

DIGITALES ARCHIV

ZBW – Leibniz-Informationszentrum Wirtschaft
ZBW – Leibniz Information Centre for Economics

Bhawani Ghimire; Umaporn Muneenam; Kuaanan Techato

Article

Renewable energy use in green hotels for sustainability : a systematic review

Provided in Cooperation with:

International Journal of Energy Economics and Policy (IJEPP)

Reference: Bhawani Ghimire/Umaporn Muneenam et. al. (2023). Renewable energy use in green hotels for sustainability : a systematic review. In: International Journal of Energy Economics and Policy 13 (6), S. 618 - 627.

<https://www.econjournals.com/index.php/ijeep/article/download/14521/7604/35069>.

doi:10.32479/ijeep.14521.

This Version is available at:

<http://hdl.handle.net/11159/631295>

Kontakt/Contact

ZBW – Leibniz-Informationszentrum Wirtschaft/Leibniz Information Centre for Economics

Düsternbrooker Weg 120

24105 Kiel (Germany)

E-Mail: [rights\[at\]zbw.eu](mailto:rights[at]zbw.eu)

<https://www.zbw.eu/econis-archiv/>

Standard-Nutzungsbedingungen:

Dieses Dokument darf zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden. Sie dürfen dieses Dokument nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, aufführen, vertreiben oder anderweitig nutzen. Sofern für das Dokument eine Open-Content-Lizenz verwendet wurde, so gelten abweichend von diesen Nutzungsbedingungen die in der Lizenz gewährten Nutzungsrechte.

<https://zbw.eu/econis-archiv/termsfuse>

Terms of use:

This document may be saved and copied for your personal and scholarly purposes. You are not to copy it for public or commercial purposes, to exhibit the document in public, to perform, distribute or otherwise use the document in public. If the document is made available under a Creative Commons Licence you may exercise further usage rights as specified in the licence.



Renewable Energy Use in Green Hotels for Sustainability: A Systematic Review

Bhawani Ghimire*, Umaporn Muneenam, Kuaanan Techato

Sustainable Energy Management, Faculty of Environmental Management, Prince of Songkla University, Songkhla, Thailand,

*Email: bhawani.ghimre1994@gmail.com

Received: 29 May 2023

Accepted: 11 September 2023

DOI: <https://doi.org/10.32479/ijeeep.14521>

ABSTRACT

This article studies the use of renewable energy in hotels as a means of promoting green practices and sustainability. The objective of the study is to explore and analyze previous research studies on renewable energy use in hotels and green practices. It is based on articles published in different journals between 2008 and 2023. Out of the initial 16,500 articles screened by Google scholars and 1373 from Base, the matched topic was 200, after further screening 61 articles were selected for final review. Renewable energy use and green practices have been adopted by many hotels with sustainability practices. The study shows that many hotels have adopted renewable energy and green practices to promote sustainability. However, future research should focus on the relationship between the specific types of renewable energy used in hotels and their impact on green practices and sustainability.

Keywords: Green Hotels, Renewable Energy Use, Green Practices, Tourism, Sustainability

JEL Classifications: Q01, Q20, Q40, Z32

1. INTRODUCTION

Green hotels are defined as environmentally conscious lodgings whose managers are eager to put in place plans that reduce waste while also saving money, water, energy, and solid waste (Abdou et al., 2020). The term “green hotels” refers to lodging establishments that strive to be more environmentally friendly by using water, energy, and raw materials more effectively (Amandeep, 2017). Although the terms “sustainability,” “green,” and “environmental” have been associated with a number of tourism-related products and destinations, particularly as part of marketing strategies and certification programs, it is not always clear how “sustainable,” “green,” or “environmentally committed” a particular tourism-related product or destination is. A major concern for tourism industries around the world is environmental issues, which are becoming more widely acknowledged. The words green, sustainability and environmental is attached as marketing tools for tourism products and destinations (Sonya and Dodds, 2011).

The industry must lower its contribution to climate change and lessen its reliance on energy sources like fossil fuels, which harm the environment (Nepal, 2008). To create effective policies for sustainable tourism, it is important to understand the connection between the economy, environment, and tourism. But there is a lack of empirical research in tourism literature that can establish these relationships (Shakouri et al., 2017). Mountain economies play vital role in promoting green growth and sustainable development.

Tourism activities strongly impact the environment. It is contributing not only to its degradation but also in the tourism industry to the rise in greenhouse gas emissions (Pang et al., 2013). Lenzen et al. (2018) found that tourism is responsible for around 8% of global greenhouse gas emissions. The industry annual carbon footprint increasing from 3.9 to 4.5 billion tons of CO₂ equivalent between 2009 and 2013. Experts predict that within the next 35-45 years, tourism use of energy, freshwater,

land, and food resources will double (Gossling and Peters, 2015). The accommodation sectors are responsible for about 20% of tourism emissions, has been a leader in adopting corporate social responsibility practices related to the environment. For many years, this sector has implemented green practices and has made environmental considerations a fundamental part of its operations (Han et al., 2018; Park and Kim, 2014; Wang et al., 2018).

The hospitality industry includes various areas, and accommodation (such as hotels and other lodging establishments) is a significant part of it (Ottenbacher et al., 2009). These hotel operations cause various environmental problems, including the significant issue of climate change that has international implications (Bohdanowicz et al., 2011).

The tourism industry is commonly described as a sector that heavily relies on fossil fuels. It is a significant emitter of greenhouse gases on a global scale (Gossling, 2013). In rural Nepal, tourism has been shown to contribute to an increase in the consumption of primary energy sources such as wood and kerosene (Nepal, 2008). Many countries faced energy-related vulnerabilities that are induced by tourism (Gossling, 2013). Green hotels are “pro-environmental lodging properties which implement different green practices like saving water and energy, reducing solid waste and recycling and reusing the products like towels and bins to protect the earth we live in” (Han et al., 2009; Kim and Han, 2010).

Hotels must meet a number of criteria in order to be certified as a green hotel, which makes it possible for it to do so. The sustainable tourism eco-certification program and green globe, which are based on Agenda 21 and the principles of sustainable development from the 1992 Rio Summit, are some of the most well-known green certificates in the world. Hotels that promote energy conservation offer the energy start certification. Hotels that adhere to environmental standards are awarded green key certifications. Similarly, hotels that follow green building guidelines when they are being constructed are recognized for their efforts through the leadership in energy and environmental design program. An affiliation program for the UK is called the green tourism business scheme. The ability of third-party certified ecolabels to inform guests and the trustworthiness ensured by the third party certification process make them stand out among a wide range of voluntary environmental management tools (Geerts, 2014).

“The hotel industry represents a segment of the tourist offer that creates great negative pressure on the environment. Because of this it is imperative that the management of hotels take action to mitigate their impact on the environment” (Mbasera et al. 2016). Hotel companies can adopt various measures to become more environmentally friendly. Many hotels have been labeled as “green” or “sustainable.” One of the primary ways that operators make their hotels more environmentally friendly is by implementing green practices in areas (i.e. energy, waste, and water). Later, the green operators broaden their green initiatives to include things like “indoor environmental quality, green materials and resources, sustainable site planning and management, community involvement, biodiversity conservation, human resources development, green transportation, noise control, and toxic waste management” (Yusof and Jamaludin, 2014).

Access to green businesses enhances business performance, increases cost savings, and increases market recognition for increased tourist demand. Time-limited water flow, automatic device shutoff after guests leave the room, and waste recycling are all part of the green hotel industry. In addition to having lower operating costs and being able to operate throughout the year, green hotels are also more environmentally friendly, recyclable, and reliant on renewable energy sources (RES). Attila (2016) notes that they are also better suited for health tourism.

The objective of this research paper is to examine the relationship between renewable energy use and green hotel practices. It primarily focused on contributes to sustainability. The green hotel practices are crucial. There is a lack of literature to explore the connection between renewable energy use and sustainability in hotels. The research was a systematic review of articles from various journals to address the following research questions.

1. Does hotel use renewal energy for green practices in hotels?
2. Does use of renewal energy in green hotels leads to sustainability in hotels.

2. MATERIALS AND METHODS

2.1. Inclusion and Exclusion Criteria

A systematic literature review was done to review articles published in English in various journals from 2008 to 2023 to find out more about Green practices and renewable energy used in Green hotels leading to sustainability. Preferred reporting criteria for systematic review (Moher et al., 2009) were followed for the literature review. Relevant articles were screened through various journals through two search engines i.e. GOOGLE SCHOLARS and BASE to get hold of a wide range of articles and exclude the irrelevant articles. The Exclusion criteria is set as follows:

2.2. Exclusion Criteria

Books, seminar papers/thesis

The article covered before 2008.

2.3. Keywords and Search Criteria

The keywords used for the search were to identify the use of renewable energy in green hotels for sustainability. To remove search biases for vigorous data base, green hotels, green practices, Renewal energy, clean energy for “green hotels,” and green and sustainable are considered synonyms (Yusof and Jamaludin, 2013). AND, OR and asteriks (*) were used to get the relevant closely reaching to relevant articles. The word “OR” represents synonyms and the word “AND” represents all the essential key words and the asterisk (*) used to search for suffixes and plurals.

Green hotels, renewable energy use, green practices, tourism, sustainability.

2.4. Search Process of Literature

The search process of the literature review is followed (Alreahi et al., 2023) to find Renewable energy use in Green Hotels for sustainability.

States	Steps	Description	Records
Collecting	Data Collection	Scopus + WOS + Google Scholar + Schimago	200
Refinement	Data screening 1	Extract of articles after removing duplication/	196
	Data screening 2	Decide about the articles based on their relevance to the study purpose and objectives	61
Organization	Extract of articles, organization and categories	Classified articles into 5 main categories	61

2.5. Google Scholar and BASE

Google Scholar search engine where used to search articles related to topics, using keywords. Out of the initial 16,500 articles yielded on a search result from google scholars and 1373 from Base, 200 articles with topic matches were chosen, after further screening, 61 articles were finalized for final review after following exclusion criteria (Figures 1 and 2).

2.6. Bibliometric Study

The study was conducted on the basis of a bibliometric network analysis of the body of literature on renewable energy for green hotels for sustainability. To close the research gap, bibliometric network analysis was developed. The Research goals include following:

1. Determine the number of publications in the field under consideration from 2008 to 2023 Figure 3
2. Determine the Journal with the most publications
3. Determine the author with the most publications
4. Determine the most popular journal in this area
5. To identify the most productive country
6. Determine the most well-liked journal in the field.

3. REVIEWS OF ARTICLES ON THE RESEARCH QUESTIONS

3.1. Why Green Hotels

Many people adopt green building orientation, which entails using natural resources, renewable energy, and reusing materials and water in a variety of ways. Table 1 shows the Identifying and Screening of process of literature in the study. It also entails supporting local community jobs and agricultural output to ensure sustainable practices and adherence to sustainable development ideals. Customers' growing awareness for sustainability and environmental issues is prompting hoteliers to embrace green methods in hospitality management. This is a wonderful opportunity for hotel management to distinguish themselves in the industry (Cronin et al., 2011; Dodds and Holmes, 2016).

Customers value the hotels' environmental devotion, having a significant impact on their level of satisfaction and loyalty as guests. A guest's likelihood of developing a particular loyalty to green hotels is higher after their stay in one. Furthermore Merli et al. (2019) provide implications, restrictions, and future directions for study.

Main reason why hotel go green is backed by theory that environmental commitment results in a competitive advantage in industry with specific examples of cost savings. It improved employee and customer retention while also meeting and exceeding statutory standards, managing risk, and upholding social responsibility (Graci and Dodds, 2008).

3.2. Green Practices in Hotels

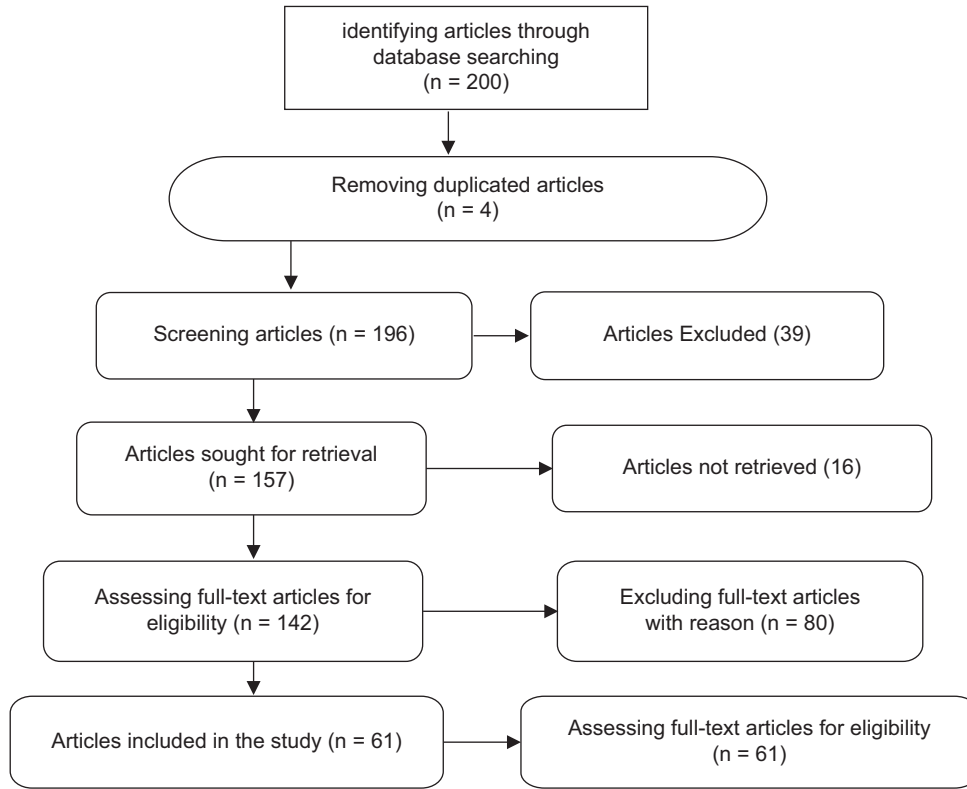
Hoteliers need to update the hospitality trends and practices concerning the environmental aspect too. A new concept of eco hotels or green hotel has been lately globally. Need for strategies to be adopted for the green hotel concept which adopts energy efficient practices and uses re-use of products saving energy. For the Indian context, there are a number of motivations for hotels to go green., social responsibility toward the environment, government rules and legislation, economic benefit in long run improvement with enhancing hotel's cost saving to attracting lower room rates which for growth in occupancy.

Customers are aware of green hotel policies and are willing to pay more to support green initiatives. They will also suggest green hotels to their family and friends (Patil and Kanitkar, 2022).

Consumers are becoming more aware of these issues today and are demanding "green conscious" businesses to manage hotel operations (Yi et al., 2018). According to Verma and Chanda (2016), hoteliers are transforming their operations into "green hotels" or "environmentally friendly hotels" in response to the "green wave" by incorporating eco-friendly features into their services. The availability of resources (such as financial, human, and time resources), as well as the hotel manager's knowledge, interests, and incentives for excellent environmental management, are impediments to green practice implementation in small and medium-sized hotels (Satchappichit et al., 2015). Going green is not only necessary but also for competitive advantage and customer loyalty of the hotel. The study on Canadian hotels has revealed that environmental commitment has to be identified on industry-specific and regional-specific. Demand for green hotels is growing slowly from a public perspective. Green practices and commitment for the environment give surety for competitiveness with growth in organizational performance leading to low cost, increase in reputation, and strategic alignment. A combined effort to work collectively with sharing best practices will benefit to environmental commitment (Graci and Dodds, 2008).

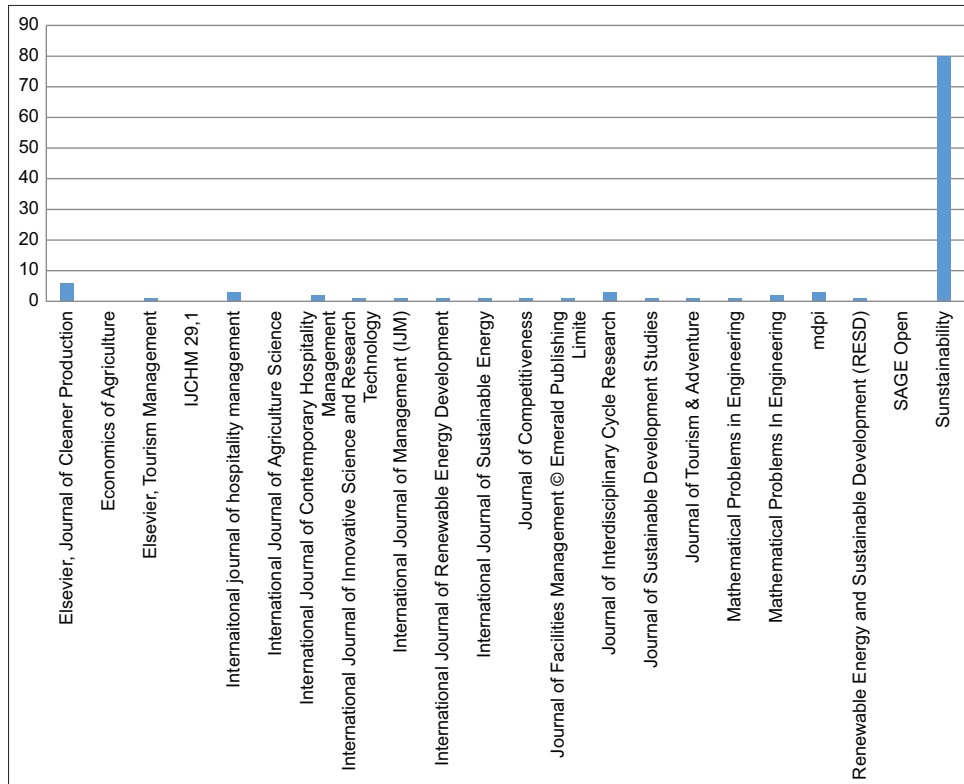
As Green practices is much interest to all for understanding the concept of green hotel practices in the accommodation sector and tourism industry. The green practices are value added business strategy that benefits hospitality operation and also further contribute in environmental protections. The identification three domains for green practices referring to operational, organizational and strategic helps in developing green practices to the organization, and development of policies by government for reinforcement for implementations for protecting the of environment. Hospitality industry can adopt the frame work for green practices, however there is challenges in accurate definitions of green practices to the hospitality context (Kim et al., 2017).

Table 1: Identifying and screening of articles



(Author survey, 2023)

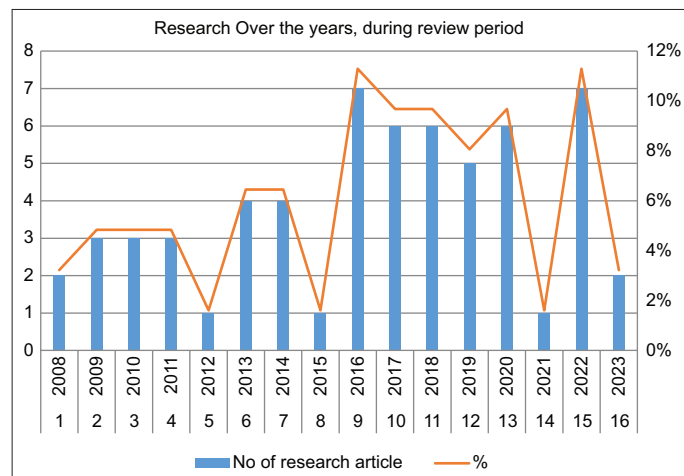
Figure 1: Number of journal referred



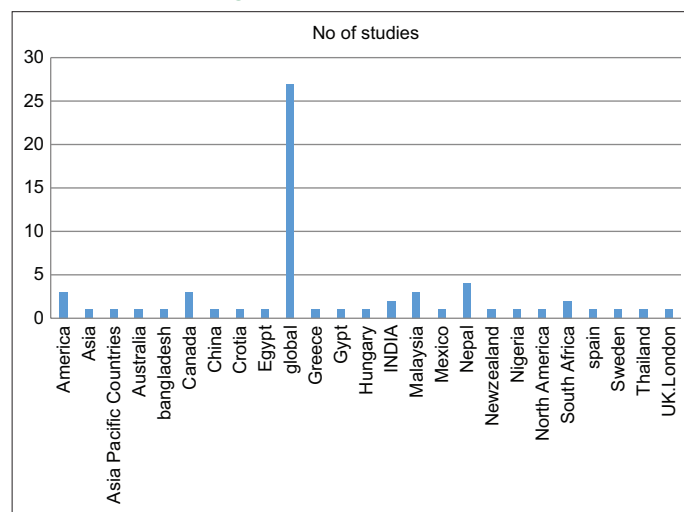
(Author survey, 2023)

Extensive analysis of green or environmental management is major focus of study. Study of green practices and green human resource

management stratifies in Nigerian hotels and stress on government policies to adopt and encourage green practice and green human

Figure 2: Numbers of Research Over the Years, During Review Period

(Author survey, 2023)

Figure 3: Number of Studies

(Author survey, 2023)

resource management strategies (Emmanuel et al., 2021). While adopting green practices in the hospitality industry, a greenwashing concept which is also part of green practices is not more explored and customer perceptions on greenwashing is yet to be explored more (Majeed and Kim, 2023). The green hotel practice will give beneficial changes to hotel operations with the study done by Rahmat et al. (2022), four factors that motivate hotel organizations to go for green practices are cost, competitions, growth and environment. The study has contributed to learn about environment-friendly hotel and implementing green marketing strategies.

For awareness amongst hoteliers and green initiatives and sustainable strategies to minimize environmental impact for getting customer satisfaction. For green initiatives, proactive action from the hotels to adopt and engage both guest management and employees for the environmental management process is very much important further for sustainable hotel operations and greater results. Altogether 27 green attributes for green practices and initiatives for sustainable hotel operations and 10 attributes from the management side i.e. green marketing strategy, attitude, eco-innovation investment, sustainability,

environment management strategy, green awareness, supply chain, procurement, human resource and technology, from employee side there were 5 attributes for green practices awareness, training and education, environmental behavior, green performance green award, from a customer perspective there were 12 attributes which were perception, loyalty, awareness, behaviors, trust, supply chain value marketing, perceived value, service quality branch image and hotel design. For sustainability and environmental performance, economic, socio cultural organizational benefit (Khalil et al., 2022).

The lodging industry has initiated great green practices to resolve the environmental pressure created by growing consumers (Merli et al., 2019). Consumers' perceptions about actions implemented by the hotels to reduce the impact on the environment. Customers positively take the initiatives taken by the hotels on protecting the environment with a significant value on guest satisfaction and loyalty. The study's findings demonstrated that guests are loyal to hotels that utilize green techniques. Through green intellectual capital and pro-environmental behavior, green human resource management strategies indirectly contribute to environmental performance. The significance of the hotel green industry implementing green practices is to establish green discipline by compensating employees who do not follow the green policy (Nisar et al., 2021).

Environmental practices adoption and its influence on hotels in Madrid, Santiago, and Valparaiso, (Alonso-Almeida et al., 2016). It has a significant impact on financial and operational sectors. The concept of sustainability in new and current locations provides practical advice for hotel operations for environmentally friendly hotel management practices. Green practice implementation in the hotel has a positive impact on customer satisfaction and also recommends to their friends and family within social networks (Cvijanović et al., 2018).

3.3. Barriers of Green practices in Hotels

Alonso-Almeida et al. (2016) stated that there are internal and external barriers that prevent hotels from implementing green practices. External barriers include consumer attitudes, legislation, and accreditation, while internal barriers include a lack of knowledge, human resources, finances, owners'/administrators' attitudes, and operation. In addition to these, another acknowledged external barrier is the availability of supplies of materials and tools for the development of green infrastructure. Due to a lack of funding for enforcing green regulations and technological limitations in the manufacture of green products, the awareness barrier has been made more difficult. Planning ahead can help you get past some technical obstacles. There isn't enough room to store a micro generator, the hotel isn't insulated and can't access an outdoor space big enough to put ground-source heat pumps, there isn't enough room for solar panels and wind turbines, and the hotel isn't close enough to a river to use hydro turbines to turn water into electricity. These are some of the major obstacles.

Insufficient funding for capital projects and limited loan options are financial obstacles. Lack of understanding on how to adopt energy-efficient practices in a business is an informational obstacle.

It is also considered significant (Johansson and Thollander, 2018; Hasan et al., 2019). To enhance a company energy efficiency, it is vital to recognize that costs are likely to rise. Studies on renewable energy technologies (such as solar, hydro-power, wind turbines, and biofuels) have focused on the feasibility analysis of initiatives to increase the supply of renewable energy).

Dhirasasna et al. (2020) of hotels of Queensland Australia Hotel may face barriers in using renewable technology in terms, of immature technology, long payback period, inconvenience from the side of government and tourists for accepting environment-friendly technology, hotels' ability and lack of owners' interest to adopt environmentally friendly renewal energy technology.

Sustainable tourism policies are not well defined despite the abundance of biodiversity and natural beauty. Upadhyay (2019) reveals that Nepal had no official tourism plan or policy prior to 1950. Before 2008, there was no connection between environmental and tourism policies. The 1950s saw the invention of both kinds of policies, though. George Lebrec created the first tourism plan, "general plan for organization of tourism," in the late 1950s, and suggested using Nepal's flora on posters and stamps to promote travel. To develop tourism policies in Nepal, the Nepal tourism development committee was established in the 1960s. The 1995 Tourism policy was put into effect by the government, which primarily favored private sector involvement. The government's involvement in the development of infrastructure and cooperation as the general public and private sector began to engage in tourism was the extent of its involvement.

3.4. Use of Renewal Energy for Green Hotels

Since dependency on the use of fossil fuels will eventually cause CO emissions and their resources to exhaust, it is crucial to use energy efficiently. The use of renewal energy becomes more crucial to consider sustainability, the risks of climate change, and energy security. The use of energy-efficient practices and procedures in buildings has the potential to lower energy consumption and promote environmental sustainability. A study in Malaysia showed that energy-efficient buildings are urgently needed and crucial for energy efficient buildings (Shaikh et al., 2017). The data indicate that hotel RET adoption is the consequence of a complex interaction between incentive policies, hotel owner/manager opinions of RET, customer behavior, technology advancement, and power grid price (Dhirasasna et al., 2020). The study of the renewal energy perceptions scale, perceptions towards RES, behaviors sustainable consumption behaviors with the use of science technology, engineering, and mathematics, and product performance observation showed an increase in perception about RES, attitudes and behaviors towards renewable energy (Higde, 2022).

Circular tourism is where resources are used and reused, reducing waste for making the economy more sustainable. Proper management of waste through 4 R concepts help in sustainability. To initiate the academic discourse about circular tourism in Nepal (Aryal, 2020). Tourist chose to stay in hotels that are using renewable energy more willing to stay and pay for such hotels (Athanasios and Konstantinos, 2010). The green technology practices by hotels through the implementation of new product and

services offerings to the tourist with the formation of management processes and policy being responsible for the environmental sustainability by hotels (Songur et al., 2022). Awareness regarding green business amongst guest and employees in hotels are becoming more of trend for energy management in hotels. Study on hotels of Croatia on energy efficiency practices done in 2018 revealed that hotels are insufficiently aware of energy efficiency with measures that are required to achieve satisfactory energy saving practices in general (Krstinić Nižić and Matoš, 2018). Use of RES contributes significantly to social, economic and environmental energy sustainability. Use of renewable energy contributes to three dimensions approach (economic, environmental and social). Procedural sustainability has discussed in the studies (Jaramillo et al., 2010). The research in China focuses on the transition from the technology acceptance model to the energy-augmented model for making green investment decisions. This transition is linked to the rising demand for renewable energy. It can improve logistics performance, resource inputs, technological advancement, and competitiveness, leading to the development of innovative green products. The study suggested that green research and development expenditures can fuel this transition. The green process supply chain results in the development of an attitude and behavioral intention toward the usage of technology and green products. The green has established its cycle. For long-term sustainable growth, the study stressed the importance of green laws in controlling forms and industrial activities for environmentally friendly production, the use of renewable energy, carbon pricing, and a readiness to pay for public goods (Anser et al., 2020).

For reducing the negative impact on the environment, the use of renewable energy is a vital priority. For the concept of green tourism, renewable energy is aligned and also is suggested to analyze the suitable sources of renewable energy for hotels (Karabuga et al., 2015). Renewal energy consumption and tourism are positively connected in the long run. The study of the consumption of renewable energy by the tourism sector in aggregate and disaggregated levels in south Asia has given new dimensions to be aware of tourism-friendly renewable energy policies for sustainable tourism development in selected areas of South Asian countries (Amin and Khan, 2021).

3.5. Sustainability in Hotels

The importance of sustainability issues become more important during Covid 19 and post covid. After reviewing data from 2020 to 2021, the study discovered that there were both conceptual and empirical overlaps in sustainable practices within the hospitality sector (Elkhwesky, 2020). The significance of sustainable green practices in the hotel industry from both the customer perspective and that of industry experts is a crucial concept. The implementation of green management in hotels has resulted in numerous benefits for hoteliers. It includes an improved reputation and access to a more desirable customer group. Green initiatives not only reduce business costs but also portray hotels as having a positive image regarding environmental protection. It is found that a growing need for green awareness and the improvement of the business model to accommodate these concerns (Fukey et al., 2014). Green hotels adoption by customers shows the studies and literature on consumer adoption for green hotel products and

services is gaining more important in Asian context as well (Arunet al., 2021). Four major themes analyzed were consumer behaviors towards green hotel, mediators for the adoption of green hotels, relationship moderators and methodical consideration for future research directions, utilization of green hotel products and services.

Observing sustainable development policies and practices in China post-adaptation of the opened-up reform policies. In recent times, there is an increase in public awareness on the use of green products for ensuring sustainable development of the economy. As the increase in purchasing power of people and more awareness of not purchasing pollution-related products which is not healthy implies that people are more aware of green products and are willing to pay more compelling the producer to go for the production of green products, adapting green technology production process. Since activities of the tourism industry has ripple effects on other industries, there should be a policy to adopt cleaner energies. Identification of greener energy sources for the tourism industry going for alternative renewable sources (Haibo et al., 2020).

Energy sources that are accessible, clean, and efficient are crucial for a sustainable world. It is strongly advised for rapid promotion of renewable and alternative fuels for economic growth and achievement of energy goals due to the numerous obstacles such as limited access, supply and demand imbalances, high dependence on fossil fuels, and nonrenewable energy. The study on energy-related goals focuses on government justice to energy, policy reforms, energy poverty, improvement in the energy supply chain, and cooperation from international level for better project implementation and to encourage and attract foreign funding. Collaboration between funding organizations, international organizations, and academics is urgently needed for a world that is clean, green, and energized (Singh and Ru 2022). The importance of green technologies at tourism accommodations for sustainability at the modern age and awareness amongst the hoteliers and tourism industry as such for preserving mother earth (Songur et al., 2022). There are increased awareness amongst the tourist who prefer to stay in hotels using renewable energy and contributing for sustainable development.

Sustainable hotel practices influence the guest satisfaction and return of guest to the hotel with different nationalities (Berezan et al., 2013). The study in Mexico at different hotels of touristic areas showed the supportive results that overall green practices have positive impact on guest satisfaction and accommodations rebooking. There is rapid attention in global platforms about sustainability and sustainable practices including the hospitality industry. The study of sustainability indicators used with the hotel sectors. The trend and practice of sustainability indicators followed by hotels will help the hoteliers in adopting sustainability practices in hotel operations that will reduce water and energy consumption which shall give better social and economic results (Reem et al., 2022). The importance of sustainability behavior practices and accommodation in terms of reducing waste in energy and water use. The attitudes, behaviors, and practices of managers, consumers and staff plays a great role in sustainability practices in saving energy (Hall et al., 2016).

Sharma et al. (2020) has expolred the importance of eco-innovation and green hospitality practices. It is challenging to influence customer recognition of green practices because, without a visible signal or appeal, customers might not be persuaded or aware of a company's internal green practices. Four progressive theoretical models of cautionary, adaptability, advocacy and knowledge base platforms as sustainable tourism, the self-sustaining revenue model and its application is the main focus of this time (Upadhyay, 2019).

Investigations of environmental management and perceptions regarding the contribution of green hotel practices for achieving sustainability in the environment related to sustainable goals is high of high importance. A study of green hotels in Egypt revealed that the main green hotel commitment was adopting green star criteria. It has given good directions for the hotels to incorporate green hotel practices into their operational plans to achieve the SDG in the environment (Abdou et al., 2020). Green practices in terms of community involvement and development, human resource management, consumer issue protection, fair operating practices. And organizational governance was tried and found out no connection between the hotel's green practices and the number of rooms (Jamaica Balderas et al., 2023). The awareness action by the government in small and medium-sized tourism companies including hotel improve on green practices for environmental sustainability (Bagur-Femenias et al., 2016).

Further Chung and Byrom (2021) discussed the hotel industry. There is a strong correlation between environmental attitude, subjective norms, perceived behavioral control (PBC), positive anticipated emotion, and desire intention (DI). A negative correlation between DI and negative anticipated emotions. There is a strong correlation between PBC, DI, and BI. All of these factors indicate how crucial it is to adopt green operations. Large and medium-sized hotels are more committed to sustainable development technology for the environment it adopted and implemented. The top managers at each hotel were contacted for semi-structured interviews in person for this study. The findings support the contention made by the Contingency Theory that organizational behavior is influenced by a variety of factors, including the environment in which a hotel operates, its size (large and medium-sized hotels are more committed to sustainable development). The environmental technologies it has adopted and implemented, and its primary clientele. In particular, hotels catering to business travelers are found to be more environmentally conscious than those catering to leisure travelers (Fernández-Robin et al., 2019). Small-sized accommodations more care for environmental practices and are positive towards green hotel practices. Hotel customers are willing to pay more for the hotel practices environmentally friendly practices (Fuentes-Moraleda et al., 2019).

4. FINDINGS AND CONCLUSION

Going through research studies on the subjects since 2008, the maximum research found was in 2016 and 2022 contributing to 11% of each of the studies covered A number of Researcher has highlighted that the study found that many hotels worldwide have started using renewable energy and adopting green practices. The number of research on the topic is on the increasing trend. This

has helped increase awareness about the concept of green hotels, ecotourism, and sustainability practices in the community, society, and country. Geographically high numbers of research were done covering the global level.

Renewal energy plays a vital role in green hotel concepts. Most hoteliers adopt renewable energy for green practices in their hotels. The customer has positive perceptions towards hotels where renewal energy is used and they tend to refer to their friends and family. While reviewing the article, it was found that there are rooms for further studies on different type of renewable energy use in hotels that will make the hotel green. The in-depth study on the relationship between specific types of renewable energy and their impact on green practices and sustainability may be the interest of research for the future.

REFERENCES

- Abdou, A.H., Hassan, T.H., El Dief, M.M. (2020), A description of green hotel practices and their role in achieving sustainable development. *Sustainability*, 12(22), 9624.
- Alonso-Almeida, M.M., Robin, C.F., Pedroche, M.S.C., Astorga, P.S. (2016), Revisiting green practices in the hotel industry: A comparison between mature and emerging destinations. *Journal of Cleaner Production*, 140(3), 1415-1428.
- Alreahi, M., Bujdosó, Z., Dávid, L.D., Gyenge, B. (2023), Green supply chain management in hotel industry: A systematic review. *Sustainability*, 15(7), 5622.
- Amandeep, A. (2017), Green hotels and sustainable hotel operations in India. *International Journal of Management and Social Sciences Research*, 6(2), 9-16.
- Amin, S., Khan, F. (2021), Tourism and renewable energy in South Asia: A panel study. *Tourism and Hospitality Management*, 27(3), 555-579.
- Anser, M.K., Yousaf, Z., Zaman, K. (2020), Green technology acceptance model and green logistics operations: To see which way the wind is blowing. *Frontiers in Sustainability*, 1, 3-15.
- Antonakakis, N., Dragouni, M., Eeckels, B., Filis, G. (2016), Tourism and economic growth: Does democracy matter? *Annals of Tourism Research*, 61, 258-264.
- Arun, T.M., Kaur, P., Bresciani, S., Dhir, A. (2021), What drives the adoption and consumption of green hotel products and services? A systematic literature review of past achievement and future promises. *Business Strategy and the Environment*, 30(5), 2637-2655.
- Aryal, C. (2020), Exploring circularity: A review to assess the opportunities and challenges to close loop in Nepali tourism industry. *Journal of Tourism and Adventure*, 3(1), 142-158.
- Athanasios, T.G., Konstantinos, S. (2010), The scope of change strategy in tourism enterprises. *Journal of Tourism Research*, 1, 154-176.
- Attila, A.T. (2016), The impact of the hotel industry on the competitiveness of tourism destinations in Hungary. *Journal of Competitiveness*, 8(4), 85-95.
- Bagur-Femenias, L., Celma, D., Patau, J. (2016), The adoption of environmental practices in small hotels. Voluntary or mandatory? An empirical approach. *Sustainability*, 8(7), 695.
- Berezan, O., Raab, C., Yoo, M., Love, C. (2013), Sustainable hotel practices and nationality: The impact on guest satisfaction and guest intention to return. *International Journal of Hospitality Management*, 34, 227-233.
- Bhandari, M.P. (2012), Inputs for Rio+20 Compilation Document: The Conceptual Problems of Green Economy and Sustainable Development. USA: Association for Protection of Environment and Culture (APEC-Nepal) and Atlantic States Legal Foundation (ASLF).
- Bohdanowicz, P., Zientara, P., Novotna, E. (2011), International hotel chains and environmental protection: An analysis of Hilton's we care! Programme (Europe, 2006-2008). *Journal of Sustainable Tourism*, 19(7), 797-816.
- Chung, S.Y., Byrom, J. (2021), Co-creating consistent brand identity with employees in the hotel industry. *Journal of Product and Brand Management*, 30(1), 74-89.
- Cronin, J.J., Smith, J.S., Gleim, M.R., Ramirez, E., Martinez, J.D. (2011), Green marketing strategies: An examination of stakeholders and the opportunities they present. *Journal of the Academy of Marketing Science*, 39, 158-174.
- Cvijanović, D., Sekulić, D., Pavlović, D. (2018), Are green hotels suitable for the development of entrepreneurship in tourism? *Ekonomika preduzeća*, 66(7/8), 424-433.
- Dhirasasna, N., Becken, S., Sahin, O. (2020), A systems approach to examining the drivers and barriers of renewable energy technology adoption in the hotel sector in Queensland, Australia. *Journal of Hospitality and Tourism Management*, 42, 153-172.
- Dodds, R., Holmes, M. (2016), Is there a benefit from being Green? Assessing benefits from marketing sustainability by North American Hotels. *Journal of Hotel Business Management*, 5(5), 1-9.
- Elkhwesky, Z., Salem, I.E., Varmus, M., Ramkissoon, H. (2022), Sustainable practices in hospitality pre and amid COVID-19 pandemic: Looking back for moving forward post-COVID-19. *Sustainable Development*, 30(5), 1426-1448.
- Emmanuel, A.A., Dato'Mansor, Z., MohD Rasdi, R.B., Abdullah, A.R. (2020), Conceptual viewpoint on the needs for creating green human resource management practices awareness of hotel industry in Nigeria; Issues and challenges. *International Journal of Management*, 11(4), 433-442.
- Fernández-Robin, C., Celemín-Pedroche, M.S., Santander-Astorga, P., Alonso-Almeida, M.D.M. (2019), Green practices in hospitality: A contingency approach. *Sustainability*, 11(13), 3737.
- Fuentes-Moraleda, L., Lafuente-Ibáñez, C., Muñoz-Mazón, A., Villacé-Moliner, T. (2019), Willingness to pay more to stay at a boutique hotel with an environmental management system. A preliminary study in Spain. *Sustainability*, 11(18), 5134.
- Fukey, L.N., Issac, S.S. (2014), Connect among green, sustainability and hotel industry: A prospective simulation study. *Energy Conservation*, 6(8), 296-312.
- Geerts, W. (2014), Environmental certification schemes: Hotel managers' views and perceptions. *International Journal of Hospitality Management*, 39, 87-96.
- Gössling, S. (2013), National emissions from tourism: An overlooked policy challenge? *Energy Policy*, 59, 433-442.
- Gössling, S., Peeters, P. (2015), Assessing tourism's global environmental impact 1900-2050. *Journal of Sustainable Tourism*, 23(5), 639-659.
- Graci, S., Dodds, R. (2008), Why go green? The business case for environmental commitment in the Canadian hotel industry. *Anatolia*, 19(2), 251-270.
- Graci, S., Dodds, R. (2011), Sustainable tourism in Island destination. *Annals of Tourism Research*, 38(3), 1205-1206.
- Gunduz Songur, A., Turktarhan, G., Cobanoglu, C. (2022), Progress on green technology research in hotels: A literature review. *Journal of Hospitality and Tourism Insights*. <https://doi.org/10.1108/JHTI-10-2021-0280>
- Gupta, A., Dash, S., Mishra, A. (2019), All that glitters is not green: Creating trustworthy ecofriendly services at green hotels. *Tourism Management*, 70, 155-169.
- Haibo, C., Ayamba, E.C., Udimal, T.B., Agyemang, A.O., Ruth, A. (2020), Tourism and sustainable development in China: A review. *Environmental Science and Pollution Research*, 27, 39077-39093.

- Hall, C.M., Dayal, N., Majstorović, D., Mills, H., Paul-Andrews, L., Wallace, C., Truong, V.D. (2016), Accommodation consumers and providers' attitudes, behaviors and practices for sustainability: A systematic review. *Sustainability*, 8(7), 625.
- Han, H., Hsu, J., Sheu, C. (2010), Application of the theory of planned behavior to green hotel choice: Testing the effect of environmental friendly activities. *Tourism Management*, 31(3), 325-332.
- Han, H., Hsu, L.T.J., Lee, J.S. (2009), Empirical investigation of the roles of attitudes toward green behaviors, overall image, gender, and age in hotel customers' eco-friendly decision-making process. *International Journal of Hospitality Management*, 28(4), 519-528.
- Han, H., Kim, Y. (2010), An investigation of green hotel customers' decision formation: Developing an extended model of the theory of planned behavior. *International Journal of Hospitality Management*, 29(4), 659-668.
- Han, H., Lee, J.S., Trang, H.L.T., Kim, W. (2018), Water conservation and waste reduction management for increasing guest loyalty and green hotel practices. *International Journal of Hospitality Management*, 75, 58-66.
- Hasan, A.M., Hossain, R., Tuhin, R.A., Sakib, T.H., Thollander, P. (2019), Empirical investigation of barriers and driving forces for efficient energy management practices in non-energy-intensive manufacturing industries of Bangladesh. *Sustainability*, 11(9), 2671.
- Higde, E. (2022), An interdisciplinary renewable energy education: investigating the influence of STEM activities on perception, attitude, and behavior. *Journal of Science Learning*, 5(2), 373-385.
- Jamaica Balderas, L.M. del C., Navarro Fernández, A., Dragustinovs Garza, S.A., Orellana Jerves, M.I., Solís Figueroa, W.E., Koretzky, S.G., Márquez González, H., Klünder Klünder, M., Espinosa, J.G., Nieto Zermeño, J., Villa Guillén, M., Rosales Uribe, R.E., Olivar López, V. (2023), Long COVID in children and adolescents: COVID-19 follow-up results in third-level pediatric hospital. *Frontiers in Pediatrics*, 11.
- Jaramillo-Nieves, L., Del Río, P. (2010), Contribution of renewable energy sources to the sustainable development of islands: An overview of the literature and a research agenda. *Sustainability*, 2(3), 783-811.
- Johansson, M.T., Thollander, P. (2018), A review of barriers to and driving forces for improved energy efficiency in Swedish industry-recommendations for successful in-house energy management. *Renewable and Sustainable Energy Reviews*, 82, 618-628.
- Karabuga, A., Yakut, M.Z., Yakut, G., Selbas, R., Üçgül, I. (2015), Renewable energy solutions for tourism. *European Scientific Journal Behavioral Sciences*, 153, 501-509.
- Khalil, N., Che Abdullah, S.N., Haron, S.N., Hamid, M.Y. (2022), A review of green practices and initiatives from stakeholder's perspectives towards sustainable hotel operations and performance impact. *Journal of Facilities Management* <https://doi.org/10.1108/JFM-03-2022-0025>.
- Kim, S.H., Lee, K., Fairhurst, A. (2017), The review of "green" research in hospitality, 2000-2014: Current trends and future research directions. *International Journal of Contemporary Hospitality Management*, 29, 226-247.
- Kim, W.G., Li, J., Han, J.S., Kim, Y. (2017), The influence of recent hotel amenities and green practices on guests' price premium and revisit intention. *Tourism Economics*, 23(3), 577-593.
- Krstinić Nžić, M., Matoš, S. (2018), Energy efficiency as a business policy for eco-certified hotels. *Tourism and Hospitality Management*, 24(2), 307-324.
- Lenzen, M., Sun, Y.Y., Faturay, F., Ting, Y.P., Geschke, A., Malik, A. (2018), The carbon footprint of global tourism. *Nature Climate Change*, 8, 522-528.
- Majeed, S., Kim, W.G. (2023), A reflection of greenwashing practices in the hospitality industry: A scoping review. *International Journal of Contemporary Hospitality Management*, 35(3), 1125-1146.
- Mbasera, M., Du Plessis, E., Saayman, M., Kruger, M. (2016), Environmentally-friendly practices in hotels. *Acta Commercii*, 16(1), 1-8.
- Merli, R., Preziosi, M., Acampora, A., Ali, F. (2019), Why should hotels go green? Insights from guests experience in green hotels. *International Journal of Hospitality Management*, 81, 169-179.
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D.G., Altman, D., Antes, G., Tugwell, P. (2009), Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement (Chinese edition). *Journal of Chinese Integrative Medicine*, 7(9), 889-896.
- Nepal, S.K. (2008), Tourism-induced rural energy consumption in the Annapurna region of Nepal. *Tourism Management*, 29, 89-100.
- Nisar, Q.A., Haider, S., Ali, F., Jamshed, S., Ryu, K., Gill, S.S. (2021), Green human resource management practices and environmental performance in Malaysian green hotels: The role of green intellectual capital and pro-environmental behavior. *Journal of Cleaner Production*, 311, 127504.
- Ottenbacher, M., Harrington, R., Parsa, H.G. (2009), Defining the hospitality discipline: A discussion of pedagogical and research implications. *Journal of Hospitality and Tourism Research*, 33(3), 263-283.
- Pang, S.F., McKercher, B., Prideaux, B. (2013), Climate change and tourism: An overview. *Asia Pacific Journal of Tourism Research*, 18(1-2), 4-20.
- Park, J., Kim, H.J. (2014), Environmental proactivity of hotel operations: Antecedents and the moderating effect of ownership type. *International Journal of Hospitality Management*, 37, 1-10.
- Patil, M.D., Kanitkar, K. (2022), A study on guest perceptions on environment friendly hotel practices. *Journal of Interdisciplinary Cycle Research*, 14(8), 392-408.
- Qubbaj, A., Signes, A.P. (2022), The importance of environmental certificates for green hotel: Bibliometric and network analysis. *Foundations of Management*, 14(1), 7-24.
- Rahmat, N., Daud, M.A.A.M., Ngali, N., Abdullah, M.K.N. (2022), A review on green practices in hotel industry. *International Journal of Accounting*, 7(41), 19-28.
- Reem, M., Rasoolimanesh, S.M., Sara, N.R.W. (2022), Sustainability indicators in hotels: A systematic literature review. *APJIHT*, 11(1), 149-171.
- Rogerson, J.M., Sims, S.R. (2012), The greening of urban hotels in South Africa: Evidence from Gauteng. *Urban forum*, 23, 391-407.
- Satchapappichit, S., Hashim, N.A., Hussin, Z. (2015), Factors Influencing Adoption of Green Practices by Small and Medium Sized Hotels in Thailand. Available from: <http://repo.uum.edu.my/20687/1>
- Shaikh, P.H., Nor, N.B.M., Sahito, A.A., Nallagownden, P., Elamvazuthi, I., Shaikh, M.S. (2017), Building energy for sustainable development in Malaysia: A review. *Renewable and Sustainable Energy Reviews*, 75, 1392-1403.
- Shakouri, B., Yazdi, S.K., Ghorchebigi, E. (2017), Does tourism development promote CO₂ emissions? *Anatolia: An International Journal of Tourism and Hospitality Research*, 28(3), 444-452.
- Sharma, T., Chen, J., Liu, W.Y. (2020), Eco-innovation in hospitality research (1998-2018): A systematic review. *International Journal of Contemporary Hospitality Management*, 32(2), 913-933.
- Singh, S., Ru, J. (2022), Accessibility, affordability, and efficiency of clean energy: A review and research agenda. *Environmental Science and Pollution Research*, 29(13), 18333-18347.
- Tsagarakis, K.P., Bounialetou, F., Gillas, K., Profylienou, M., Pollaki, A., Zografakis, N. (2011), Tourists' attitudes for selecting accommodation with investments in renewable energy and energy saving systems. *Renewable and Sustainable Energy Reviews*, 15(2), 1335-1342.

- Upadhyay, P. (2019), Tourism policy of Nepal and sustainable mountain tourism development in retrospect. *The Gaze: Journal of Tourism and Hospitality*, 10(1), 37-50.
- Verma, V.K., Chandra, B. (2016), Hotel guest's perception and choice dynamics for green hotel attribute: A mix method approach. *Indian Journal of Science and Technology*, 9(5), 1-9.
- Wang, J., Wang, S., Xue, H., Wang, Y., Li, J. (2018), Green image and consumers' word-of-mouth intention in the green hotel industry: The moderating effect of Millennials. *Journal of Cleaner Production*, 181, 426-436.
- Yi, S., Li, X., Jai, T.M. (2018), Hotel guests' perception of best green practices: A content analysis of online reviews. *Tourism and Hospitality Research*, 18(2), 191-202.
- Yusof, Z.B., Jamaludin, M. (2013), Green approaches of Malaysian green hotels and resorts. *Procedia-Social and Behavioral Sciences*, 85, 421-431.
- Yusof, Z.B., Jamaludin, M. (2014), Barriers of Malaysian green hotels and resorts. *Procedia-Social and Behavioral Sciences*, 153, 501-509.