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THE IMPACT OF GREEN ENERGY & WATER PRACTICES ON THE DEVELOPMENT OF SUSTAINABLE TOURISM: A CASE STUDY OF 5-STAR HOTELS IN HURGHADA AND MECCA

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Abstract

This present study examined whether 5-star hotels in Hurghada, Egypt, and Mecca, the Kingdom of Saudi Arabia (KSA) implement green energy and water practices and how they perceive the development of tourism in relation to the adoption of green practices. A qualitative research method was used to examine hotels in Hurghada and Mecca only. The target population of hotel managers, owners, and heads of departments was selected using purposive sampling. The sample size was limited to 10 respondents. The tools and techniques used were focus group discussions (FGDs) and semi-structured interviews (SSIs). The findings indicate that 5-star hotels in Hurghada and Mecca have provided their staff with multiple different training on green practices, displayed signboards, decreased the use of electrical equipment, and transitioned to solar-powered energy systems. They have also installed electricity-saving air conditioning units in their rooms, covered air conditioners, and set the temperature of air conditioners to ambient temperature. Their gardens are cultivated with plants that do not consume water and are watered, if necessary, only at sunset. They also ration their use of water. Guests are also provided with luxury products that are environmentally friendly and do not use plastic packaging. Awareness was found to be the most important factor for the only in hotels but in general.

Keywords: Hurghada, Mecca, Green Practices, Water & Energy, Environmentally Friendly

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INTRODUCTION

This present study inspects the impact of green energy and water practices on the development of sustainable tourism by examining selected 5-star hotels in Hurghada, Egypt, and Mecca, the Kingdom of Saudi Arabia (KSA). Egypt and the KSA's tourism industries are booming, with many big cities serving as tourist destinations, particularly Hurghada and Mecca, respectively. Therefore, the governments of Egypt and the KSA have developed green policies for urban tourists. They have also issued strict standard operation procedures (SOPs) that hotels must adhere to preserve the environment and biodiversity of their regions. Tourism, undoubtedly, contributes to the economy of Hurghada and Mecca. However, there is a gross lack of environmental awareness and proper tourism management, which harms the environment and affects the use of water and energy. Due to strict monitoring and effective SOPs, 5-star hotels in both these cities have adopted green energy and water practices; such as water recycling, proper waste management and recycling, adopting clean and green energy, and shifting to solar-powered electrical systems.

However, the government should also prioritize providing hotel owners and tourism workers with education and awareness programs that teach them about moderate-flow toilets, low-flow sinks, water-efficient and greywater recycling appliances, good sanitation, and shifting towards solar energy to understand the importance of green practices and sustainable tourism development. They should also be made aware of energy-saving appliances, HVAC settings, and key-card control systems as well as renewable energy sources and solar plants. They should also be told to turn lights off in the middle of the night, pre-set all appliances in the rooms, change towels less frequently, display all green products, and group re-lamping to save energy resources and increase energy use efficiency.

LITERATURE REVIEW

Hospitality Industry and Environmental Sustainability Awareness

Owing to increasing awareness of environmental issues, more and more hotels, holiday destinations, and tourism-related industries are developing, implementing, and adopting green energy and water practices to promote sustainability and decrease their negative effects on the environment and biodiversity of the region (Ibnou-Laaroussi & Wong, 2020; Ibnou-Laaroussi, Rjoub & Wong, 2020; Baloch et al., 2023; Herrero et al., 2022; Zhong et al., 2011). Tourism is a vital sector for the social and economic development of any country. According to Juvan and Dolnicar (2017), tourism-related activities are responsible for approximately 10.4% of the global gross domestic product (GDP). It also accounts for almost 7% of global exports and 10% of employment around the globe. Nevertheless, tourism-related activities are responsible for roughly 8%

of greenhouse gas (GHG) emissions, which not only negatively affects biodiversity and the environment but human health as well (Lenzen et al., 2018).

Hotels consume significant resources for their daily operations and functions. This adversely affects the environment as well as the sustainability of tourism development as it is costly (Verma & Chandra, 2016, 2018; Legrand et al., 2016). As such, tourism-related companies and industries have prioritized environmental and tourism sustainability in their marketing strategies (Legrand et al., 2016). This is evidenced by an uptick in the number of hotels adopting green practices to impress potential guests as well as promote the development of sustainable tourism. The adoption of green practices by 5-green star hotels helps achieve the sustainable development goals (SDGs) of the United Nations (UN) (Ahmed et al., 2021).

The purpose of the Green Star criteria was for hotels to display their commitment to environmental and tourism sustainability by adopting pro-environmental measures that do not harm the environment (Abdou, Hassan, & Dief, 2020). Hotels and tourism-related industries have also launched various initiatives that indicate their willingness to support sustainability in the tourism industry. This includes displaying eco-labels on products that are used daily, implementing green human behaviours and practices that are sustainable, and implementing environmental management systems (EMS) to strengthen existing green tourism policies and strategies. If the hotel and tourism industries do not integrate sustainability and the conservation of sources and resources as the core of their business cultures, these industries will not be able to move forward as concerns over their pollution of the environment can impair their development (Abdou, Hassan & Dief, 2020; Fauzi, Hanafiah & Kunjuraman, 2022).

Green Hotel Practices

The global hospitality industry currently faces numerous challenges as the numerous environmental changes have heightened competition (Ozgit & Zhandildina, 2021). The Egyptian hospitality industry is no different. The 2011 Egyptian Revolution had a significantly negative effect on the Egyptian tourism and hospitality industries; namely, high employee turnover and severe competition among hotels and tourism businesses (Abu-Elhassan, Elsayed, & Soliman, 2016). As such, Egyptian hoteliers launched campaigns to create new ideas that enhanced the quality of their products and services. The government and organizations have also, over the past few decades, paid more attention to environmental issues. Present-day hospitality consumers expect hospitality businesses to be more aware and experienced in handling environmental issues, especially in Hurghada (Chikodzi et al., 2020).

Green hotel practices are ecologically and environmentally friendly programs or initiatives that mitigate the adverse impacts on the environment by

conserving finite energy and water resources. This includes installing energy-efficient appliances, recycling greywater, implementing renewable energy programs as well as decreasing water consumption by installing water-efficient devices, and implementing linen and towel reuse programmes. It also involves executing waste management and reduction strategies; such as recycling programmes and using durable and longer-lasting reusable items rather than disposable ones (Abdou, Hassan & Dief, 2020). Therefore, the motivation for tourism and tour planning is the effective use of resources to position business operators in a suitable position to adapt to the impacts (Mohamad et al., 2016). According to the World Tourism Organization (WTO), the United Nations Environment Programme (UNEP), and the World Meteorological Organization (WMO), in 2012, the hotel industry was the largest emitter of GHGs while it and the tourism industry were responsible for 21% of all carbon dioxide emissions.

Many hotels now provide luxury environmentally friendly products; such as green soaps, shampoos, and lotions to name a few; that are in plastic-free packaging. They also use paper napkins, towels, and disposable cups to promote the development of sustainable tourism by adopting practical green practices (Mbasera et al., 2016; Alsayat, 2023; Hashish et al., 2022). Apart from wastewater recycling efforts, hotels in Hurghada and Mecca also practice energy saving by installing energy savers, relying on renewable energy sources and solar plants, turning lights off from midnight, using key card control systems, changing towels less frequently, displaying their green products, controlling settings in lobbies, covering pools and hot tubs to decrease heat loss, and practicing group re-lamping to save and efficiently use energy, all of which are important to the development of the tourism industry.

According to El-Sayed and Abed (2021), hotels have invested in lighting technologies and arrangements that are as energy-efficient as possible to attract green-conscious customers. Hotels and tourist resorts have also installed medium-flow toilets, low-flow sinks, smart taps that reuse greywater, and water-efficient appliances as well as practicing good sanitation in hotels to save water (Ihalawatta, Kurupparachchi, & Kulatunga, 2015; Chiziterem & Nonyelum, 2020).

Research Questions

- What are the green energy and water practices that 5-star hotels in Hurghada and Mecca have implemented?
- How do the challenges of implementing green energy and water practices affect the development of sustainable tourism?
- How does the successful implementation of green energy and water practices benefit the development of sustainable tourism at 5-star hotels?

RESEARCH METHODOLOGY

The selection of an appropriate research design is a significant part of research as it dictates the path of achieving the goals of a study and systematically outlines the procedures to be used (Tranfield, Denyer & Smart, 2003; Kothari, 2004; Dubois & Gadde, 2002). This present study conducted a qualitative study that was limited to the city of Hurghada in Egypt and Mecca in the KSA. The participants were managers, higher-level management staff, and admin-related staff in the hotel industry. Questionnaires were used to conduct semi-structured interviews (SSIs) while interview guides were used to conduct focus group discussions (FGDs) and collect the required data. Both purposive and convenient sampling were used to select the participants.

The sample size of this present study was 10. All 10 participated in the SSIs while four, two from each city, participated in the FGDs. Both informal and face-to-face in-depth interviews were conducted, and a few observations were also noted. Thematic analysis is a method of analysing qualitative data and categorizing responses into themes. It is usually applied to a set of texts; such as an interview or transcripts. The data was closely examined to identify repeating themes, topics, ideas, and patterns. The collected data was mapped into a meaningful format and thematically analysed to determine the correlations between the variables to fulfil the research objectives.

RESULTS AND DISCUSSION

Challenges Faced by 5-Star Hotels in Water & Energy Management

The 5-star hotels in Hurghada and Mecca currently face numerous challenges. Hotels also consume higher quantities of water as there are no restrictions on the usage of water by guests. Tourists with less knowledge of the importance of efficient water usage use more water than required. FGD respondents stated that: (1) *“Most of the water is used for guest amenities, landscaping, kitchen, and the rooms as well as for cooking and other purposes, such as bathing”*, (2) *“The higher cost of the initial green energy and water savings practices implementation can be expensive ...”*, (3) *“Guest satisfaction minimizing the cost protect the environment and safe revenue”*, (4) *“For the hotels in Hurghada, there is only one source of water, the water pipes from the nearest governorate in Qena. Investors must implement green practices in their daily operations to save costs, which is their primary target above all other goals. The implementation of green practices enhances and facilitates tourism activities.”*, and (5) *“The higher quality water is being used in guests’ amenities-landscaping-kitchen and rooms for cooking and other purposes like bathing, etc.”*

The high cost of implementing and maintaining green practices are among the several barriers limiting the implementation of green practices and their benefits for sustainable development in Mecca and Hurghada. Despite this,

5-star hotels have successfully adopted green practices for water and energy conservation, such as using renewable energy and installing energy-efficient systems, HVAC systems, and low-flow fixtures as well as adopting water-saving technologies with proper planning, investment, and collaboration between stakeholders to further strengthen green campaigns. A manager from Mecca who participated in the SSIs stated that: *“In the kitchen, we operate with electricity. So, there is high consumption, and it must be controlled.”*

The SSIs where experts have also highlighted some of the most important challenges from both Hurghada and the Holy Mecca. The experts from both cities have agreed that hotels and the tourism sector in both cities faced numerous challenges which did not let the hotels completely adopt green practices in hotels. These challenges are limited resources or access to green technologies and practices, and cost constraints, such as installing a solar panel or upgrading to energy-efficient appliances, which can be challenging for hotels with limited budgets. Moreover, lack of awareness among guests and staff maybe not be aware of the importance of green practices, and regulatory challenges related to implementing green practices such as obtaining permits for solar installations or navigating complex disposal regulations. Furthermore, seasonal Fluctuations where the hospitality industry in Hurghada and Mecca may experience seasonal fluctuations in demand. Which can make it challenging to maintain consistent energy and water usage levels throughout the year.

Green Practices in 5-Star Hotels in Hurghada and the Holy Mecca

The tourism sector plays a significant role in the social and economic development of many countries, with many depending on it for socio-economic sustainability (Rasool, Maqbool, & Tarique, 2021; Manzoor et al., 2019). Although the tourism sector is financially profitable, it emits high levels of harmful GHGs that negatively affect not only biodiversity but also human health. As such, many hotels and tourist destinations have adopted green practices (Camarda & Grassini, 2003), primarily to assuage the environmental concern of tourists who are driven by pro-environmental decisions when traveling or booking hotels. According to one FGD participant: *“Many international tourists from developed countries look for environmentally friendly hotels to spend their leisure time with their families ”.*

Hotels play a larger role as they inefficiently consume natural resources to facilitate tourism. Although many studies have concluded that the Earth's water and other energy resources are dwindling day by day (Baloch et al., 2023; Alsayat, 2023; Nayak et al., 2022), there are no significant policies with which to manage the wasting of water and energy resources, even in developed countries. The situation is even more precarious in developing countries. According to two of the respondents:

Two FGD respondents stated that: (1) *“Water and energy resources are, undoubtedly, important in the present context. The higher costs and a lack of public awareness about conserving water and energy is a major reason for our dwindling natural resources”*, and (2) *“Mecca is always very crowded, and many pilgrims do not know how to use the hotel's facilities. As such, we frequently encounter misuse of energy water, and even food. The service is the most important, which is why we check the air conditioning and electricity daily to ensure that they are all under control”*.

Nevertheless, 5-star hotels in Hurghada and Mecca have some internal checks and policies in place to control water and energy usage and alternative methods of preserving energy and water resources. According to the manager of a hotel in Mecca: *“All our hotels prioritize energy saving and water conservation. All our equipment is controlled by a central BMS [building management system] system and we have managed all the required management from one place... We are implementing integrated green practices in our hotel by installing savers on all water mixers in rooms and public bathrooms and checking daily the usage of water and energy”*. Another FGD respondent also agreed that hotels in Hurghada have a diverse strategy to implement green practices in hotels to make sure the protection of the environment.

Three SSI respondents from Hurghada stated that: (1) *“Some hotels in Hurghada have installed solar panels on their rooftops or nearby land to generate the electricity that is used to power their operations. Some have also installed wind turbines to generate electricity or purchase renewable energy from off-site sources; such as wind”*, (2) *“All the lights on the hotel's roads and in its gardens operate on a motion sensor system. So, it is off all the time and only turns on when it detects traffic or human motion. This decreases the amount of time that the lights are on. The same system is used in the public bathrooms”*, and (3) *“We have water mixing valves installed in our mechanical rooms. They provide the required temperature in the rooms. We also have [VFD] water pumps that maintain sufficient pressure in the line”*.

Additionally, hotels promote green practices through efficient management and usage of water and energy resources in hotels. The efficient usage of these resources minimizes the operational cost as well, which has ultimately impacted the development of the tourism sector. Moreover, proper training and awareness sessions have also been implemented in hotels regarding the importance of water and energy-saving strategies (Liu et al., 2022). In this regard, all labourers have been trained in the nature and importance of saving power and how to work on them to save water and energy resources efficiently. Also, guiding signs have been placed in the guest rooms in hotels. They indicate the importance of preserving the green environment, reducing power and detergent usage, and also explain that only the towels that are thrown on the floor

will be changed. A manager of the hotel stated that: *“We have conducted some awareness programs for our employees and many of them are trained in implementing green practices. We have a section which only designs green tourism as per the demands of clients/tourists”*.

Some of the practical integrated methods to adopt green practices and tourism development by developing a sustainability plan that outlines specific goals and objectives related to water conservation. To educate employees about the importance of water and energy this can be training on water-saving measures and waste reduction practices. Further, SSI respondents stated that: (1) *“To involve guests in the implementation of green practices by providing information and encouraging them to participate in the conservation efforts and monitor performance to ensure that green practices are being implemented effectively and to identify areas when improvements can be made”*, and (2) *“Consciously improve, consciously improve sustainability efforts by identifying areas where additional improvement can be made such as the implementation of new technologies or the adoption of more ambitious sustainability goals”*.

Current Self-Evaluation and Way Forward for Hurghada and Holy Mecca

The majority of participants during FGDs in Mecca and Hurghada have identified many benefits of the successful implementation of green practices in the tourism sector. The benefits of green practices are saving costs, environmental safeguards, and the saving of inadequate natural resources. The successful implementation of green practices means promoting the UN's vision to achieve sustainable development goals. Furthermore, carrying capacity assessment and economic valuation were also conducted to evaluate the eventuality of sustainable tourism development (Mohamad & Marzouki., 2018). The FGD with the top management of the Marriott group of hotels also found that they have a lot of programs to protect the environment and save energy and water, one of the programs called (*Mesh*) Marriott environment sustainability hub. This has also promoted green tourism and it has also a close connection between the hotel business and sustainable tourism development authorities (Tiwari, Dambhare & Tripathi, 2020; Prakash et al., 2022). Two FGD respondents stated: (1) *“There are a lot of ways like spreading awareness about saving energy and protecting the environment, for example, we place a lot of awareness posters inside the guest room to save water and use towels for more possible time, reduce AC temperature to the minimum required level, informing the pilgrims about food waste and avoidance the hotel management /owner and stockholders they are a concern and awareness about the green practices and everyone focus on it as these are one on the UN (SGDs)”*, and (2) *We did an action plan to save the cost, protect the environment, train the employees about the green practices, especially in water and energy elements as well as participation in all these regulations with the guests”*.

Similarly, another SII's participant has also found that the successful implementation of green practices (water and energy) enhances productivity and minimizes the operational cost of hotels: (1) *"Firstly, many green practices are designed to conserve resources, which can lead to cost savings on utility bills, by using energy-efficient lighting and appliances. By implementing green practices hotels can enhance their brand image and reputation, which can increase business and revenue the long-term cost saving, and potential revenue benefits can make them a sound investment for a hotel looking to reduce their environmental impact and improve their bottom line"*, and (2) *"Firstly, in my point of view I will be focusing on the two elements (water and energy) of Egypt of course, water, and energy are most significant in all life processes. Nowadays let me confirm that people are more aware of the importance of conserving water and saving energy, especially the energy is so expensive and so is water"*.

The hotel management plays a main role in spreading the idea about green practices, as well as the owner and stockholders they are focused on such elements to reduce the cost and protect the environment, and the main goals of the hotel image and the benefits (Abdou, Hassan & El Dief, 2020; Pereira, Silva & Dias, 2021). Moreover, it can also be added that the main target for the owners is the benefits, and this is one of the hurdles in the operation process. Everyone is responsible for the development of green practices elements it is everybody's job in 5-star hotels to implement green practices. A SSI respondent in Mecca stated that: *"Some hotels may offer sustainability tours or educational programs for guests to learn about sustainability practices. In addition, the management may educate their employees and raise their awareness about green practices and their benefits"*.

The question regarding the ways to increase sustainable tourism development in Hurghada and Holy Mecca. The participants were optimistic about the current tourism sector development and the sustainability of hotel businesses in terms of earnings. The majority of participants have agreed that the proper security system in hotels, social and community level development and upliftment of small tourism-related businesses, women empowerment, and cooperation between hotels companies and other stakeholders, community and government, price minimization, and location of hotels are the few ways to enhance and increase the sustainable tourism development.

In addition, the usage of energy savers, renewable energy sources, installation of solar plants, off lights from mid of night, key-card control system, control of every appliance in rooms, changing towels, display of green products, ventilating and the air conditioning settings in lobbies, covering the pools and hot tubs to diminish heat loss and group re-lamping to save energy resources and efficient usage in the tourism sector. All these programs make sure sustainable tourism development in Mecca and Hurghada region.

The conclusion of the interviews (SSIs) found that using renewable energy sources such as solar energy, installing motion sensor lights that are on and off when required automatically, using natural lights, which operate through sunlight, planting trees and shrubs strategically, and promoting the billion-tree project in Mecca, educate yourself and others regarding the importance of a green environment and the positive implication of adopting these measures. Moreover, smart thermostats use energy-efficient appliances to save energy, install a rainwater harvesting system at hotels and residential areas, fix water leaks in the washroom, etc., and use low-flow water fixtures at households, hotels, etc.

CONCLUSION

Hotels in Hurgada and Holy Mecca provide training to the staff regarding green practices in hotels. In this regard, hotels in both selected cities displayed guiding signs, reduced the usage of electric equipment, activated operating schedules for lighting and air conditioning, swimming pool heating temperature adjustment, used motion sensors, irrigation at sunset, cultivated gardens with plants that do not consume water, and rationing water usage. Moreover, the saving energy and water resources through installing energy-efficient appliances, recycling consumed water & reuse, and implementing renewable energy programs, and decreasing water consumption levels that are by installing water-efficient devices & equipment. In addition, usage of paper napkins, paper towels, and disposable cups are also installed in hotels to promote sustainable tourism development through practical green practices. It's not only the responsibility of the hotels to implement green practices but also the clients or customers must know the importance of green practices for the future generation and development of the tourism sector in both cities.

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