



Quantitative Assessment of Perception on Greenery practices by Hotels Surrounding the Birth Place of Lord Buddha

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Abstract

The use and promotion of renewable resources are getting the attention of hoteliers as one of the major means of sustainable tourism across the world. In the context of increasing visitors' preference for environment-friendly major tourist destinations the study has carried a sample survey of hotels surrounding Lumbini, a world heritage site located nearby the border of India and explored the significance given to greenery practices by hotels. It has aimed to find the facts about the significance given to greenery practices including renewable resources by hotels surrounding Lumbini, a world heritage site, located nearby the border of India by using sample survey method. The findings showed that majority of the hoteliers are in favour of greenery practices like use of renewable resource use. However, the hoteliers were not found convinced about the positive impact of the use of green infrastructure on tourism at Lumbini. As a major tourist destination for Chinese and Indian people and in the context of growing concern about greenery practices in both countries, the findings from this study will be helpful from a policy perspective to promote sustainable tourism at world heritage sites in Nepal.

Keywords: Renewable resources, green infrastructure, green product, Nepal, green house gas

Introduction

With the growing connectivity across the world tourism industry has become one of the major sources of income for developed and developing countries. However, it is facing intertwined challenges of climate change, economic turmoil caused by external factors as well as international phenomenon like worldwide spread of COVID-19 virus. Amidst these the idea of sustainable tourism is being promoted by tourism industries including hotels. Hotels' environmental commitment like greenery practices is found well recognized by tourists (Merli et al., 2019). So, it is in priority all over the world. This issue of greenery practices has been explored by this paper as the means of sustainable tourism practices followed by hotels nearby world heritage sites.

People's movement in the form of tourism creates several threats to sustainable environment which requires constant nursing and therapy whenever necessary (UNEP&UNWTO, 2005). Sustainable tourism practices at world heritage sites are mostly related to reducing environmental footprints. This is possible through reduction in environmental pollution created through the movement of tourists and the use of tourism products as well as services. Reduction of operational costs, brand reputation, reducing energy costs, etc. are the benefits that the hotels can tap into by mobilizing renewable resources and implementation of greenery practices at hotels (Duric & Topler, 2021). Such practices of hotels at world heritage site, Lumbini (Nepal) is explored by this paper.

Rising pollution at Lumbini also demands for greener practices (Lafortune-Bernard et al., 2020). Community engagement has been proven fruitful in such heritage sites for promoting tangible benefits which could promote sustainable environment in places like Lumbini (Choegyal, 2019). Growing hotels at Lumbini premises could be one of the channels to promote sustainable environment practices as they are the key stakeholders for the sustainable development of tourism sector.

Greenery practices and people's perception on such practices are found explored in the international context. But there is limited study about such studies at hotels nearby world heritage sites. In the context of Nepal, such studies have not got more priority. This research gap will be fulfilled by this study. Hence, this study has aimed to explore the perception on greenery practices by hotels at Lumbini and tried to contribute to the existing literature on greenery practices within world heritage sites. In the context of limited progress towards decarbonization by different sectors (Lamb et al. 2021) and negative impacts of GHG emissions to the ecosystem (Mat Aron et al., 2020), study about the hotelier's perception towards greenery practice will contribute to the exiting literatures of environment and tourism.

Literature Review

Without changing values, attitude and commitments of the stakeholder it is difficult to implement greenery practices. Besides having awareness about the negative environmental impact people often do not follow greenery practices like environment friendly waste management (Tam and Anh, 2024). Similar findings can be seen in hotels and tourism sites. Hence knowing perception, belief and attitude of people plays significant role for implementing greenery practices.

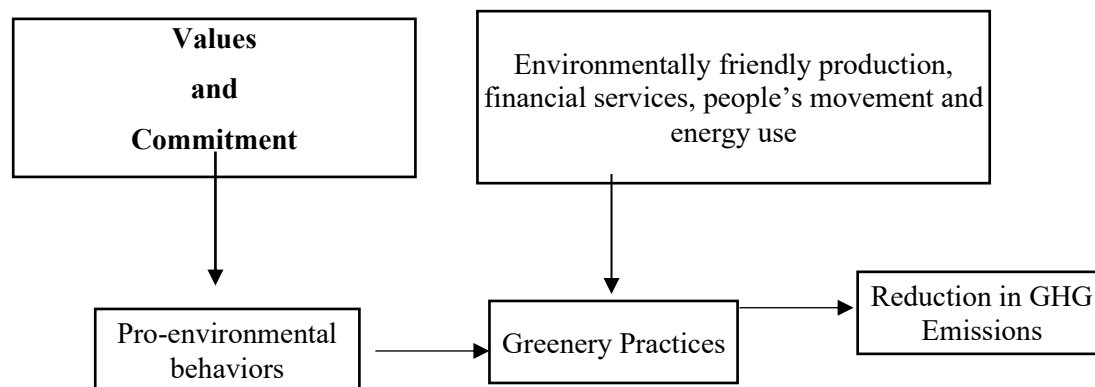


Figure 1. Conceptual framework of greenery practices

Source: Author (Basic idea developed from Rahman & Reynolds, 2016)

Greenery practices are the outcome of pro-environmental behaviors which depend upon values and commitment found in people. Values might focus on self-interest, welfare of others and welfare of the environment (Rahman and Reynolds, 2016). Similarly, stakeholder's commitment also plays greater role for pro-environmental behaviors like greenery practices. Such greener practices help to control GHG emissions. Consumption of renewable energy, conscious tourists towards environment protection, environment friendly credit flow, use of green technology in production contribute for reducing harmful GHG emissions. Such activities are also a part of greenery practices. Now a days, employee's green behaviour is incorporated in their job duties and theories like Hart's natural resource based view as well as as green human resource management exemplify the role of stakeholder and organization to promote sustainable environment (Panthee and Noppradit, 2022).

Hotel sector and greenery practices

Different studies have focused on the need of sustainable tourism practices by showing linkages of tourism, energy consumption as well as carbon emission. Naradda Gamage et al. (Naradda et al., 2017) found that energy use contributes to short-term and long-term environmental degradation, and tourism development exacerbates environmental degradation over time in case of Sri Lanka. Tian et al. (2021) found that long-term improvements in tourism development tend to reduce carbon dioxide emissions, showing that travel does not have a detrimental impact on the environment and instead aids in lowering pollution in the G20 countries. The Department of Environment (DOE) UK published data showed that by using green methods can cut down on energy savings by up to 20%. By reducing the cost of energy, waste, water, emissions, operation, and maintenance, green hoteliers may make money (Butler, 2008).

Various studies have been carried out on greenery practices at hotels. Review papers have also explored that hotels following green practices are increasing (Ghimire et al., 2023). Hotel's commitment plays greater role for the green practices. Study on certified Green star hotels in Egypt by Abdou et al. (2020) found that green hotel practices positively contribute environment related sustainable development goals. In the context of growing heritage tourism, environment management practices at world heritage site is an important area of action. Budget hotels use less environment management practices whereas guest houses and boutique hotels employ technology and traditional knowledge to adopt greenery practices (Tritto, 2020). By exploiting green energy adverse environmental impact on world heritage sites can be minimized (Al-Zubaidy, 2013). Besides having positive impact on tourism demand world heritage sites in developing countries are being ignored in terms of sustainable environment (Hosseini et al., 2021). Increased energy efficiency and adaptation of renewable energy has been proven a sustainable operation of world heritage site in Seychelles where energy efficient measures reduced energy demand by 57 percent (Quanz et al., 2013). Similarly, highest preference of tourists was found for the use of renewable energy (solar panel) in Czech Republic (Navratil et al., 2019).

Green infrastructures are also in priority in the hotel area. Study by Terkenli et al. (Terkenli et al., 2020) found that tourists enjoyed urban green infrastructure nearby world heritage sites in 16 cities of eight European countries. However, it does not mean that all the tourists are aware of green infrastructure (Straupe and Liepa, 2018). With the growth of tourists and growing number of tourist transport problem of carbon emission appears which can be mitigated by following green practices like following emission reduction policies in tourism transport and use of electric vehicles (Babri et al., 2023).

The study of five star hotels of Egypt and Saudi Arabia showed that training to hotel staffs about greenery practices resulted energy-saving behaviors and actions as well as plantation of less water consuming plant in the garden (Abdou et al., 2020). Similarly, tourism activity led waste can be managed by developing waste recycling system by the hotel management (Phu et al., 2018). Such green practices also depend upon the attitude of tourists. Green energy management practices were in top priority given by 353 travelers of five star hotels in Malaysia (Lo, 2012). Nguyen (Nguyen, 2017) also found positive attitudes of tourists for green practices at six hotels in Vietnam. DeVerno Kreuder et al. (DeVerno Kreuder et al., 2017) highlighted the 12 principles of green chemistry and explained the greener alternatives while using chemical products. Such practices can even be followed at hotels.

Similarly, Topler (2022) showed that sustainable energy tourism can help to preserve heritage in Slovenia. However, hotel managers' role is important for greenery practices. Such practices were mostly found ignored by the managers of hotels in Zimbabwe and South Africa (Mbasera et al., 2016). Green practices cannot be implemented by hotelier's alone. Cost of green practices, consumer's support and employee's support also play as the major influential factors for the implementation of green practices (Deraman et al., 2017). Likewise, role of habit also plays a major influencing role for green practices like green energy use and green energy consumption (Miller et al., 2015). After all, green approach is found adding value to hotel service and positive impact on tourist destination (Hays et al., 2015).

Materials and methods

The study is further based on the survey data of all the hotels nearby Lumbini (Table 2). The survey data are analyzed by the use of descriptive analysis. Mostly Likert scale type of questions were set in the questionnaire to get required information related to greenery practices at Lumbini. The nature and distribution of sample is mentioned in the table below:

Table 2. Type of hotels and gender of respondents

Type of Hotels	No.	Respondent's Gender	
		Male	Female
Non-star	75	57	18
One-star	11	9	2
Three-star	6	6	0
Five-star	9	3	6
Total	101	75	26

Study area: The study are lies in the Terai belt of Nepal. It is located in Rupandehi district of Lumbini province and mid-southwestern region of Nepal. It is very close to the southern part of Nepal-India border.



Figure 2. Lumbini, Mayadevi Temple, birthplace of Lord Buddha.

Source: <https://ntb.gov.np/>

Findings from the survey

The renewable resource use is getting priority in most of the sectors of Nepalese economy. Nowadays hotels are also prioritizing. The figure below shows the perception of hotel owners about the use of renewable resources. 3 percent hotel owners disagree and 69 % agree that use of renewable resources increases length of stay of tourist in the hotels.

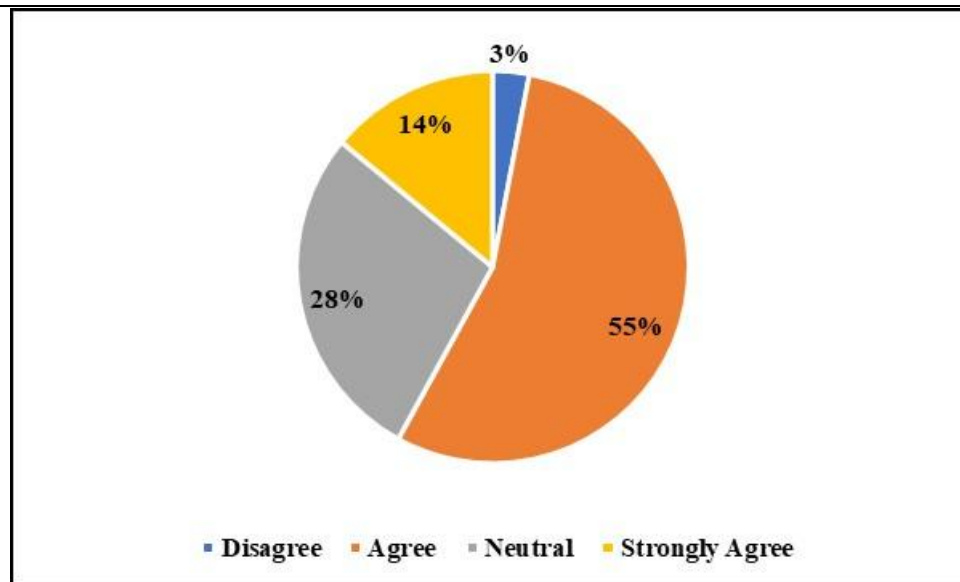


Figure 3. Use of renewable resources helps to increase tourist stay duration.

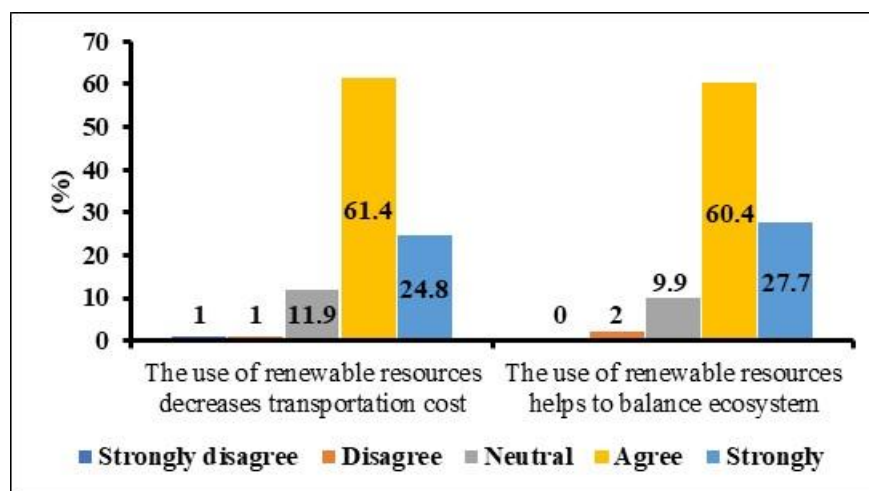


Figure 4. Perception on the use of renewable resources.

Similarly, 61.4 percent hotel owners agree and 24.8 percent hotel owners strongly agree that use of renewable resources at their hotels decreases transportation cost and 60.4 percent owners agree that use of renewable resources helps to balance ecosystem. Only negligible respondents disagree the statement.

Table 7. Perception on green infrastructure (GI) (%)

	Disagree	Neutral	Agree	Strongly Agree	Weighted Mean	Standard Deviation
I think GI has the potential to increase the tourism activities in this city.	4.95	33.66	49.50	11.88	2.68	0.74
Urban citizens' is GI help to tourist's flow spending time in green spaces.	4.95	28.71	51.49	14.85	2.76	0.76
In rising temperatures, replacing grey infrastructure with green infrastructure can lower temperatures and minimize the risk of heat exhaustion.	3.96	19.80	48.51	27.72	3	0.80
Green infrastructure can help mitigate the effects of climate change, such as flooding, storm surges, by increasing tolerance to environmental disasters.	0.99	20.79	41.58	36.63	3.14	0.77

Source: Field Survey

Perception on the use and role of green infrastructure is quite different. Only 61 percent respondents agree that GI has the potential to enhance the increase the tourism activities in your city. 76 percent respondents agree that replacing grey infrastructure with green infrastructure can lower temperatures and minimize the risk of heat exhaustion. Similarly, Majority (78 percent) hoteliers agree that green infrastructure can help mitigate the effects

of climate change, such as flooding, storm surges, by increasing tolerance to environmental disasters. Overall weighted mean of this indicator is 3.14 having lowest standard deviation (0.74) indicating consistent response.

Table 8. Perception on green product (in %)

	Disagree	Neutral	Agree	Strongly Agree	Weighted Mean	Standard Deviation
Use recycled materials and product help to use wastage commodities.	1.98	13.86	61.39	22.77	3.05	0.67
Use local product from the community, save the traditional skill & art.	6.93	10.89	41.58	40.59	3.16	0.88
Use of green chemical products increases the productivity of cultivated land.	12.87	9.90	51.49	25.74	2.90	0.93
Green product consumption pattern is slowly increasing in the locality.	2.97	25.74	47.52	23.76	2.92	0.78

Source: Field Survey

More than 80 percent hoteliers agree that recycled materials and product help to use wastage commodities as well as help to save the traditional art and skill which is liked by tourists. Strong and unified agreement (SD = 0.67) across respondent is found on this statement. Similarly, more than 70 percent respondents agree that use of green chemical products increases productivity of cultivable land, and consumption pattern of green product is increasing slowly.

Table 9. Perception on use of renewable resources (in %)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Weighted Mean	Standard Deviation
Renewable resources are used for better lighting quality.	-	2.97	29.70	43.56	23.76	3.88	0.80
Renewable resources helps to economic saving.	-	1.98	14.85	47.52	35.64	4.17	0.75
Renewable resources helps to environmental preservation.	0.99	1.98	8.91	47.52	40.59	4.25	0.78
Renewable resources helps to increase attraction for tourists.	-	0.99	16.83	43.56	38.61	4.20	0.74
Renewable resources helps to increase awareness of importance of renewable resources.	-	0.99	10.89	45.54	42.57	4.30	0.70

Source: Field Survey

Table 9 shows the perception on use of renewable resources at hotels in world heritage site Lumbini. Almost all the respondents have expressed the positive perception. Though 67 percent respondents agree that renewable resources are used for better lighting quality yet about 30 percent remained neutral to this concept. 83 percent hotel owners do agree that renewable resources help for economic saving. Likewise, majority of the respondents (88 percent) agree the statement that renewable resources help to environmental protection. In the same way, 82 percent agree the statement that use of such renewable resources helps to increase attraction for tourists. Hence, we can conclude that majority of the hoteliers are in favor of renewable resource use. Strong and uniform agreement (SD = 0.70) is expressed to the statement that renewable resources help to increase awareness of importance of renewable resources.

Table 10. Perception on sustainable site planning and management (%)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Weighted Mean	Standard Deviation
Use of green roof to attract the tourists.	3.96	6.93	11.88	60.40	16.83	3.79	0.94
Herbs garden increases the stay day of tourists.	-	0.00	9.90	58.42	31.68	4.22	0.61
Making greenery garden by hotel owner can attract more tourists in his hotel than his competitive partner's hotels.	-	2.97	6.93	48.51	41.58	4.29	0.72
Green transportation strategies to reduce expenditure on non-renewable means of vehicles.	2.97	1.98	8.91	52.48	33.66	4.12	0.87

Source: Field Survey

The above table shows the perception on sustainable site planning and management. Majority of the hotel owners agree that use of green roofs attracts the tourists in hotel and herbs garden helps to increase the stay day of tourists. 90 percent respondents agree that making greenery garden by hotel owner can attract more tourists in his hotel than his competitive partner's hotels. Similarly, 86 percent agree and 5 percent disagree to the statement that green transportation strategies help to reduce expenditure on non-renewable means of vehicles. Highest level of consensus ($SD = 0.61$) of the respondents is found on the statement that herbs garden increases the stay day of the tourists.

Discussion

Greenery practices are promoted by most of the governments all over the world. There is increasing trend of developing green infrastructure in the urban tourist areas. As tourists enjoy and prefer green infrastructure (Terkenli et al., 2020) such resources are to be developed. Besides knowing importance of climate change, hoteliers of Lumbini were not convinced that such infrastructure attract tourist. It is further supported by the failure of initiation of electric vehicle at Lumbini premises. However, solar energy which is a clean and environment friendly renewable energy (Hanif et al., 2022) is in the priority at hotels as shown in the Fig. (3).

Figure 3: Solar energy generation at Lumbini

**Source: Nepal (2023)**

Use of green products was found increasing due to increased awareness in the study area and tourist's growing preference. Respondents were found aware of such products. Respondents are found aware of renewable resources,

sustainable tourism and their significance. Such findings of the study support to the conclusion drawn by (Lo, 2012; Quanz et al., 2013; Hosseini et al., 2021; Lafortune-Bernard, 2020). However, investment and initiation taken by hoteliers as well as by local government is not found satisfactory. Waste management surrounding heritage site depends upon attitudes also. For this, attitudes of the stakeholders that lead to positive intention are to be studied and analyzed (Gurbuz and Ozkan, 2023).

A close look at the survey data shows a clear contradiction between hoteliers' strong understanding of green infrastructure (GI) and their doubts about using it in practice. While 76 percent agree that replacing grey infrastructure with green can reduce heat exhaustion, and 78 percent recognize its role in reducing climate disasters like flooding, this environmental knowledge does not lead to business trust. Only 49.50 percent clearly believe that GI can boost tourism in their city, with a low average score of 2.68. This shows a big gap: hoteliers know green infrastructure is important for the environment as Terkenli et al. (2020) point out, but they are not convinced it will bring economic benefits or attract more tourists to Lumbini. This fact is supported by the failure of the electric vehicle project in Lumbini, showing that environmental facts alone are not enough to get local people to adopt new ideas without clear business benefits.

The gap between simply believing in green ideas and actually putting them into action is also seen in the low level of investment and effort by both hoteliers and the local government. Tam and Anh (2024) say that just knowing about environmental problems rarely leads to eco-friendly actions like better waste management. The data from Lumbini supports this; even though many agree green practices are useful, building the needed infrastructure depends on deeper changes in people's values, habits, and commitments. Interestingly, hoteliers prefer small, low-cost local projects over large-scale green infrastructure. For example, 90 percent agree that having a green garden gives them an edge over competitors, and the idea that herb gardens make tourists stay longer had the strongest agreement in the study ($SD = 0.61$). This shows hoteliers support greening when it is seen as a clear, short-term marketing benefit, but they lose interest or stay neutral when it comes to big, community-wide changes.

Finally, the study points out an important chance related to green product use and regional tourism that local managers have not yet taken advantage of. More than 80 percent of hoteliers agree that using recycled materials helps keep traditional arts and skills alive, which tourists really value, showing strong agreement ($SD = 0.67$). Also, over 70 percent say that green product use is slowly growing in the area. As research shows, green energy and recycling depend a lot on the attitudes and support of customers, workers, and managers (Deraman et al., 2017; Phu et al., 2018). Since most tourists to Nepal come from India-and there is rising interest in green practices in both India and China-the lack of action by local authorities is a big missed opportunity. To close the gap noted by Gurbuz and Ozkan (2023), future plans must go beyond just measuring hotelier opinions and instead carefully study the specific behaviors and money issues that stop these good attitudes from turning into real, official green projects. Promotion greenery environment through energy saving could also be achieved by the initiations like energy audit (Panthee & Noppradit, 2025) at hotels surrounding heritage site.

Conclusion

The study explored the perception of the hoteliers surrounding the Lumbini, a western part of Nepal located nearby Southern Indian Border. It examined the views of 101 hoteliers near the World Heritage Site of Lumbini on sustainability and green practices. The data show strong, positive support for using renewable resources, green products, and sustainable site management, with most respondents agreeing that these practices protect the environment and help tourists stay longer. However, there is a significant gap because actual efforts and investments by local hoteliers and the government remain insufficient, amid ongoing doubts about the direct tourism benefits of green infrastructure. Since Lumbini is close to the Indian border and there is growing demand for green practices among tourists, mainly from India and China, policies need to quickly encourage concrete commitments to turn these positive views into sustainable tourism actions.

Declaration

The authors declare no any conflict of interest.

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