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The Use of Sustainable Energy Resources in Accommodation Businesses: The Case of Hakkâri

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Abstract

This study addresses the utilization of sustainable energy resources. It aims to uncover the initiatives taken by the accommodation businesses in Hakkâri to use sustainable energy resources. To achieve this, a field study was carried out in the Center, Çukurova, and Yüksekova Districts of the city by employing qualitative research methodologies involving interviews. In-depth interviews were conducted with a study group comprised of five managers selected through non-random snowball sampling. The data collected from the field were subjected to descriptive analysis and presented within the thematic framework. The findings revealed that accommodation businesses are not only concentrated on water conservation but also make efforts to treat polluted water. Additionally, the findings suggested that addressing the infrastructure challenges in the region could lead to a gradual enhancement of environmental awareness.

Keywords: Sustainability, Energy, Accommodation Businesses, Tourism

Introduction

One of the fundamental tenets of tourism is undoubtedly the environment. However, if tourism activities are not conscientiously managed, environmental degradation and destruction become inevitable. Pollution, waste issues, natural environmental degradation, high energy and water consumption are included in the significant damages caused by tourism in the natural environment. One of the reasons for that degradation is mass tourism movements. These movements, which lead the tourism sector, pave the way for the exaggeration of the carrying capacity of the regions. Particularly with mass tourism, the transportation, accommodation, and board activities of hotels and resorts established mainly in coastal areas challenge the carrying capacity of the areas (Arica, 2017). These circumstances underscore the need to address sustainable tourism.

The concept of sustainability encompasses three dimensions: economy, culture, and the natural environment. Sustainable tourism aims to achieve a balance among these factors to promote responsible tourism development. In particular, sustainability in tourism emphasizes environmental conservation and ecological preservation for the benefit of future generations (Arica & Kafa, 2020; Majidet et al., 2023). Standardization efforts within the accommodation businesses have led to functional and formal similarities among businesses. Increasing consumption patterns in society, on the other hand, have transformed hotels into hubs for fast-consuming materials. The fact that people have a lack of awareness regarding how much damage they cause to nature because of their pragmatic approach, and that the predominant focus on the economy of businesses has resulted in the neglect of the sociocultural and environmental consequences of tourism. Nevertheless, there is a growing trend towards ecological consciousness and the adoption of

environmentally friendly values in response to the adverse effects of tourism (Pehlivanoğlu, 2011). This underscores the responsibility of accommodation businesses to actively contribute to the protection of the natural environment for the sake of sustainable development. To minimize the negative impact of tourism, it has become essential for accommodation businesses to redesign their structures to be more environmentally and socio-culturally sensitive.

Overall, this study addresses the accommodation businesses in the context of sustainable tourism. It aims to reveal the initiatives taken by the accommodation businesses in Hakkâri on environmental management, and more specifically, the use of sustainable energy resources. The main rationale behind Hakkâri's choice as a case is its significant tourism potential with its natural beauty and developing outdoor sports. The importance of the study lies in assessing the environmental management practices of accommodation establishments in Hakkâri, gaining insights into their efforts to provide conscious and environmentally friendly services to tourists visiting the area.

Therefore, this study initially offers precise definitions of concepts including sustainable development, tourism and energy resources, followed by an analysis of these concepts linked to Hakkâri. Next, it outlines the research methodology and presents the findings. Finally, it concludes with an overall assessment, summary of findings, and suggestions.

Sustainable Development, Sustainable Tourism, and Sustainable Energy Resources

Sustainable development is a concept that supports economic growth while safeguarding the rights of present and future generations through the conservations of natural resources and environmental values, and embracing an environmentally friendly mindset (Bozlağan, 2005). Sustainable tourism, on the other hand, emerged in the 1970s as a reaction to environmental degradation and disruption of traditional culture of societies caused by tourism (Akkoç, 2020).

When the policies implemented in the tourism sector are not designed to protect the historical and natural beauties of the countries, degradation occurs in nature and as a result of this situation, it cannot be said that the positive effects of tourism are permanent. While tourism has become important for a country, the concept of sustainable tourism has come to the agenda to prevent the destruction of natural resources (Peeters et al., 2024). Sustainable tourism refers to the preservation of touristic destinations and the transfer of their distinctive attractiveness to the future. It involves three dimensions: economic, social, and environmental. The World Tourism Organization (WTO) has defined these three basic principles for sustainable tourism as follows: ensuring that the sociocultural values of the host region are not degraded, biological and ecological diversity is preserved, and local people are employed in tourism (Garda & Temizel, 2016). Ensuring sustainability requires finding the right balance between these dimensions. This involves efforts to foster innovation and knowledge in tourism (Özkök & Gümüş, 2009). To achieve a modern approach to tourism in a specific destination, the three pillars of sustainability must cooperate and be incorporated into the planning process. Otherwise, negative attitudes towards tourism and tourists may emerge among the local population (Alkan Erdoğan, 2015).

In relation to, sustainable energy comes to the agenda. This concept is defined as energy production from sources that can renew themselves faster when consumed. To ensure that this energy is sustainable, planning and organizational activities must be carried out correctly and regularly

(Hassan et al., 2024). Solar energy, wind energy, hydropower, biomass energy, geothermal energy, wave energy and so on are among the sustainable energy resources. These energy sources are crucial to prevent environmental problems and issues such as global warming (Gupta et al., 2023).

Several studies have focused on different aspects of these concepts. For instance, Moosivan et al. (2024) developed a system for planning sustainable energy resources in Iran's Kish Island, the third most touristic place in the Middle East after El Sheikh and Dubai. Their energy plan included short-term goals for 2030, and a sustainability and development model for 2050. They specifically highlighted the use of renewable energies over fossil fuel energies. Yorke et al. (2023) studied the solar energy potentials in five cities of Ghana (Accra, Cape Coast, Kumasi, Tamale, Wa) and revealed high solar energy potential in the country. This raised the possibility of utilizing solar energy to provide hot water in hotels. Barbara et al. (2024) analyzed solar energy systems, the economic efficiency of LED bulbs, and energy sustainability in hotels in Rome emphasizing green hotel management.

As seen, accommodation businesses play key shareholders in sustainable tourism. However, these businesses also possess the capacity to negatively impact the environment, stemming from their construction process to their daily functions. Their spatial and waste management, as well as pollution including environmental, noise, and water pollution, and their patterns of energy and water consumption, all have the potential to bring about irreversible adverse effects (Hekimci, 2015). The interaction of these businesses with the natural environment is evident in areas such as heating, water usage, and solid waste management. As a part of environmental management, the safeguarding of natural resources and areas is essential to ensure sustainable environmental protection. Consequently, identifying the positive or negative impacts of businesses' activities leads to the implementation of environmentally friendly practices. Furthermore, environmental considerations hold strategic importance for businesses (Yıldız, 2015).

To reduce energy consumption within the tourism sector and optimize it issue, it is crucial to accurately assess the usage of energy. By conducting these evaluations effectively, areas where energy-saving measures can be implemented and identified, and efforts can be focused in that direction. Within the vital dynamics of the tourism industry, hotels stand out, with energy-intensive operations such as lighting, heating, ventilation, cooling, elevator and water pumping in both guest rooms and public areas. To promote sustainable energy practices in hotels, the level of efficiency can be further increased through optimization initiatives in ventilation, air conditioning and heating systems. Simultaneously, heat loss can be mitigated through building insulation. In terms of lighting, unnecessary lighting should be minimized and lighting levels adjusted to conserve energy. Furthermore, energy usage can be further reduced by the utilization of high efficiency heating and cooling devices (Öztürk et al., 2018).

In 2003, the Green Building Council of Australia (GBCA) introduced a rating system aimed at evaluating the environmental design and construction of buildings. This system, known as Green Star, assesses a building's environmental impact by ensuring that its construction, management, and design processes meet high standards. Additionally, the Green Star certification system promotes sustainable design and fosters a common language; thus, increasing awareness of environmental issues. Similar to other certification systems, Green Star evaluates categories such as emissions, energy, materials, management, land use, water, transportation, environmental quality, and interior space, allowing for a comprehensive environmental assessment of the

building. The Foundation for International Environmental Education (FFE), on the other hand, operates in 74 countries worldwide, working to raise awareness about sustainable environment. One of FFE's key environmental programs is the Green Key system, a certification program that focuses on promoting sustainability in the tourism sector and recognizes businesses that meet specific environmental criteria (Poyraz & Türkün Kaya, 2018). Many accommodation establishments in cities like Antalya, Muğla, İstanbul, and Ankara in Türkiye are part of this system (Turcev, 2024). A study conducted in six enterprises in the Bodrum and Marmaris districts of Muğla province revealed a lack of sufficient knowledge about sustainability and investment financing among tourism businesses. Thus, it is recommended that managers and all hotel employees undergo training in these areas to address this gap (Poyraz & Türkün Kaya, 2018).

Sustainable Tourism in Hakkâri

Hakkâri is located in a highly elevated and mountainous region which has a negative impact on transportation and urban infrastructure. Because of the extreme continental climate conditions, neither transportation nor urban functions have developed in the city. Besides, these conditions have negatively impacted industry, trade, and tourism. Nevertheless, the challenges stemming from the high altitude and climate have a positive influence on the meadow and pasture areas. With large expanses of meadows and pastures in the city, animal husbandry activities have become one of the primary sources of income (Sadıkoğlu, 2021:135). In Hakkâri, a diverse range of businesses operate across such various sectors as service, food, agriculture, and animal husbandry. Although the service and food sectors are vital for meeting the basic needs of the people in Hakkâri, animal husbandry plays an essential role in the city's economic development (Karadaş, 2017). Besides, tourism has emerged as a significant income source for the city thanks to improved security and the region's natural beauty (Aleddinoğlu & Tekin, 2022). Hakkâri offers favorable conditions for tourism with its mountainous landscapes providing opportunities for activities such as mountain climbing, camping in valleys and plateaus, and trekking. However, despite being a developing region, Hakkâri currently neither has a Green Building Council of Australia presence nor Green Key yet.

The literature indicates that Hakkâri has environmental problems including lack of awareness regarding environmental protection, and specific forms of pollution (Karadağ 2009; Yaylı & Çevik, 2011). It points out to raising awareness among natives and tourists of protecting the environment from the potential negative impacts of tourism. It also highlights the priority of transferring the accommodation businesses to environmentally friendly structures to support sustainable tourism (Adıyaman & Yıldırım, 2018; Şahin & Kahraman, 2017). However, it is unclear whether energy resources and ecological sensitivity are currently being utilized in Hakkâri. In this sense, aiming to uncover ecological sensitivity and initiatives taken by the accommodation businesses for energy consumption in accommodation businesses in Hakkâri, this study intends to bridge a gap in the existing literature. It is anticipated that this research will offer a modest but meaningful contribution to the field.

Methodology

In this study, which endeavors to investigate the environmental practices of accommodation businesses, qualitative research methodology was utilized to reach a comprehensive insight into the topic. This methodology depicts and interprets the behaviors, views, attitudes, and experiences

of individuals. Instead of focusing on quantifiable aspects such as numbers, or means, the aim is to understand the subject in more detail by asking questions about the reasons and methods behind the case (Kıral, 2020). Focusing on the specific case, this methodology aims to present the perspectives of participants in a realistic manner. Through providing a realistic interpretation and description, the perceptions and experiences of the participants are revealed (Yıldırım & Şimşek, 2016).

During the field study, an in-depth interview technique was employed as a data collection tool. To uncover the views of the interviewees on using sustainable energy resources in accommodation businesses, a semi-structured form including 12 descriptive questions (see Appendix A) was prepared. When crafting the form, cultural, social, and economic aspects of Hakkâri were considered.

The universe of the study encompasses all the accommodation businesses operating in Hakkâri. In Hakkâri, there is 14 accommodation business including two guesthouses, two three-star hotels and one two-star hotel, and others. More specifically, in Yüksekova district, there are a total of eight hotels (one five-star and two three-star hotels) and one guest house. There is one hotel and one guest house in Şemdinli district. There is one hotel and one boutique hotel in Çukurca district. The sample is five accommodation businesses—three-star hotels—that operate in the Center, Yüksekova, and Çukurca Districts of Hakkâri reached by purposive sampling. These districts were selected because these districts are more crowded than the others in terms of population, and the allure centers comparing the other districts (Hakkâri İl Kültür ve Turizm Müdürlüğü, 2024). The study group, on the other hand, consists of five managers who work at the sample who was determined by purposeful and convenience sample (see Table 1).

Table 1. Demography of the Study Group

Interviewees	Sex	Age	Marital Status	Education	Profession
P1	Male	64	Married	Bachelor's degree	Manager
P2	Female	34	Married	Bachelor's degree	Manager
P3	Male	40	Married	Associate degree	Manager
P4	Female	35	Married	High School	Manager
P5	Male	28	Married	High School	Manager

Source: Created by the Author

Then, the interviews were conducted between April 22nd and April 26th, 2024 under ethical and academic criteria and after obtaining the verbal consent of each interviewee. Each interview lasted between a minimum of 20 and a maximum of 40 minutes.

According to Miles and Hubernas (1994), data obtained from qualitative research methodologies is analyzed by descriptive or content analysis. In this study, content analysis was utilized to meticulously code the field data and present the relevant concepts and themes in a reader-friendly manner (Punch, 2014). Therefore, in the first stage of the data analysis, open coding was utilized to identify every usable piece of raw data. Then, selective coding was employed to filter the most

reliable part of the data and to reach efficient categories. The related codes were grouped and three categories were formed to answer the purpose of the study. These categories and the codes associated with them are given in the table below (see table 2).

Table 2. Thematic Framework

	Categories	Codes
Thematic Framework	Energy Consumption	Natural gas
		Coal
	Ecological Consciousness and Awareness	Training
		Awareness campaigns
		Environmental initiatives
		Water saving
		Leftover food
	Ecological Education	Ecological sensitivity
		Training staff
		Informing tourists

Source: Created by the Author

Findings were then presented and interpreted within this framework. Also, during the interpretation of the analyzed data, insights from the experts' experiments were taken into considerations. Additionally, to maintain academic confidentiality, all interview data were anonymized and each interviewee was assigned a code like P1, P2, etc. To enhance the validity and reliability of the study, direct quotes from the interviewees were also included where relevant.

Findings

Based on the analysis of interviews, the themes that managers of accommodation businesses perceive to represent sustainability are presented below in order: *i*) energy consumption, *ii*) ecological awareness and consciousness, and *iii*) environmental education.

Energy Consumption

Energy plays a critical role in every moment of daily life. The quest for sustainable and sufficient energy resources is a major challenge for societies. Renewable energy and fossil fuels are the two primary sources of energy. Industrial states mostly meet their energy demands from fossil fuels like natural gas and coal. They often overlook the environmental damage associated with their use (Çukurçayır & Sağır, 2008). Tourism is one of the sectors where energy resources are consumed significantly. The intersection of energy and tourism emphasizes the impact on accommodation businesses. Here, it is crucial for accommodation businesses, which are indispensable elements of tourism, to prioritize environmental protection (Tamer & Alaeddinoğlu, 2022).

The findings of this study uncovered those five accommodation businesses in the sample use fossil fuels including natural gas and coal. The findings demonstrate that while these businesses previously utilized renewable energy resources, they had to give up their use because of inefficiencies caused by the harsh climate conditions. As stated,

P1: *“In our business, we have transitioned from using coal to using natural gas for heat over the past three years. Although this change is not favorable for the environment, we are confident that environmental developments in Hakkâri are underway, which will lead to a more sustainable solution.”*

P2: *“In our business, we rely on coal for heat because of the absence of natural gas in our district. Though we experienced with solar panels as a renewable energy source, our climate conditions rendered them inefficient.”*

Considering the issues emphasized by the interviewees, it has been concluded that not only human factors but also nature should be effective in using sustainable energy resources efficiently within the framework of accommodation management in tourism. In essence, favorable conditions for nature are essential to effectively utilize sustainable energy resources.

Ecological Consciousness and Awareness

Tourism is the discipline that focuses on the relationships formed during the travel and stay of individuals without engaging in income-generating activities. As a tourism concept, tourist refers to the individuals who look to enjoy their time in the places they visit. Here, tourists should prioritize the ecological well-being of the places they visit and increase their environmental awareness. Similarly, accommodation businesses should implement environmentally friendly systems in their workplaces and inform tourists about this vital issue (Kaypak, 2012). That is because environmental management is integrated with strategic management within the enterprise to ensure that environmental initiatives align with strategic plans (Bresciani, 2013). In the context of environmental management in accommodation businesses, it is important to provide ecological and environmental training for staff, and raise environmental awareness among tourists (Banarjee, 2002).

The findings revealed that the managers of the sample are aware of ecology and the environment. Moreover, it is understood that the managers endeavor to pass this consciousness to the tourists who stay at their businesses. As mentioned;

P3: *“We already have an environmental protection in place at our hotel, and we are very conscientious about it. Our staff has just received training on ecological practices, and we have informed our guests staying at the hotel.”*

P4: *“We are committed to environmental stewardship in our business operations. Specifically, we diligently monitor and manage wastewater to prevent any pollution, ensuring that it is responsibly disposed of outside the city.”*

Based on the interviews, it is clear that awareness on ecology is at the forefront within the framework of the policies followed by the managers prioritize ecological awareness in their policies through training, awareness campaigns, and environmental cleanliness initiatives. Furthermore, it was found that water was saved in the businesses and the leftover food was donated to animal shelters.

Environmental Education

Living in a sustainable world is a vital gift for future generations. Presently, scientists, service sector staff, and other shareholders are concentrated on addressing this matter. In line with this aim, individuals establish businesses that prioritize environmental protection and highlight locality and ecological sustainability. Thus, they contribute to the usage of resources effectively and environmental sustainability. This endeavor is also significant for the sustainable operation of accommodation businesses. The core principles of environmentally friendly businesses encompass protecting resources, fostering shareholders and raising awareness among tourists (İlban et al., 2023).

In Hakkâri, there are both longstanding businesses and newly established ones. However, the majority of accommodation businesses in the city are actively promoting ecological awareness and sustainability in the context of environmental education. The findings also suggest that as tourism continues to grow in the city, there is an increasing focus on ecological sensitivity. As mentioned,

P5: *“Our business has just been established in Yüksekova. Most of our guests come from Iran. We are aware of environmental sustainability because we have domestic and foreign tourists. So, we train our staff and inform our guests. We believe that looking after the environment is crucial for our business to thrive in the long run.”*

P2: *“In Çukurca District, we have been operating for five years. Çukurca is a favorable region with its stunning natural scenery. We are protecting our district and utilizing environmental arrangements. We try to instill this awareness in our visitors, too. We are developing our business in the context of water saving and landscaping.”*

Analysis of the interview’s manifests that both newly established and longstanding businesses demonstrate a strong focus on environment education. Thus, they train their staff and inform their guests.

Conclusion

This field study conducted in Hakkâri shed light on the ecological management practices of accommodation businesses, highlighting a strong emphasis on sustainability. The study group focused on three key areas: *energy consumption, ecological awareness and consciousness, and environment education*. It is grasped that the study group prioritizes cost-effective energy consumption, with a particular focus on utilizing renewable energy sources. Their commitment to environmental consciousness and awareness is evident, and they are actively involved in planning initiatives in this regard. It is also crystal clear that the study group places importance on mitigating water pollution and donating leftover food. They also pay attention to environmental education for both staff and guests, providing that it is effectively enforced in practice. Notably, the study underlines the crucial link between sustainable energy resources and favorable natural conditions, indicating that the use of such resources is not only tied to human capital but also to the local environment. Moreover, with the anticipated increase in tourism activities in Hakkâri, it is likely that accommodation establishments will further enhance their environmental initiatives.

This study show that the findings overlap and diverge with the literature in many aspects. Regarding overlaps, using of high solar energy potential in the cities of Ghana suggested by Yorke et al. (2023) and Moosivan et al. (2024) in Kish Island can be applied to Çukurca district, where an arid climate. It brings the idea of installing solar panels on the agenda. However, in Hakkâri Center and Yüksekova districts, solar energy cannot be utilized much due to unfavorable climatic

conditions. Using LED bulbs which are both environmentally friendly and provide savings pointed by Barbara et al. (2004) were also found in this study. P1 stated that use Led lamps for lighting and these environmentally friendly lamps also provide savings.

Regarding diverges; literature shows that tourism enterprises lack sufficient knowledge about sustainability and investment financing (Poyraz & Türkün Kaya, 2018) in Hakkâri. However, the findings of this study revealed that the accommodation business currently prioritize environmental consciousness. This result may be stemmed from the conditions that the managers developed environmental consciousness in years. Also, despite not having a Green Building Council of Australia presence or Green Key yet, local accommodation businesses in Hakkâri have recently begun showing interest in environmental consciousness and are striving to be more environmentally friendly.

The findings revealed that although environmental awareness in Hakkâri primarily revolves around energy consumption, ecological consciousness, and environmental education, it does not fully align with the comprehensive sustainability framework. To address this, it is crucial to offer sustainability training to business managers and staff at accommodation establishments in the city. Furthermore, these establishments should collaborate closely with local governments, provincial administrations, and non-governmental organizations to enhance their environmental consciousness.

It's important to note that the research findings may not apply to the entire universe, as they only represent the opinions of the study group and the specific sample. This limitation underscores the need for more comprehensive studies on the subject. It is thought that this study will be a primary source for other studies.

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Appendix A. Interview Questions

I. Demographic Questions				
Sex	Age	Marital Status	Education	Profession
II. Open-ending Questions				
1) How many years has your accommodation business been operating?				
2) Which types of energy are commonly used in your business?				
3) Do you give importance to the use of renewable energy in your business?				
4) Have you ever been trained about ecology in your business?				
5) Does your accommodation establishment have an environmental protection plan?				
6) Do you have information about ecological structures?				
7) Do the people staying in your business have environmental awareness?				
8) What do you do about water saving in your business?				
9) Which energy sources do you use for heating activities in your business?				
10) What do you do to save food and beverages in your business?				
11) Are there recycling activities in your business?				
12) What do you do for a sustainable environmental understanding in your business?				