct positive effect on tourists' behavioral intentions, with psychological attachment serving as a mediator (Zhou & Wang, 2024). Activity and participatory experiences also foster social interactions among tourists, which slowly lead to a collaborative cultural understanding and experience. Fang et al. (2024) stated that industrial heritage, cultural tourism, and interaction can foster visitors' appreciation of heritage and enhance the value of the visit.

Fraiz et al. (2020) mentioned that active tourism can attract a diverse market segment of health, adventure, novelty, and cultural heritage seekers. Sugiama et al. (2024) argued that Many organizers focus more on extra facilities than on the main attractions, but they should do the opposite. The main attractions and activities are what truly draw tourists and make them want to return. At this stage, the role of extra facilities is limited.

2.6. Comparing Hall's and Leiper's Tourism System Models

Leiper's Tourism System Model

Neil Leiper introduced a new model of the tourism system in 1979. In this widely recognized tourism system model, he emphasized a dynamic concept where three geographical components are discussed: (i) the tourist-generating region, (ii) the transit route, and (iii) the destination region. The model describes the three geographical divisions and their interconnections throughout the entire tour process (Robinson et al., 2020). In the model, Leiper (1979) also emphasized the importance of the external environment, such as different industries, technologies, and community culture, in shaping the tourist experience and behaviour (Hateftabar, 2020). Musa et al. (2016) found that this widely accepted, holistic model has been successfully applied across various tourism types, including Islamic and medical tourism. Due to its wholesomeness and flexibility, it could analyze different tourism phenomena. Many empirical studies have used Leiper's framework and shown that tourism satisfaction at each stage of the tour significantly influences the final tourist satisfaction rate (Neal & Gursay, 2008). The model has been successfully utilized to analyse the role of external shocks, e.g., the COVID-19 pandemic, in global tourism (Muragu et al., 2021).

Hall's Tourism System Model

In the advanced age of tourism, Hall (2005) described a more concise tourism system, discussing the systematic dynamics of tourism. The discussion aligned with Leiper (1979) and emphasizes the interconnections and feedback loops within the tourism system. Later, he gave a simple tourism cycle that also divides into three segments: (i) Generating Region, (ii) Route, and (iii) Destination Hall (2022). Such system dynamics frameworks in tourism management highlight the key interacting units, including tourists, resources, attractions, infrastructure, services, demand, and competition (Gazoni & Silva, 2021). These models illustrate how the transformation of one tourism component can influence the entire tourism system. The Hall's system (Fig. 4) emphasizes the dynamics of interaction and feedback.

Comparative Insights

Though both models are functional in tourism studies, they are based on systematic perspectives. Leiper's model combines spatial and process-oriented analysis, making it useful for describing tourist flows and the influence of different parts of the tourism system (Robinson et al., 2020; Hateftabar, 2020). On the other hand, Hall's approach focused more on system dynamics, feedback mechanisms, and the dynamic evolution of tourism systems over time (Gazoni & Silva, 2021). Both models converge on the importance of interdisciplinary analysis, aiding policymakers.

The above literature leads us to conclude that the implementation of an interactive and market segment-based awareness would help the National Botanical Garden to attract more tourists. As Bangladesh has a large youth population and a significant lack of local community relaxation spaces, it motivates them to use the botanical garden as a place for relaxation and pleasure.

3. Methodology

The study employs a systematic literature review (SLR) and participant observation to examine how a botanical garden can support the economy and develop effective marketing strategies. The authors followed a planned workflow to include all possible studies and theories, adapting them for the Bangladesh National Botanical Garden in Dhaka. They reviewed more than 200 papers on botanical gardens, parks, nature-based tourism, marketing, and economics, and cited 89 of the most relevant ones to build the article's background.

In this process, they have collected papers, articles from open-access sources and repositories such as SSRN, Google Scholar, Web of Science, ResearchGate, Academia, and some university and journal websites. To validate the proposed model, the authors visited the National Botanical Garden on different days and at different times during the second half of 2025. Here, the authors used the participants' observation method to understand the visitors' motives and movements. It helped them identify existing needs and potential, enabling the garden to become a better tourism site than before.

The study aims to:

- I. Analyze the potential of the National Botanical Garden, Mirpur,
- II. Develop a strategic marketing model for the garden.



Fig. 2. Conceptual Framework for the Study
Source: Authors' Compilation

The authors have visited the botanical garden twice a week, once on a weekend and once on a working day, for six months. One of the authors even stayed in Mirpur, a neighborhood, to understand the daily life and the region's ecosystem. During participant observation, the authors noted key points such as the age of the visitors, movement patterns, points of interest, and the places with the largest crowds and where the most people stare.

4. Results and Discussion

Botanical garden tourism is a hybrid of ecotourism and park or garden tourism, thereby fulfilling both nature and relaxation tourism needs. Moreover, based on the existing facilities, it also offers various types of adventure and research tours (Wu et al., 2024). In 1961, the government planned and developed this botanical garden in Mirpur, Dhaka city, Bangladesh (then East Pakistan), covering 214 acres (84 hectares). It was approximately 10 kilometers from the main Dhaka (Jashimuddin et al., 2004). After the independence, the Government of the People's Republic of Bangladesh recognized it as the national botanical garden of Bangladesh. The management is much more complex due to its division into 57 sections, but it is still mostly maintained by the forest department of the Ministry of Environment and Forests. The garden is not limited to a botanical garden; it's also an eco-park, home to a variety of species, insects, birds (190 species), and mammals (70 species) (Islam et al., 2014; Shafique, 2025).

Tahzeeda et al. (2018) reported that the garden has more than 56,000 plants distributed across 57 blocks, including 1,042 species of plants and trees. The herbarium has 100,000 samples, making it one of the world's most valuable resources for botanical research (Rahman, 2014). Funsten et al. (2022) noted that gardens are high-potential destinations for research- and study-based tourists, most of whom are young to middle-aged and hold good academic qualifications. The garden also has six ponds and other water bodies that shelter abundant underwater life. Shafique (2025) reported in his news article that an anonymous official from the botanical garden stated that it generates approximately 5 crore BDT annually for the government.

There are 8 well-known botanical gardens across Bangladesh. Reports say there are over 2,500 botanical gardens worldwide, and Williams et al. (2015) noted that global botanical garden visitor numbers were between 300 million and 500 million annually. Only the Cambridge University Botanical Garden attracts more than 330,000 tourists each year (Glover, 2022). In South Asia, our neighbour, Sri Lanka, attracts approximately 1.4 million tourists to its botanical gardens (Wijesundara, 2007). There is no authentic data on the exact number, but sources indicate that around 100,000 visitors visit the national botanical garden in Dhaka each year. Compared with these insights, the number of tourists at the Dhaka Botanical Garden is unexpectedly low, despite its unique collections and a large herbarium.

Scholars think that the key factors to visit a botanical garden could be segmented into three segments: (i) service quality, (ii) plant exchange facility, and price/ fair of plants, (iii) arrangements for relaxation, entertainment, and leisure (Wassenberg et al., 2015). Fortunately, these three factors are components of the supportive environment, as Leiper (1990) noted (Figure 3). Tourism is largely a luxury product, so when people want to consume it, they subconsciously reconsider facilities, such as location accessibility, potential for interesting events, and overall service standards. The same funnel works for botanical garden tourism (Hidayat et al., 2022). A botanical garden's recreational value and mass crowd flow could be boosted with fair pricing policies, plant exchange, and value-for-money facilities (Funsten et al., 2022). In addition to critical rational decisions, people are motivated to spend time in botanical gardens and parks if the site offers proper facilities for relaxation and pleasant, quiet moments; the youth also choose the site if it offers entertainment and engagement activities (Shapoval et al., 2021).

At the National Botanical Garden, Mirpur, we need to implement the mentioned facilities and features to improve tourist flow. But in the present situation, the authors observed a significant lack of interactive activism and entertainment. But the light of hope is the destination: it is easy to access, there are millions of youths in the region, the local community is supportive, and Bangladesh already has an appreciated destination image for its greenery (Islam et al., 2017).

The market model is emphasized because, according to the author's observation, the entire garden is fully functional, and the infrastructure is quite adequate for the initial experiment. The current status of the access roads and buildings is all fine, and the maintenance of the artificial and natural components is up to the mark. In the future, if the number of tourists exceeds the garden's carrying capacity, it might need a polish, which is not addressable as of now.

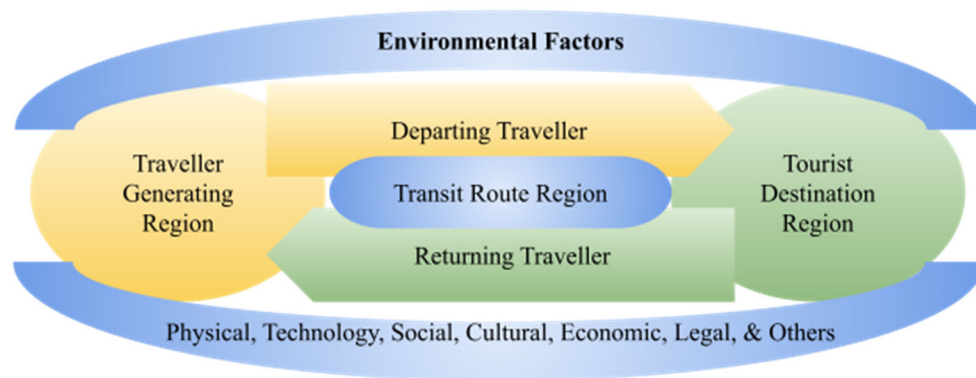


Fig. 3. Leiper's Tourism System Model
Source: Leiper (1990)

4.1. Marketing Model for National Botanical Garden, Mirpur

The National Botanical Garden at Mirpur is the biggest national botanical garden in Bangladesh. It was established in 1961 and was recognized as the national garden after independence. But for some facts, the garden couldn't utilize its full capacity. The National Zoo, just beside the garden, receives around 4 million visitors every year (Akhter, 2014). This difference indirectly indicates that inadequate management and facilities are barriers to the potential of this national heritage. According to the United Nations Population Fund (2025), Bangladesh's population is projected to be approximately 176 million by the end of 2025; however, the total annual visitor count to such a national tourist destination is barely 100,000, which is unacceptable.

The scholar's team combined three intellectual properties and their own knowledge to develop a marketing model dedicated to the national botanical garden: Leiper's Tourism System Model, Hall's Tourism System Model, and Kotler's Marketing Mix.

In Leiper's (1990) tourism system model, he provided a straightforward overview, identifying that tourists are generated in a particular region, travel through one or more transit regions, and finally reach the tourist attraction. The entire circle, including surroundings, facilities, services, infrastructure, and other elements encountered, constitutes the tourist environment. The overall environment collectively shapes the tour experience. A particular fact might have a significant influence on one tourist, but the same fact might not have the same effect on another tourist (Rahman et al., 2022).

Hall (2005) gave us a complex descriptive model where he emphasized four terms: (i) behavioural motivation, (ii) transit region, (iii) tourist receiving destination, and (iv) experience. He identifies culture, lifestyle, ease of access, experience, emotional attachments, and extraordinary sights as the pull factors that motivate potential tourists to visit a destination. At the midpoint of the tourist's journey, communication, industry, and overall infrastructure play a crucial role in shaping their experience. Finally, at the tourist destination, the overall industry (tourism and hospitality), quality, legal and political aspects of the region, and regulatory functions are elements that enhance the tour experience (Bhuiyan et al., 2022).

Based on our observation and study, in our model (Figure 5), we have two parts: (i) the target market, which refers to the tourist-generating region; and (ii) the interactive experience, which is the main tourism attraction. The urge to visit nature knows no bounds; both inbound and outbound tourists would love to visit a well-organized and decent natural garden (Shapoval et al., 2021). Moreover, when a country has a national Herbarium, interest in the field is boosted. The senior citizens from the local community, youth, and young parents with children visit the garden for refreshments and a safe zone for children to play (Fatkhutdinov et al., 2021; Baik et al., 2021; Mykhailenko et al., 2023). Yilmaz et al. (2023) noted that students represent a significant potential market for visiting gardens, driven by educational purposes such as excursions, assignments, and research, as well as the urge to see and learn about trees and plants. Some students also prefer gardens for gatherings, meditation, or in-depth study (Akhundova et al., 2021; Dankevych et al., 2021; Pokataiev et al., 2023).

Last but not least, plant lovers and gardening enthusiasts are the most important segment in the market, forming a loyal customer base for the botanical garden. As Gen Z is increasingly invested in activities such as pet ownership and gardening, it is a major stakeholder (Burke et al., 2022). Other strengths and opportunities are mentioned in the SWOT analysis (Table 4).

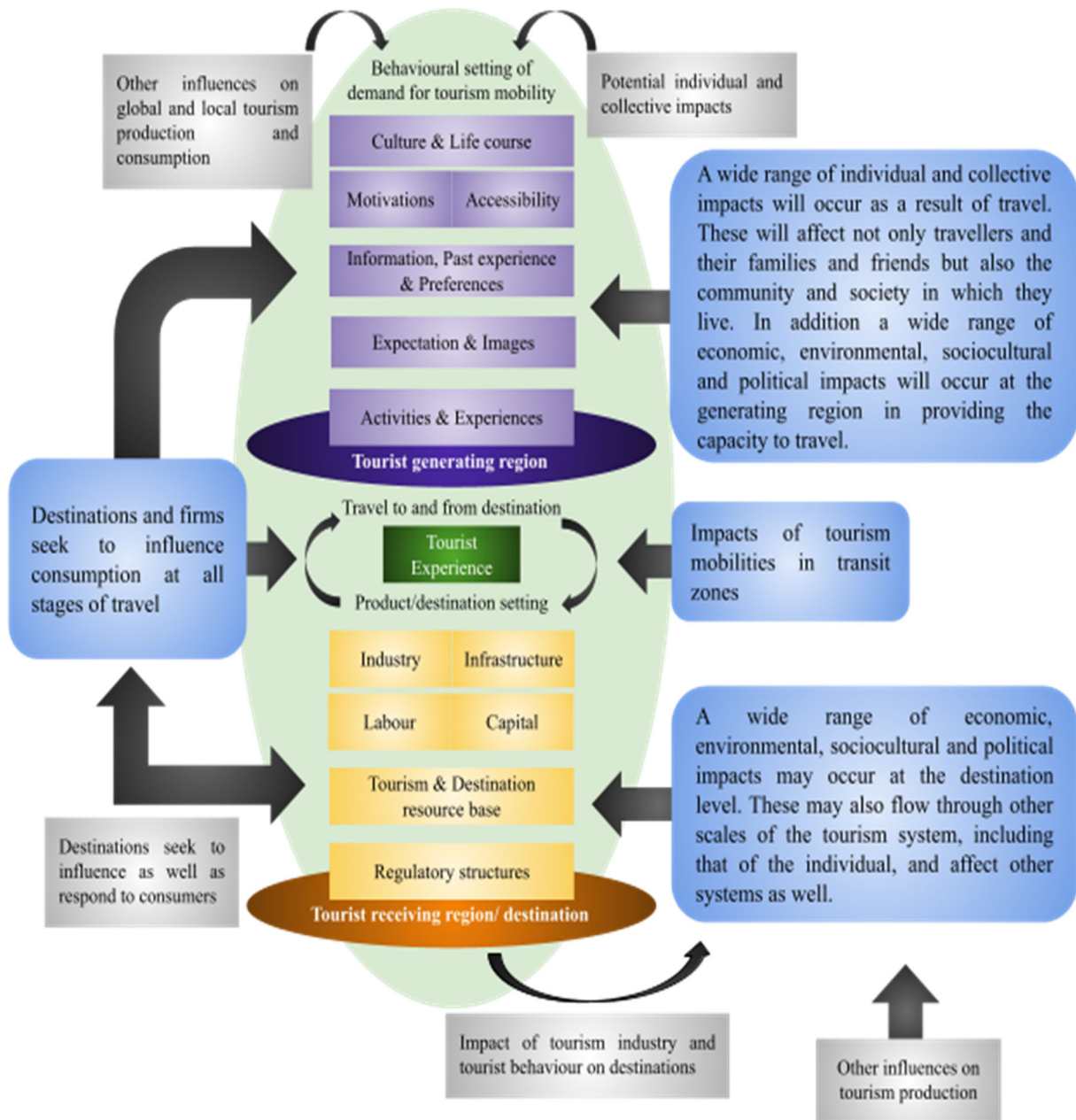


Fig. 4. The Tourism System
Source: Hall (2005)

The initial SWOT analysis has highlighted issues with the political environment and some negative business policies, but the point still stands that, apart from this, the botanical garden is running its business and earning revenue. So, there is hope of greater profit if revenue can be accelerated. Moreover, Generation Z is the main target market, as they are students and followers of social trends. It has been observed that Western and European cultures and lifestyles have a greater influence on Bangladeshi youth. This point validates the idea that if the proposed model is properly implemented, it will yield a positive result.

Table 4. SWOT Analysis of National Botanical Garden

| Strengths | Weakness | Opportunities | Threats |
|--|--|---|---|
| A. A versatile and enriched herbarium (100k+ collection) | A. Lack of law enforcement and legal authorities' concern. | A. Recent ongoing trends in sustainable and ecotourism. | A. Local business syndicates |
| B. Six seasonal environments of Bangladesh. | B. Corruption and an easy-biased community. | B. Generation Z and Alpha are more sensitive towards nature and creation. | B. Political extremism |
| C. Agriculture-based land and economy. | C. Proper education and awareness | C. Crisis of open space in Dhaka city for relaxation. | C. National image as a tourism destination. |

Source: Authors' Compilation

During the field visit, the authors observed that the botanical garden had few visitors; they were mostly there to relax, and in the morning, some elderly people went for a walk or yoga (Faisal-E-Alam et al., 2022). These senior citizens come here for a safe, quiet, and relaxing place for their mental and physical well-being. The researchers propose establishing an annual or monthly membership card program for them. This card will make the process much smoother for them, save them money, and, as they have a card, encourage them to visit the destination more often (Khairawati, 2020). However, Skinner et al. (2018) stated that Generation Z and Millennials are more interested in active tourism; they enjoy participating in various activities at tourism sites. But at the national botanical garden, there is no such arrangement for any interaction, which is very disappointing for the youth. As part of an initiative to promote active tourism, we propose encouraging visitors to plant trees in the garden. If someone plants a tree in the garden, we will provide a unique code to the planter and register them for a 25% discount on all activities, including entry fees and plan purchase for their lifetime. Visiting the garden for the tree (Park & Jang, 2016) will melt their heart and increase the number of trees and plants, which will subconsciously contribute to sustainable environmental practice. This can increase visitors' awareness and care for nature. Also, a loyal visitor base will be established, which is currently missing on a larger scale. Millennials and Generation Z are much more interested in gardening and planting than previous generations (Tena-Monferrer & Fandos-Roig, 2024). However, there is no official or authentic source to learn gardening in Bangladesh in a short time. We think we could provide a day-long workshop and certification for only BDT 10 on weekends. It will help them learn how to grow plants and take care of trees and plants (Kalchenko et al., 2020; Zos-Kior et al., 2021; Chowdhury et al., 2022). It will slowly affect the mindset of tree planting and gardening. This will benefit us by increasing the number of gardening-trained personnel and by generating limited additional revenue from the registration fee. Sarwar (2019) reported that the garden contains multiple rare domestic and foreign plants. Our concern is that if those rare plants are not cultivated properly and not spread quickly, they might get lost in nature within a short time. To mitigate his threat, our team recommends starting a tree exchange and purchasing facilities: visitors will donate their collections of foreign or rare generic plants or trees, and take others from the botanical gardens' collection. It will disperse rare trees and plants across the county, provide an additional source of income, and attract both national and international tree/plant enthusiasts to visit the botanical garden frequently (Lew et al., 2008). As previously mentioned, the National Botanical Garden, Dhaka, already generates around 5 crore BDT in annual revenue, all from entry ticket sales. If we add our proposed activities like plant buy-sell facilities, training and workshops, and the proposed funnel of loyalty program and emotional connection establishment through tree plantation and tree ownership card, then it will generate direct revenue from the tree buy-sell and workshop events, and indirectly increase the entry fees revenue from the loyalty tourist program as they might increase the visiting ratio. There is another revenue window from the membership card, which will generate a bunch of revenue in a shorter time.

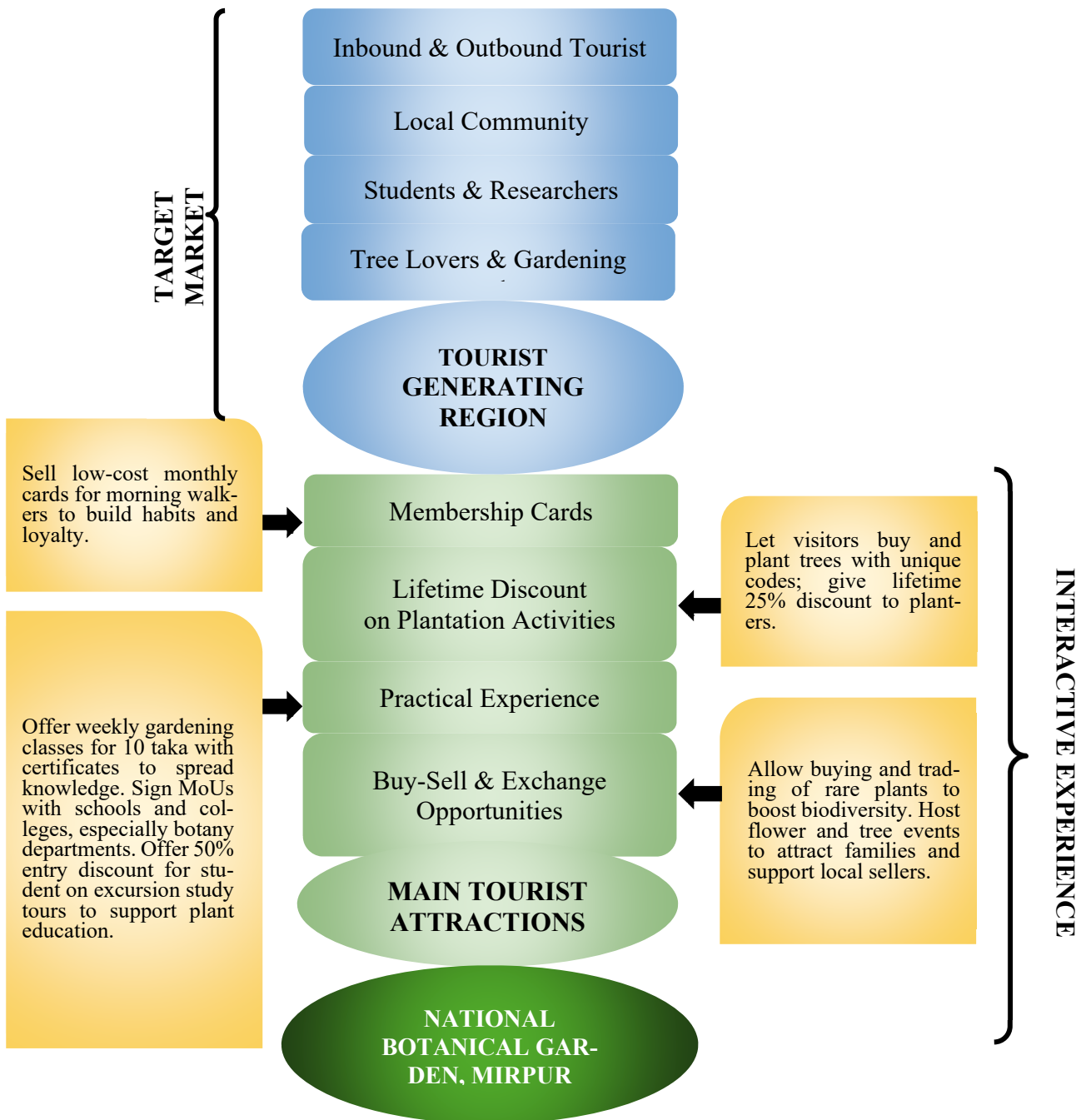


Fig. 5. Sustainable Tourism & Marketing Model for the National Botanical Garden, Mirpur

Source: Authors' Compilation

5. Conclusion

Ecotourism, also known as nature tourism, is a prominent form of tourism, and due to global sustainability awareness and the Sustainable Development Goals (SDGs), zero-carbon tourism is at its peak. Bangladesh is the world's largest delta and has unique natural tourist attractions such as Cox's Bazar, the longest unbroken natural sea beach; Sundarbans, the largest mangrove forest; Saint Martin's, a unique island with a coral reef ecosystem; and numerous archaeological and historical sites. Bangladesh has always attracted the world with its warm hospitality and diverse culture. Due to these features, global cultural and natural tourism enthusiasts have always kept Bangladesh at the top of their list of places to visit. The low living costs and budget tour facilities have given Bangladesh another spotlight for budget travelers. Considering all this, millions of tourists visit Bangladesh each year to see its natural and cultural heritage.

The National Botanical Garden in Bangladesh has great potential to attract both local and foreign tourists. Currently, it is overlooked, but with better management and marketing, it could become a popular destination. Researchers found that the garden has no active tourism segment—there are no activities for visitors to join or connect with. Tourism trends have changed, and travelers now look for engaging experiences. Studies show

that destinations that offer activities attract more repeat visitors and benefit from word-of-mouth promotion than inactive sites. That's why researchers recommend adding an active tourism segment. This would not only keep tourists engaged during their visit but also build a lasting emotional connection—similar to how people feel attached to pets or trees they care for. Given Bangladesh's reputation for agricultural research, offering gardening workshops and research opportunities at the National Botanical Herbarium could strongly attract tourists and make the garden a lively, meaningful destination.

The proposed model outlines an interactive tourism model that will boost collective interest in visiting, build a loyal visitor base, and create a more sustainable revenue stream. The entire model specifies the target market segments and the conversion funnels that lead to final consumers. As the worldwide market for interactive tourism continues to grow, Generation Z is increasingly fascinated by exploration, adventure, and sustainability. So, the introduction of interactive workshops, practical planting and gardening opportunities, and research facilities will attract them more.

Overall, the National Botanical Garden has high potential to be a greater contributor to nature and plant research; moreover, the region's socio-economic status. The researchers believe that the projected model will definitely attract more tourists and change the current silent scenario in the garden.

5.1. Limitations and Future Research Directions

The scholars could focus on advanced policies and technologies for the preservation of natural resources, both for rare plant collections and for the herbarium. There is still room for research on how to attract international tourists and connect the world-famous herbaria with the existing ones, and if a pilot test could be conducted to understand the actual results and conduct analysis.

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