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Review
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SUSTAINABLE TOURISM AND HOTEL MANAGEMENT IN MACEDONIA THROUGH THE USE OF RENEWABLE ENERGY SOURCES

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Abstract
This study aimed to investigate the nature of energy applied in hotel industry in Macedonia. It explored the indicators for resources application in three, four and five star hotels. The data were collected by means of an online survey conducted among 45 managers and department supervisors. It is found that large number of hotels lack measures to reduce the conventional energy use and replace it with renewable sources of energy. Considering the fact that energy use is a substantial cost factor, the modest and restricted application of geothermal energy, biofuels and photocell lightening is extremely alarming for achieving sustainable tourism development. The study concludes that Macedonian hotels although being fully aware of importance of energy efficiency concept, it is not their managerial priority. It further pointed out that the development and operation of sustainable hotels requires properly planned and designed environmental protection practices. Finally, the study recommends that instead of being driven by increased number of tourists regardless the environmental concern, Macedonian hotels should pay attention and become eco-friendly and be focused on applying environmental oriented practices. At the same time, the research poses new challenges that urgently need to be brought to hotel management in the line of achieving sustainable tourism development.

Keywords: energy efficiency, environment, eco-hotels, hotel managers, sustainability.

Jel Classification: Q20; Q40

INTRODUCTION

Tourism provides significant boost to many local and national economies, but simultaneously poses significant environmental threats in the areas that is being

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practiced. Hotels use substantial amount of energy and are one of the most energy intensive facilities with correspondingly high energy costs. So, there is an inevitable relationship between hotel industry development and environmental and energy efficiency impacts. The main intention of the management is to focus its activities in the line of reducing operating costs by introducing new sources of energy that preserve the environment by creating an eco-friendly establishment. Due to the fact that clean and well preserved environment is one of the main preconditions for high quality service generally in the hospitality-oriented facility, one may conclude the dependent nature of the hotel development. Most likely, the energy demand will continue growing in the future, so energy planning and use of renewable sources as energy supply alternatives may be a solution for sustainable development.

The issue of application of the renewable energy sources in tourism industry is a relatively well studied area (Ali et al. 2008; Arthur et al. 2011; Bohdanowicz 2005a; Butler 2008; Chen et al. 2007; Dalton et al. 2008; Kim and Han 2010; Khemiri and Hassairi 2005; Michalena et al. 2009; Oikomomou et al. 2009). However, the present state of renewable energy use and attitudes to its implementation in the Macedonian tourism industry have not been thoroughly examined to date and is the focus of this paper. Knowledge gained may assist future strategies designed to encourage increased use of it.

Furthermore, there is a large body of literature studying energy use and hotel's environmental performance (Kirk 1995; Khemiri and Hassairi 2005; Ndoye and Sarr 2003; Önüt and Soner 2006). Moreover, number of studies argue the necessity of always having in mind the environment, thus introducing environmental protection programs in hotel activities in terms of reducing energy consumption, recycling, composting food scraps etc. (Bowe 2005; Chen et al. 2005; Dodd et al. 2001; Karagiorgas et al. 2006). All this led to changes in tourists attitudes towards eco-friendly business establishments (D'Souza and Taghian 2005) and even modifications in purchase, production and operation processes and procedures leading to increase for ecological conscious (D'Souza and Taghian 2005; Wolfe and Shanklin 2001).

Previous studies have also been focused on green economy and acceptance of renewable sources of energy (Ek 2005; Jobert et al. 2007; Mallett 2007; Roe et al. 2001; Zoellner et al. 2008). Furthermore, many academics note that hotels have noticed the benefits from improving environmental performance generally by reducing the operational costs (Forbes 2001; Kirk 1998; Manaktola and Jauhari 2007) and sustaining competitive advantage and increased demand for eco-friendly hotels (Bohdanowicz 2005a, b; Le et al. 2006; Vazques et al. 2001). Even more, in some studies it was found that tourists prefer much more to consume green products and are willing to pay for eco-friendly services (Roberts 1996; Vandermerwe and Oliff 1990; Han and Kim 2010).

Additionally, various regulations serve as primary instruments of action for hotels in the line of fulfilling obligatory regulations for health and safety, environmental taxes, building standards etc. This leads to necessity of developing industry benchmarking (Kozak 2004; Wöber 2001) and promoting some design features that bring a luxury status of hotels (Bernstein 1999; Cohen and Bodeker 2008; Curtis 2001; Heide and Gronhaung 2009; Heung et al. 2006). Furthermore, many authors argue necessity of developing smart hotels as environmentally friendly establishments since they help mitigate many issues and problems related to existing building, providing healthier indoor environment to building green buildings with major benefits (Bohdanowicz 2006; Fisk 2000; Kats 2003a, 2003b; Kibert 2008).

The study focuses primarily on the use of energy resources in hotels. The main aim is to explore the current situation in hotel accommodation sector in Macedonia when addressing the attitudes, willingness and practices concerning applying sustainable environmental practices. The research topics are: (i) To assess the current level of the application of environmentally compatible and sustainable energy alternatives in hotel establishments.; and (ii) To pose valuable findings to hotel management in the line of preserving the attractiveness of tourist destinations by introducing, a wholesomely sustainable approach, particularly with regards to the energy use.

In order to meet the research aim, the paper covers several sections. After the introductory part, Section 1 encompasses the used method. Section 2 presents the main findings, while the conclusions, recommendations and some future challenges are noted in the last section. Generally, the contribution of this paper lies in the fact that it enriches the academician work in Macedonia addressing this issue which is poorly developed with certain exceptions noted in Petrevska and Cingoski (2015) and Cingoski et al. (2015).

1. METHOD

The research is consisted of an online questionnaire designed for hotel managers and department supervisors of three, four and five star hotels. The survey was conducted during May-June 2015. A follow-up e-reminder was sent to each non-respondent approximately each week.

The sampling frame was provided by the Sector of Tourism and Hospitality within the Ministry of Economy of the Government of the Republic of Macedonia. This frame consisted the necessary information for the sampling units (hotels). Further on, the units were divided in three strata by the classification of each hotel (Table 1). This kind of stratification provides homogeneity within each stratum.

Table 1. Hotels' frame

Hotels class (stratum)	Number of hotels
Three star hotels (3*)	67
Four star hotels (4*)	44
Five star hotels (5*)	16
Total	127

Source: Ministry of Economy of the Government of the Republic of Macedonia, Sector of Tourism and Hospitality

Note: Data by May 2015.

A stratified sample was drawn from the classified sampling frame being consisted of 127 managers and department supervisors of three, four and five star hotels. Although the research was ambitious and foreseen to survey all identified managers/department supervisors, yet, only 45 responded representing 35.4% response rate. This included 16 out of 67 three star hotels, 19 out of four star hotels and 10 out of 16 five star hotels. The distribution of responses is presented in Figure 1. The response rate of 35.4% is relatively high for an online survey, when usually due to lack of personal contact and less binding, spreads between 16-25% (Bohdanowicz 2005a; Jeong et al. 2003; Medina-Munoz and Garciá-Falcón 2000).

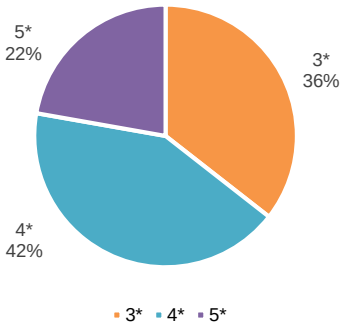

Figure 1. Distribution of responses by hotel type

The questionnaire was structured in three parts:

- I part: General data (consisted of four open-ended questions referring hotel category, working history etc.);
- II part: Environmental policy (consisted of eight yes/no questions related to application of environmental policies, practices and programs); and
- III part: Resources (consisted of eleven questions addressing the issue on applying different types of resources in hotels work. The responses were categorized by using a 5-point Likert scale (1 =very low, 2 =low, 3 =medium, 4 =strong, 5 =very strong. The following scheme was applied when interpreting the mean range of results in the line of quantifying the item impact: 1.00-1.80 (very low); 1.81-2.60 (low); 2.61-3.40 (medium); 3.41-4.20 (strong); and 4.21-5.00 (very strong).

2. FINDINGS

Generally, the study found that surveyed hotels have different attitudes towards investigated issues. Based on questions from the first part (general data), it was found that hotels also differ in terms of working history. So, the surveyed hotels vary from relatively young hotels existing up to 5 years on tourism market, to well positioned hotels with over 15 years of working experience. It was even more difficult to determine the precise number of employees in the surveyed hotels, since some of them have up to 50 employees, but some have even more than 100 employees.

Table 2. Summarized findings on general environmental issues (%)

Item	3* Hotels		4* Hotels		5* Hotels	
	Yes	No	Yes	No	Yes	No
Certificate for energy efficiency	37.5	*62.5*	*52.6*	47.4	*80.0*	20.0
Plan for environmental protection	*53.3*	46.7	*73.7*	26.3	*80.0*	20.0
Reports on environmental protection	26.7	*73.3*	31.6	*68.4*	40.0	*60.0*
Eco label	20.0	*80.0*	47.4	*52.6*	50.0	50.0
Eco certificate	20.0	*80.0*	26.3	*73.7*	*60.0*	40.0
Employee responsible for environmental protection	31.3	*68.8*	47.4	*52.6*	*70.0*	30.0
Award for environmental protection	/	*100.0*	/	*100.0*	11.0	*89.0*
Availability of info for guests	*68.8*	31.3	*68.4*	31.6	*60.0*	40.0

The questions from the second part of the questionnaire were in the line of scanning the current level of application of environmental policies and practices. The intention was to identify whether higher ranked hotels apply the same or different environmental practices.

Table 2 presents the summarized findings on general environmental issues, which are visually presented on Figure 2. Based upon that, interesting notes may be drawn. Namely, it is noticeable that the five star hotels have by far the most positive environmental concerns. They hold a Certificate for energy efficiency along with the four star hotels, which is not the case with the lower ranked hotels in Macedonia. The same conclusion stands for the item addressing preparation of written plans for environmental protection, whereas surprisingly half of the three star hotels claim to prepare it. Yet, none hotel type prepare reports on environmental protection. This is not in favor of supporting the European environmental impact assessment regulation. This legislation started to develop in the 1970s and since then, many documents, action plans and standards have been established by the European Union (EU). Besides industry, energy, transportation and agricultural sections, tourism is also introduced as a segment which must conform to the Fifth Environmental Action Program. Due to the fact that Macedonia is a candidate country for EU membership, much attention must be put hotels to meet the internationally set standards.

The vast majority of three and four star hotels do not have Eco label (80.0% of the three star hotels, and 52.6% of the four star hotels), do not hold Eco certificate (80.0 % of the three star hotels and 73.7% of the four star hotels), and do not have personnel responsible for environmental protection (68.8% of the three star hotels and 52.6% of the four star hotels). The findings are completely different from a point of view of a five star hotels.

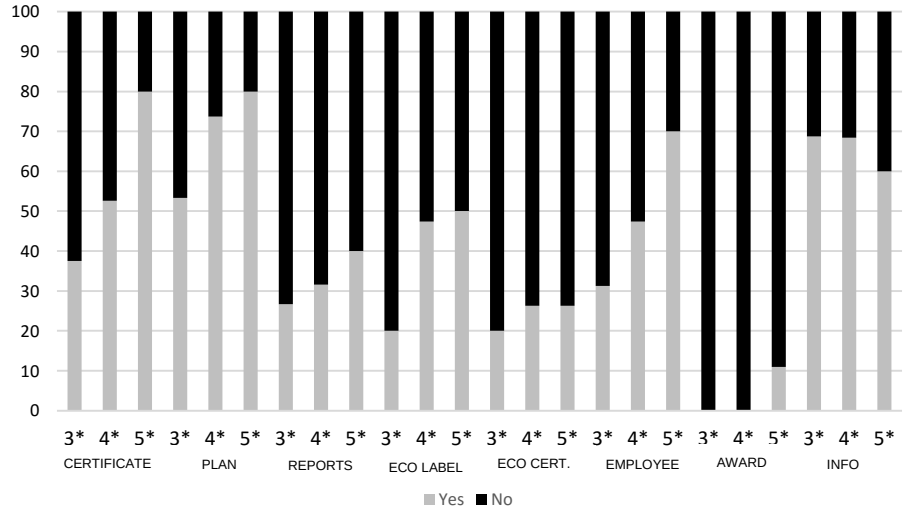

Figure 2. Comparing managerial perception on general environmental issues

Namely, based on findings given in Table 2, it may be seen that half surveyed managers and department supervisors from the five star hotels stated to have Eco label (50.0%) and

Eco certificate (60.0%). Although in favor (70% claimed to have it), there is a certain risk in the interpretation and understanding the question related to the term 'personnel for environmental protection' which might be understood as a 'personnel in charge for cleaning the environment', which in most cases is a job of the housekeeping staff.

Despite the fact that majority of the surveyed hotels do possess certain written document related to environmental concern, yet, it may reflect only the appearance of social and corporate responsibility of the hoteliers. The fact that none of the surveyed three and four star hotels have ever received an award related to the environmental protection, although they have been working for over 15 years, strongly supports the general finding concerning environmental policy in Macedonia that still needs to be done. However, the positive impulse is detected in providing info to guests related to environment protection, which points to rather social responsibility of hotels and lack of energy efficiency practices.

The third part of the questionnaire referred to the resources. This section enables to evaluate managerial perception on energy use and resource conservation. Having in mind that the use of energy is a cost factor, it was expected that hotels do take serious measures in reducing conventional energy sources, particularly in the line of replacement with renewable sources. However, the findings are alarming since they point to extremely limited use of alternative sources of energy and new innovative approaches in saving energy consumption.

Table 3. Summarized findings on indicators for perception of resource usage (mean values)

Item	3* Hotels	4* Hotels	5* Hotels	Total
Solar	3.00	*3.50*	2.90	3.13
Geothermal	1.21	*2.06*	1.33	1.54
Biofuel	*1.64*	1.53	1.22	1.46
Photocells	1.64	*2.00*	1.22	1.62
Use of treated water	1.07	1.21	*1.40*	1.23
Saving lights	3.73	*3.83*	2.90	3.49
Smart rooms	1.80	*3.63*	1.60	2.34
Dimming system	1.87	*3.38*	2.90	2.71
Key-card control	3.50	*4.19*	4.10	3.93
Changing towels on guests' demand	4.25	4.63	*4.90*	*4.59*
Central control cooling/heating	4.25	*4.74*	4.50	*4.50*

Table 3 presents the summarized findings of managerial perception towards certain indicators of resource usage. The conclusions are the same, but more visible in Figure 3, when the data are presented in terms of impact in every day work of Macedonian hotels. The mean values for the extremely important renewable sources of energy, like geothermal energy, biofuel, photocell lighting and the use of treated water are by far the lowest. Consequently, they have the lowest power when quantifying the item's impact. In this case, the mean for the items referring geothermal energy, biofuel, photocell lighting, as well as the use of treated water, are far below the critical values indicating that these determinants are meaningless for the hotels' energy efficiency concept.

The dimming system, which in general increases the lifespan of incandescent and LED light sources, is smart, silent, reliable and efficient system for saving energy in hotels. Yet, this item is perceived as only a low impact determinant used extremely limited by Macedonian three, four and five star hotels.

Having in mind the high costs for establishing solar energy and the "smart rooms" operations, not surprisingly is the managers' perception as medium usage. However, hotels pay large attention to the use of energy saving systems that control every appliance

in rooms and key-card control system that provides no power unless the room-key is inserted. This, along with the energy saving light bulbs, is found as a resource with strong impacts.

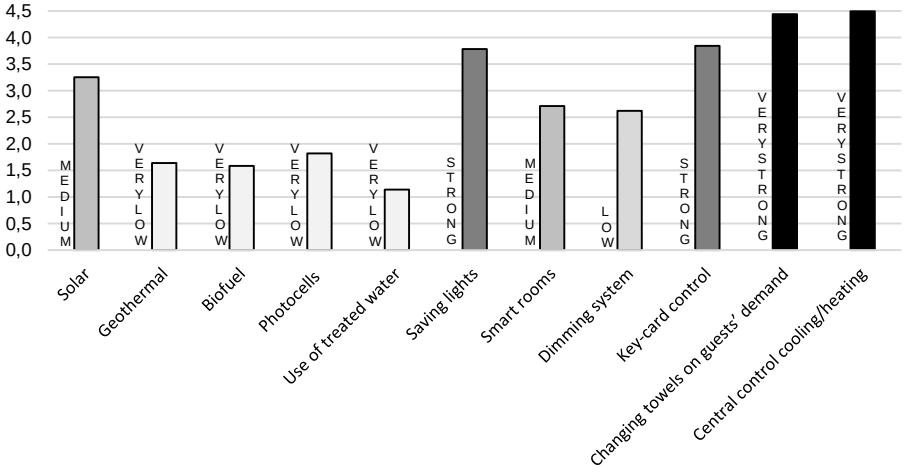

Figure 3. Factor of influence (mean values)

Similarly, the central cooling/heating system along with the guest demands for linen and towel changes are assessed as very strong factors of influence on hotels business. The guests' awareness of energy efficiency is constantly rising by having the choice to use the same towels and linens for the duration of the stay, rather than to incur the environmental costs of laundering them each day. This conservative measure is practiced by each hotel regardless the categorization and simultaneously increases the guest satisfaction and loyalty by showing their care for energy efficiency and climate change.

CONCLUSIONS AND RECOMMENDATIONS

The paper is focused on presenting some insights into the use of energy in three, four and five star hotels in Macedonia. It aims at providing assessment of managerial perception of energy resources and discussed more environmentally compatible and sustainable alternatives. The summarized results confirmed the findings as in Cunningham (2005), Erdogan and Baris (2007), Mbaiwa (2003) as well as Trung and Kumar (2005) that although being aware of the importance of the energy consumption and environmental protection, yet its stewardship is not a top priority. Namely, the problem is substantial gap that exists between the managerial awareness for the benefits of the renewable energy, and the daily practice of the hotels.

The results point that referring some issues on energy consumption resources, hotel's classification in terms of star-ranking played a significant role in explaining certain results. Namely, the five star hotels were the most willing to use energy efficient appliances to reduce energy consumption. However, the large number of hotels in

Macedonia lacks measures to reduce the conventional energy use and replace it with renewable sources of energy. Therefore, the paper emphasizes the need for an increased use of renewable energy resources and strategies in meeting the complex requirements for sustainable development. Considering the fact that the energy is a substantial cost factor, the modest and restricted application of geothermal energy, biofuels and photocell lightening is extremely alarming for achieving supportable tourism development. Although being fully aware of the importance of the energy efficiency concept, the study found that it is not a managerial priority of Macedonian hotels. Instead of being driven by increased number of tourists regardless the environmental concern, Macedonian hotels should pay attention and become eco-friendly accommodation facilities. In such case, the hotels would benefit from the environmental pro-activeness which is important for the performance and development of sustainable tourism since using renewable energy sources is one of the core elements for achieving sustainability.

The study recommends that hotels should create specific strategies that will have a significant impact on reducing energy consumption. Some aspect of these strategies may include increasing the level of awareness among hoteliers through a direct and well-designed environmental protection campaigns. Furthermore, it may be recommended that managers and department supervisors should focus on shifting their professional ethics, developing and exerting a wide range of the energy efficient practices in the first line by introducing some renewable sources of energy. That will result in the reduction of the energy consumption. Consequently the hotels may benefit from the energy conservation measures not only by saving money, but also in ensuring comfort to the guests and staff. It can be concluded that only properly planned, designed and operated hotels offer environmental advantages and attractive opportunities for sustainable businesses.

During the research, several limitations occurred which might be addressed in some future work. Namely, although the presented data are reliable, it is difficult to identify to what extent the information is representative speaking of the overall hotel industry in Macedonia. The study may be enhanced by extending the sample in the line of increasing the response rate, as well as to spread the target location within other countries, particularly in the region. However, it must be taken into consideration that the goal of the study was to identify the indicators for resources application in hotels, in the line of assessing the nature of energy in terms of supporting tourism sustainability.

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