SUSTAINABLE ACCOMMODATION FACILITIES IN BULGARIA – REAL FACT OR NOT?

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Abstract: *Accommodation facilities are key tourism actors and therefore cause considerable impacts. Stakeholders get involved in various voluntary programs, where they seek appropriate measures by which to contribute to improving the environment at the local and national level. A lot of accommodation facilities are turning green at an increasing rate due to a single reason, which is not directly based on profitability, longevity, or sustainability. The green trend has come into the life of the hotel business and is enthusiastically accepted by a vast majority of guests, especially in western countries. On the other hand, accommodation facilities are trying to be environmentally friendly, but the economy is becoming more and more important to them. This paper deals with applying elements of green management in accommodation facilities in the city of Sofia, Bulgaria. It analyses the implementation of green management elements and the principles of sustainable development in accommodation services. It focuses on accommodation facilities and their use, and environmental measures. The primary survey was conducted from May until June 2018, and we used a questionnaire survey to obtain primary data. We used the methods of scientific work; and, i.e., the analysis method, a generalization method, mathematical, and statistical methods. A total of 247 accommodation facilities participated in this research, and they reached the best results with sorting containers, dual flush toilets, compact fluorescent lamps, and LED lamps. We state that the surveyed accommodation facilities should invest more funds in green initiatives and acquaint employees and guests with this philosophy. Anyway, in a few years, it is certain that environmental protection will become a legal obligation for accommodation facilities. In our opinion, be proactive already now and start from this moment on. It is time for the hotel industry to accept its environmental responsibilities to reduce the environmental impact of international tourism.*

Keywords: *Eco-friendly accommodation facility, environmental measures, green management, hotel industry, services.*

1. INTRODUCTION

Tourism is a sector of considerable economic importance and its new ways of development are still emerging [1]. [2] reports that trends in tourism, especially in the hospitality and accommodation market are continually evolving. Managers are finding new ways to harmonize the proposed higher standard with a focus on environmental measures. Environmental practices and innovations of hotel business are a widely discussed topic in scientific literature nowadays due to the benefits they bring to organizations, notably increasing revenues and reducing costs [3]. Green or organic products/services have achieved enormous relevant results in response to the escalated consumer sensitivity to concerns over the ever-worsening environment [4].

Generally, tourism and especially accommodation facilities are responsible for waste pollution, increased water and energy consumption in destination areas, creating many (low paid) jobs for residents, consumption of products and materials produced by the local community [5]. [6] argue that 75% of all environmental impacts are created by the hotel industry. This value can be attributed to excessive consumption of local and imported perishable goods, and the waste

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of energy and water. The literature repetitively argues that to facilitate sustainability, accommodation facilities need to adopt a new environment and socially friendly principles, attitudes and behaviors [7].

On the other hand, the laws or regulations of most countries do not have a legal or a universally accepted definition of what is a „green accommodation facility or eco-friendly hotel." It means that the practice of using „green or eco-friendly" as a marketing ploy is still widespread in many cities and towns around the world. A lot of hotel managers are claiming that they are „green or environmentally friendly" by just hanging a sign and declaring themselves to be green [8].

ECONOMIC PERFORMANCE	ENVIRONMENTAL PERFORMANCE	SOCIAL PERFORMANCE
- hotel revenues - operating costs (implementation of ISO 14001, Eco-Management and Audit Scheme) - hotel profits (purchasing larger volumes and minimizing packaging and products that the hotel really needs, purchasing products from suppliers in the region, purchasing quality and truly useful products, purchasing of environmentally friendly products, and measuring guests´ satisfaction) - employee compensation - donations and other community investments - retained earnings - payments to capital providers and governments - proportion of spending on locally-based suppliers (purchase of raw materials and products in the region, support local infrastructure) - corporate philanthropy	- total direct and indirect greenhouse gas emissions - energy consumption by primary source (regulating heating and air conditioning, thermal insulation of buildings) - energy saved through conservation and efficiency improvements (low energy technologies, appliances min. class A (A +, A ++, A+++), compact fluorescent lamps) - initiatives to reduce energy consumption (utilization of geothermal energy and waste heat) - total water consumption (installation of single-lever mixers and faucet aerators, energy-saving shower heads, and two-stage flush toilets) - total water recycled and reused (grey-water reuse, rainwater harvesting) - waste output (waste separation in the background of hotels, sorting bins for plastic, paper, etc. in each room, reuse recycled materials, composting organic waste)	- incidents of discrimination - workforce by employment type - workflows and their control - promotion of environmental program to the public, - compliance with environmental principles by guests and employees (use of public transport and bicycles) - employee turnover rates (employment of local population) - workplace representation in health and safety committees - injury rates - employee training - programs for skills management and lifelong learning - percentage of employees receiving performance and career development reviews

INDICATORS BENEFITS	INDICATORS COSTS
- Monetary ↓energy costs ↓waste and water costs ↑revenues ↑profits ↑other operational savings - Non-monetary ↓greenhouse gas and pollutant emissions ↑biodiversity conservation ↑employee health and productivity	- Investments in environmental management initiatives - Investments in economic performance initiatives - Investments in social engagement initiatives - Investments in stakeholder reporting

Table 1: Hotel sustainability performance indicators [25]

A number of measures to protect the environment are focused on reducing energy [8], [9], [10], [11], [12], water [13], [14], [15], chemicals, office supplies, reduction of waste [16], [17], transport and mobility, smart technologies [12], increasing the proportion of natural materials, aesthetic environment, reducing noise and emissions (mainly carbon emissions), etc. [18], [19], [20], [21], [22], [3]. The best innovative practices are, e.g., linen napkins and terry washing towels, recovery of cutlery, converting old guestrooms bed linens into pot holders and aprons for the kitchen, using TVs for guests' information about recycling [23]. The international chain Marriott teamed up with their vendors to introduce greener solutions at no extra cost, e.g., eco-friendly pillows filled with materials made from recycled bottles, earth-friendly towels which do not need to be pre-washed, pens made of 75% recycled materials, low volatile organic compounds paint, which are safer and less polluting, Biodegradable laundry bags, laundry detergent that cuts the amount of phosphates released into wastewater [24].

Accommodation facilities tend to apply differently in the selection of saving measure. Some hotels and guest houses make decisions according to what is currently the most urgent; others focus on measures that will bring the most significant savings at the lowest cost [26].

2. DATA AND METHODS

This paper aims to analyze the application of environmental measures in selected accommodation facilities in Bulgaria focusing on the city of Sofia. We also set a research question: Which environmental measures are most used in the surveyed apartments?

There were used primary data collected by questionnaire survey and secondary data. The questionnaire survey consisted of twelve questions. They were mostly closed and some were half open questions. The questionnaires were in English and Bulgarian. At the end of the questionnaire, there were three segmentation questions and respondents had space for their views and comments. The primary survey was conducted in Sofia, Bulgaria. We used PAPI and CAWI methods. Paper and pencil interviewing (PAPI), data obtained from the interview is filled in on a paper form using a pencil [27]. Computer-assisted web interviewing (CAWI) is an Internet surveying technique in which the interviewee follows a script provided in a website. The questionnaires are made online for creating web interviews. The website can customize the flow of the questionnaire based on the answers provided, as well as information that is already known about the respondent. It is considered to be a cheaper way of surveying since one does not need to use respondents to hold surveys unlike computer-assisted telephone interviewing [28]. The survey was conducted from May until June 2018. In the city of Sofia, there are located over 620 apartments. We contacted almost 3/4 of them (435 apartments), especially their managers or owners; 57% of them answered willingly. We used the methods of scientific work; and, i.e., the analysis method (also Correspondence analysis - CA), a method of generalization, mathematical, and statistical methods. Using graphic tools of this CA, it is possible to describe an association of nominal or ordinal variables and to obtain a graphic representation of relationship in multidimensional space – for the readers; it is easier to understand. The analysis provides further evidence that dependencies exist between variables.

Correspondence analysis (CA) is a multivariate statistical technique. It is conceptually similar to principal component analysis but applies to categorical rather than continuous data. In a similar manner to principal component analysis, it provides a means of displaying or summarizing a set of data in a two-dimensional graphical form [29].

All data should be non-negative and on the same scale for CA to be applicable, and the method treats rows and columns equivalently. It is traditionally applied to contingency tables - CA decomposes the chi-squared statistic associated with this table into orthogonal factors. The distance among single points is defined as a chi-squared distance. The distance between i-th and i'-th row is given by the formula

$$D(i,i') = \sqrt{\sum_{j=1}^{c} \frac{\left(r_{ij} - r_{i'j}\right)^2}{c_j}} \quad (1)$$

where r_{ij} are the elements of row profiles matrix R and weights c_j are corresponding to the elements of column loadings vector cT, which is equal to mean column profile (centroid) of column profiles in multidimensional space. The distance between columns j and j' is defined similarly, weights are corresponding to the elements of the row loadings vector r and sum over all rows. In correspondence analysis we observe the relation among single categories of two categorical variables. Result of this analysis is the correspondence map introducing the axes of the reduced coordinates system, where single categories of both variables are displayed in graphic form. The aim of this analysis is to reduce the multidimensional space of row and column profiles and to save maximally original data information. Each row and column of correspondence table can be displayed in c-dimensional (r-dimensional respectively) space with coordinates equal to values of corresponding profiles. The row and column coordinates on each axis are scaled to have inertias equal to the principal inertia along that axis: these are the principal row and column coordinates [30].

3. RESULTS AND DISCUSSION

Sofia is the capital and largest city of Bulgaria. The city of Sofia is also the most visited tourist destination in Bulgaria besides coastal and mountain alternatives. Its area is 492 sq. km and is divided into 24 administrative districts, the most populous of which are Lyulin and Mladost. The population of the capital city numbers 1.33 million inhabitants, and it is almost one fifth (18.6%) of the population of Bulgaria. There were located almost 1,000 accommodation facilities; the most numerous groups were apartments (more than 620) and hotels (108). Based on their location, there is apparent concentration of accommodation facilities in the central part of the city as well in the southern peripheral districts [31].

Environmental measures were discussed with experts in ecology area and environmental sciences. These measures were selected on the basis of a pilot survey among 45 hotel managers or owners in Czechia. We had to keep only basic environmental measures because managers and owners were not interested in these hospitality trends and had only heard about some of the measures for the first time. We also carried out a pilot survey in Bulgaria, but we encountered a significant language barrier. The questionnaire was therefore translated by a native speaker from Czech into Bulgarian. The English version of the questionnaire was not filled in by managers or owners.

Almost every apartment had 5-20 rooms (90%), the rest of the apartments had 21-40 rooms (10%). Generally, the surveyed apartments had the best results with compact fluorescent lamps and LED lamps (67%). Most apartments have already installed the most economical LED lamps, but there is still a possibility for improvement. Since LED bulbs are up to 80% more economical and have a

much longer life, energy consumption and waste generation would be reduced. Almost two-thirds of apartments (63%) used sorting containers. We can recommend separate bins for plastic, paper, and mixed waste for every single apartment. More than one-half of apartments (53%) disposed of saving appliances. When replacing appliances should be selected, as the most economical option is at least A +. On the other hand, many appliances are relatively new, so we can recommend replacing only those appliances that end their life (e.g., refrigerators, washing machines, TVs, vacuum cleaners, etc.). Information to guests by staff and sticky notes - this environmental measure used 3% of apartments only. Guests should be advised to conserve water in regular hygiene so that they can flush with a more economical flushing device and not throw away anything except toilet paper in the toilet. Furthermore, guests should be aware of the need to sort waste, not to open windows when air conditioning or heating is on. This information can be provided by the owner or manager upon arrival. It was surprising that more than one-third of apartments (35%) was interested in the individual heating control installed in the rooms. If the apartment is not occupied by the guests, it is not environmentally friendly to use the air conditioning or to heat in the apartment. It is entirely sufficient if the heating or air conditioning is turned on a few hours before the expected arrival of the guests. There is also the possibility to display multilingual labels on individual recommendations, just as with the eco-friendly towel warnings. Over one-half of apartments (55%) changed linen and towels on request. Dual flush toilets had 45% of apartments only. Unsatisfactory results were noticed with measures such as windows thermal insulation (3%), cleaning products and laundry detergents friendly to the environment (3%), informing guests about environmental efforts (3%), central lighting switches in rooms (14%), reducing the flow of faucet aerators or shower heads (19%). Some environmental measured did not use in apartments (table 2).

Environmental measures/ Accommodation facilities	Apartments	Hotels *	Hotels **	Hotels ***
sorting containers	63	67	43	55
sorting bio-waste	-	-	-	7
windows thermal insulation	3	-	-	59
heating regulation in each room individually	35	-	14	55
saving appliances	53	-	57	34
compact fluorescent lamps and LED lamps	67	-	71	93
central lighting switches in rooms	14	-	29	62
using recycled paper	21	-	-	31
reducing the flow of faucet aerators or shower heads	19	-	-	7
dual flush toilet	45	33	29	28
changing linen and towels on request	55	-	14	66
cleaning products and laundry detergents friendly to the environment	3	-	14	14
minimizing the use of disposable products	-	-	-	62
giving priority to products with the "eco" label	-	-	-	10
green management employees' education	-	-	-	3
informing guests about environmental efforts	3	-	14	3

Table 2: Environmental measures used in accommodation facilities in the city of Sofia (%)

Compared to hotels in Tourist and Economy class, they have achieved better results with some measures (figure 1) [26].

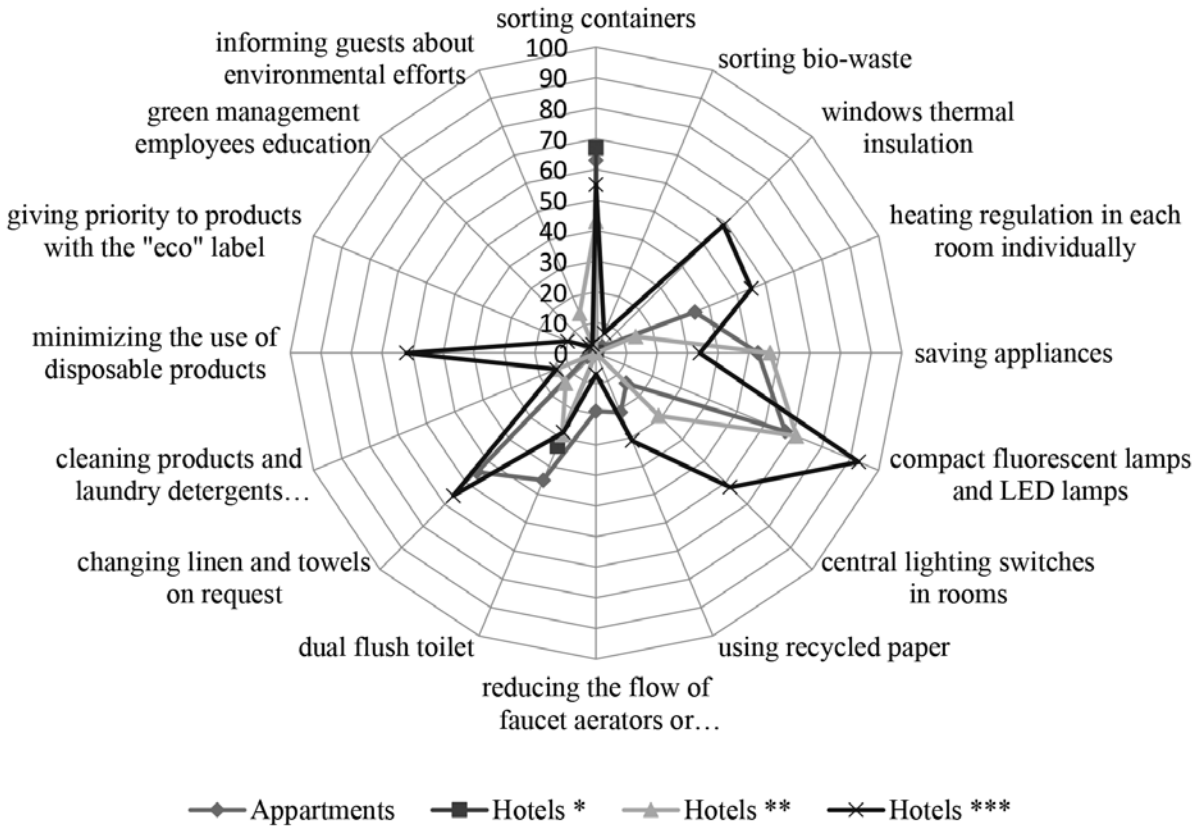

Figure 1: Environmental measures used in apartments and hotels in the city of Sofia (%)

Following the world trends in tourism, Sofia city invests in the development of its accommodation facilities, taking into consideration the sustainable development of the apartments. In general, our recommendation is to invest more funds towards faucet aerators and water saving shower heads and sorting containers. It is utterly inadequate that surveyed apartments reach very low values. The faucet aerator achieves great results and costs no more than 10 euro, and water savings are in the range of 48% to 84%. This is in line with results from previous studies in the field of green management in accommodation facilities in Czechia and Slovakia [18], [32]. We have to state that none of surveyed apartments were not interested in sorting bio-waste (in comparison the same conditions were found in Tourist and Economy class hotels, almost the same value was noticed in Standard class hotels). We also expected higher values will be with sorting containers. [33] say that 72% hoteliers in Hoi An, a tourism city in the center of Vietnam, disliked storing waste in their hotels, while 58% of the hotels thought that they lacked information and skills in recycling. Some hotel managers explained that recycling took more time and labors (42% and 22%) and was unsanitary (18%). It was a surprising fact because there is a law about sorting waste and many hotels do not recycle at all. We agree that mentioned accommodation facilities should definitely invest in the green initiatives. [9], [20], [28].

Managers or owners of the apartments stated that environmental management implementation in accommodation facilities increase sales and promotion, sometimes improve the environment. Compared to Standard class hotels were noticed different results [26] - providing a competitive advantage over other accommodation facilities, cost reduction, and guest preferences. On the other hand, the managers have noticed that there is no advantage of the green management implementation in hotels in the Tourist class (figure 2).

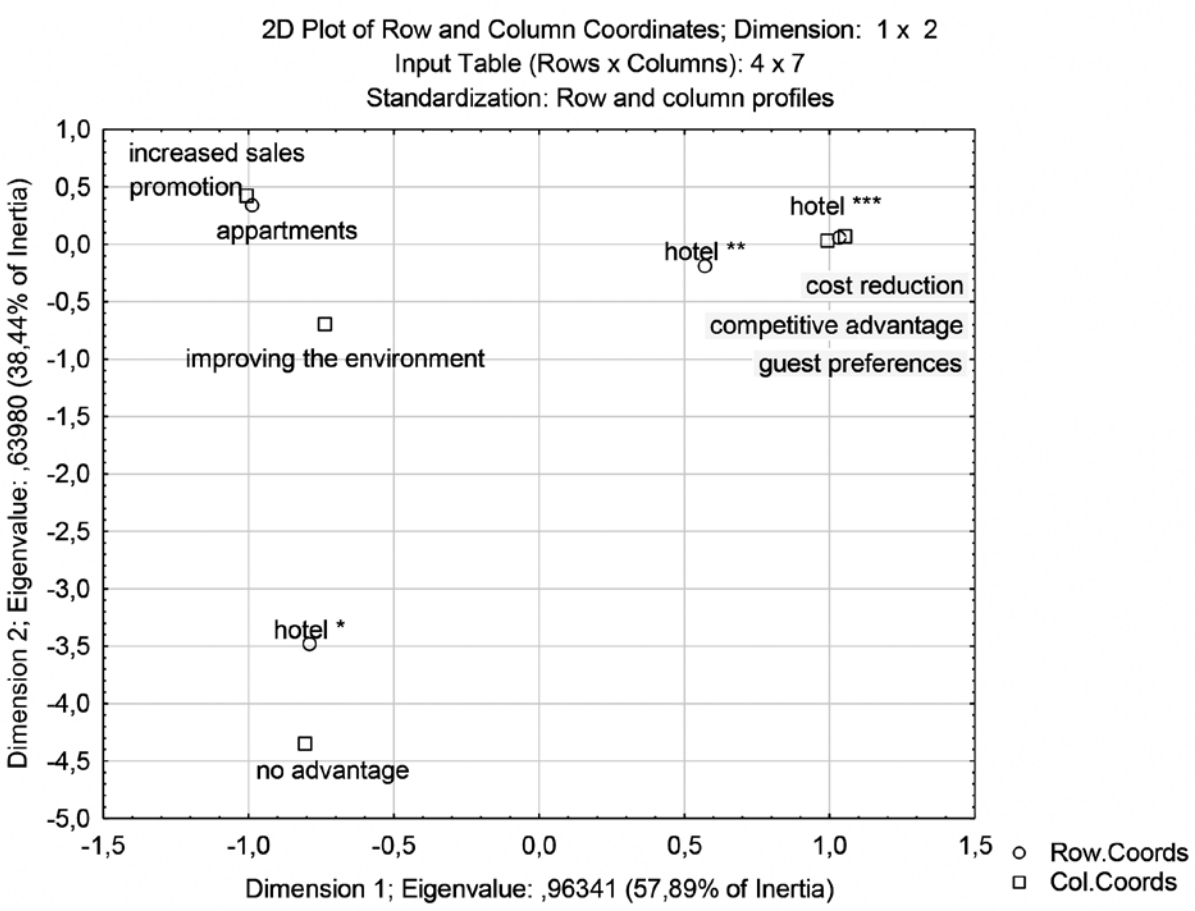

Figure 2: Advantages of environmental management in accommodation facilities

4. LIMITATIONS

This paper contributes to the research of apartments' environmental measures in some aspects, but there are several limits, too. On the other hand, the mentioned limits provide directions for further research.

Firstly, our research cannot be generalized. We were merely interested in apartments, and the research was conducted in the city of Sofia only. We would like to investigate other vital towns in Bulgaria (e.g., Bourgas, Varna, Plovdiv, etc.) and compare it with the results of Sofia city. Subsequently, we would like to focus on other towns and regions and map the adoption of environmental measures in different types of accommodation facilities in Bulgaria. We also mapped accommodation facilities and their environmental measures in Czechia. We think that a comparison of these two states would be desirable.

Secondly, an in-depth analysis was not realized with environmental measures. It was not stated there whether the hotels were focused on the particular environmental measures or not.

Finally, in our future research, we would like to focus on environmental measures individually (e.g., analyzing solid waste practices in a hotel - categories such as paper, cardboard, garden waste, kitchen and food waste, tissues, PET, nylon, plastic, glass, etc.). In our opinion, the results would have a more meaningful value.

5. CONCLUSIONS

The issue of environmental protection and addressing global environmental problems is becoming one of the leading issues in some departments. Offering environmentally friendly products and services is generally one of the basic requirements for many customers. This trend can also be seen in tourism. Tourists are increasingly looking for environmentally friendly services that have a minimal negative impact on the environment (e.g., accommodation facilities with "eco" certificate the Flower, the Green Key, etc.). These certificates guarantee that the accommodation facility behaves in an environmentally friendly manner at all stages of the business process. However, their acquisition is subject to several stringent criteria that must be met and also require fees. We agree that the implementation of environmental measures is a great benefit in terms of the sustainability of tourism, financial savings and the image of the business.

The findings provide us with answers to the research question: Which environmental measures are most used in the surveyed apartments? Generally, the surveyed apartments had the best results with compact fluorescent lamps and LED lamps, sorting containers, and changing linen and towels on request. We have to state that selected apartments in the city of Sofia attained abysmal results.

On the other hand, the deployment of environmental measures is not always easy and often brings extensive changes or substantial investments. We believe that not all accommodation facilities choose to pursue an environmental certificate. However, environmentally friendly behavior can also be seen in accommodation facilities that do not have any certificate, and this is the case for all the apartments in the capital city of Bulgaria. If they do not have a certificate in the future but use some environmental measures, they can at least partially contribute to environmental protection.

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