IZVORNI ZNANSTVENI RAD
ORIGINAL SCIENTIFIC PAPER

UDK: 640.412:316.663](437.3)
JEL classification: L83; L20
DOI: https://doi.org/10.22598/at/2020.32.1.7

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PRIMJENA MJERA ZAŠTITE OKOLIŠA KAO DIO DRUŠTVENE ODGOVORNOSTI: PRIMJER ČEŠKOG LANCA HOTELA

APPLYING ENVIRONMENTAL MEASURES AS PART OF SOCIAL RESPONSIBILITY: CASE OF CZECH HOTEL CHAIN

SAŽETAK: Cilj ovog istraživanja je analizirati primjenu mjera zaštite okoliša u smještajnim objektima u jednom odabranom hotelskom lancu u Republici Češkoj. Primarno istraživanje provedeno je od veljače do travnja 2018. godine. Podaci su dobiveni pomoću upitnika, tj. strukturiranim intervjuima, koji se provodio putem elektroničke pošte i telefona. Znanstvena metodologija zasnivala se na uporabi metoda analize i generalizacije. Uzorak istraživanja sastojao se od 23 smještajna objekta koji su dobili najbolje ocjene u korištenju fluorescentnih lampi i LED žarulja (96%) te središnjih prekidača svjetala (77%), kao i zamjenjivanja posteljine i ručnika na zahtjev (68%). Na temelju rezultata istraživanja može se zaključiti da bi se u smještajne objekte odabranog lanca hotela trebalo uložiti više financijskih sredstava za zelene inicijative i upoznavanje zaposlenika i gostiju s ovom filozofijom.

KEYWORDS: hotelijerstvo, zeleni menadžment, usluge, ekološki prihvatljiv smještaj, Češka

ABSTRACT: The objective of this research article is to analyze the application of environmental measures at accommodation facilities in a selected hotel chain in the Czech Republic. The primary research was carried out between February and April 2018. The data were obtained through a questionnaire survey conducted by email as well as telephone and structured interviews. In terms of science methodology, the research utilized the methods of analysis and generalization. The research sample consisted of 23 accommodation facilities with the best results in the evaluation of the use of compact fluorescent lamps and LED lights (96%), central light switches (77%) and the replacement of bed linen and towels upon request (68%). Based on the research findings, it can be assumed that the accommodation facilities of the selected hotel chain require investing more financial resources into green initiatives and acquainting their staff and guests with this philosophy.

KEYWORDS: the hotel industry, green management, services, environmentally-friendly accommodation facility, Czech Republic

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1. UVOD

Održivost je postala globalna tema. Većina uslužnih djelatnosti i drugih subjekata u turizmu usredotočuje se na ispunjavanje globalno održivih razvojnih ciljeva, tako zvanih SDG (UN Information Center, 2019). Ti ciljevi mogu se postići pomoću raznih inicijativa, ali važno je spoznati da svaka osoba i subjekt može doprinijeti njihovom ostvarenju (Chen *et al*., 2018).

Tijekom prošlog desetljeća uočen je porast interesa za postupke u smještajnim objektima i to posebno u velikim hotelskim lancima. Nakon globalne financijske i ekonomske krize, rasprava o odgovornosti poslovnih subjekata prema društvu potaknula je društvenu pozornost. Štoviše, pod sve većim pritiskom raznih dionika i društva korporativna društvena odgovornost (CSR) danas je postala strateški imperativ za brojne poslovne subjekte. Sve više organizacija širom svijeta daje prednost CSR-u kako bi dobili ne samo legitimitet, nego i konkurentsku prednost te kako bi ostvarili dugoročan uspjeh (Serra-Cantallops *et al*., 2018). Raspon praksi CSR-a u hotelima mogao bi se klasificirati u tri dimenzije: ekonomsku, društvenu i okolišnu. U ovom članku koncentrirat ćemo se na okolišnu dimenziju (Serra-Cantallops *et al*., 2018).

Najnovija kretanja u smještajnim uslugama uključuju pristup principima održivog razvoja, zaštite okoliša, očuvanja prirodnih resursa i iskorištavanja energije (Chen *et al*., 2018). Smještajne usluge također teže ostvarivanju ciljeva održivog razvoja na mnoge načine, što također postaje dijelom njihove konkurentnosti (Min *et al*., 2009). Ovi trendovi manifestiraju se uglavnom u velikim hotelskim lancima, iako i nezavisni hoteli te oni s malim kapacitetima kao i privatni smještaj pokušavaju usvajati zelene politike (Mbasera *et al*., 2016; Kim *et al*., 2016).

Ideja da smještajni objekti imaju neke odgovornosti prema društvu koje nadilaze ostvarivanje profita za svoje dioničare postoji

1. INTRODUCTION

Sustainability has become a global topic. The majority of service providers and other entities in the tourism industry are focused on fulfilling global sustainable development goals, so-called SDGs (UN Information Center, 2019). These goals can be achieved by various initiatives, but it is important to realize that every individual and entity can contribute to their achievement (Chen *et al*., 2018).

Over the past decade, there has been a growing interest in the behavior of accommodation facilities, and particularly large chain hotels. In the wake of the global financial and economic crisis, the discussion on the responsibility of business toward society has received significant attention. Furthermore, this increasing pressure from different stakeholders and society has turned corporate social responsibility (CSR) into a strategic imperative for many businesses today. More and more organizations across the world are leveraging CSR to gain not only legitimacy but also a competitive advantage, and achieve long-term success (Serra-Cantallops *et al*., 2018). The scope of CSR practices in hotels could be classified in three dimensions: economic, social, and environmental. In our paper we will focus on the environmental dimension (Serra-Cantallops *et al*., 2018).

Recent trends in accommodation services include an approach to the principles of sustainable development, environmental protection, the conservation of natural resources and energy usage (Chen *et al*., 2018). Accommodation services also pursue global sustainable development goals in many ways, which also becomes part of their competitiveness (Min *et al*., 2009). These trends manifest themselves mainly in large hotel chains, even though independent and low-capacity hotels and boarding houses are also trying to go down the green path (Mbasera *et al*., 2016; Kim *et al*., 2016).

The idea that accommodation facilities have some responsibilities to society that ex-

stoljećima. Pojam CSR-a nije nov i njegovi začeci sežu u drevnu Mezopotamiju oko 1700-te godine prije Krista (Tripathi i Bains, 2013). Međutim, taj se fenomen poglavito pojavljuje nakon Drugog svjetskog rata, a važnost mu je posebice narasla 1960-ih i kasnije (Carroll i Shabana, 2010). Ipak, sve do kasnih 1970-ih godina CSR se u razgovorima o investicijama u poslovnoj zajednici smatrao oksimoronom (Lydenberg, 2005). Istraživanja na temu CSR-a u smještajnim objektima omogućuju vrijedne informacije o razumijevanju njegovih praksi, izvještavanju, utjecaju na financijske rezultate i odnos gostiju (Fennell i de Grosbois, 2017). Brojni gosti, naročito oni iz zapadne Europe i SAD-a, sve više iskazuju interes za proizvode i usluge koje ili ne predstavljaju opterećenje za okoliš ili to čine vrlo malo (Chung, 2016; Chen, 2015). Znansvena literatura obiluje raspravama na temu okolišnih praksi i inovacija u smještajnom sektoru (Petkova, 2017). Jasno je da je zaštita okoliša vrlo aktualna tema kojoj se posvećuje velika pozornost i o kojoj se raspravlja u mnogim aspektima života (Graci i Dodds, 2008; Trejos, 2013). Nastojanja minimiziranja negativnog utjecaja na okoliš također su razvidna u hotelijerstvu, posebice u obliku zelenog menadžmenta. Većina pružatelja usluga smještaja počinje pokazivati osviještenost o okolišu te smatra da bi se hoteli i privatni smještaj trebali više uključiti u održivo postupanje i time doprinijeti unaprjeđenju okoliša kako na lokalnoj tako i na nacionalnoj razini.

2. UPRAVLJANJE OKOLIŠEM U SMJEŠTAJNIM OBJEKTIMA

Turizam ima velik ekonomski značaj, a razvija se kontinuirano i dinamično (Linderová i Janeček, 2017). Kao treća najveća gospodarska aktivnost na svijetu s udjelom od 10% u svjetskom BDP-u, turizam je odgovoran za 5% emisija ugljikovog dioksida u kojem je udio smještajnih objekata 1%. U tom je kontekstu provedba strategije održi-

ceed beyond making profits for their shareholders has been around for centuries. The concept of CSR is not new and found its origin in ancient Mesopotamia around 1700 BC (Tripathi and Bains, 2013). However, it is largely a post-World War II phenomenon and actually did not surge in importance until the 1960s and beyond (Carroll and Shabana, 2010). Still, until the late 1970s CSR has been deemed as an oxymoron when talking about investments in the business community (Lydenberg, 2005). Research on CSR at accommodation facilities provides valuable comprehension into CSR practices, reporting, impact on financial performance, and guest attitudes (Fennell and de Grosbois, 2017). Many guests, particularly in Western Europe and the USA, are increasingly interested in products and services that either do not represent a burden on the environment or do so only very little (Chung, 2016; Chen, 2015). Environmental practices and innovations of accommodation sector are a widely discussed topic in scientific literature (Petkova, 2017). It is clear that environmental protection is currently a hot topic receiving a lot of attention and is discussed in many aspects of life (Graci and Dodds, 2008; Trejos, 2013). The effort to minimize negative impacts on the environment is also apparent in the hotel industry, specifically in the form of green management. The majority of accommodation facilities are starting to show environmental awareness and feel that hotels and boarding houses should engage more in sustainable procedures and thus contribute to the improvement of the environment on both the local as well as national level.

2. ENVIRONMENTAL MANAGEMENT AT ACCOMMODATION FACILITIES

The tourism industry holds substantial economic significance and is developing continually and dynamically (Linderová and Janeček, 2017). Tourism, the third-largest industry in the world, represents 10% of the

vih hotela primarna za očuvanje i unaprjeđivanje socio-ekonomske i okolišne ravnoteže našega planeta (Migale *et al*., 2019). Butler (2008) smatra da se sadašnji trendovi u turizmu (posebice u smislu restorana i hotelskih objekata) neprestano razvijaju te da menadžeri traže nove načine usklađivanja visokih standarda ponude s usmjerenjem na okolišne mjere (Verma i Chandra, 2018). Neki smještajni objekti također nastoje spajati zeleni menadžment s olakšavanjem pristupa osobama s otežanim sposobnostima za putovanje (Linderová, 2016). Yasin i Zimmerer (1995) tvrde da provođenje programa, kojima se aktivnosti hotela prilagođavaju okolišu, polučuje veće stope zadovoljstva ne samo za goste smještajnog objekta nego i za osoblje. Također ističu ekonomske prednosti, a naročito veće profite i manje troškove poslovanja. Ove tvrdnje potvrđuje Butler (2008) koji dodaje da upravljanje okolišem može dovesti do smanjenja troška, čime se stvara dobar imidž poduzeća. Al-Aomar i Hussain (2017) razvili su model optimizacije baziran na troškovima upravljanja održivih materijala u opskrbnom lancu hotela. Taj model uključuje glavne troškove materijala u opskrbnom lancu poput onih koji se povezuju sa zelenim odlukama i utjecajima na okoliš. Model mogu proširiti i koristiti hoteli i uslužna poduzeća općenito kao platfromu za smanjivanje ukupnog troška upravljanja materijalima i podršku održivim praksama u opskrbnom lancu.

Postoji više načina provođenja zelenih politika. Više mjera zaštite okoliša usmjereno je na smanjenje potrošnje energije (Chan i Lam, 2003; Khemiri i Hassairi, 2005; Ali *et al*., 2008; Scholz, 2014; Wan *et al*., 2017), vode (Deng i Burnett, 2002; Gössling *et al*., 2015; Reddy i Wilkes, 2015; Pospíšilová, 2018), kemijskih sredstava i uredske opreme, kao i na količine otpada te na povećanu upotrebu prirodnih materijala, uljepšavanje okoliša, smanjenje zagađenja bukom ili emisijama štetnih plinova, itd. (Chan i Lam, 2001; Wie i Shanklin, 2001; Hillary, 2004; Patúš i

world's GDP, and it is also responsible for 5% of the world's carbon dioxide emissions, of which accommodation facilities account for 1%. In this context, a sustainable hotel strategy execution is primary for maintaining and improving our planet's socio-economic and environmental balance (Migale *et al*., 2019). Butler (2008) notes that current trends in the tourism industry (particularly in restaurant and accommodation facilities) are constantly developing and managers are looking for new ways to harmonize the high standard they offer with a focus on environmental measures (Verma and Chandra, 2018). Some accommodation facilities are also trying to combine green management with making their facility accessible for travel-impaired individuals (Linderová, 2016). Yasin and Zimmerer (1995) state that the implementation of programs dealing with the hotel's activities with respect to the environment result in a higher contentment rate of not only the accommodation facility's guests, but also its staff. They also point out the economic advantages, specifically higher profits and lower operating costs. This assertion is seconded by Butler (2008), who states that environmental management results in a potential cost reduction and thus creates a good image for the business. Al-Aomar and Hussain (2017) developed a cost-based optimization model for sustainable material management in a hotel supply chain. The model combines the key costs of materials within the supply chain including those associated with green decisions and environmental impacts, and be expanded and utilized by hotels and service companies in general as a platform to reduce the total cost of material management support sustainability practices across the supply chain.

There are a number of ways of going green. Various environmental protection measures are aimed at reducing the consumption of energy (Chan and Lam, 2003; Khemiri and Hassairi, 2005; Ali *et al*., 2008; Scholz, 2014; Wan *et al*., 2017), water (Deng and Burnett, 2002; Gössling *et al*., 2015; Reddy and Wilkes, 2015; Pospíšilová, 2018), chemical agents

Gúčik, 2004; Mensah, 2006; Bohdanowicz, 2005; Chen i Hsieh, 2011). Razvidno je da u praksi pružatelji usluga smještaja prihvaćaju razne pristupe kod primjene mjera za zaštitu okoliša. No, ne brinu se samo vlasnici smještajnih objekata i menadžeri hotela o pitanjima okoliša. Zbog sve veće osviještenosti i naprednih zelenih tehnologija, kao što su netoksično suzbijanje nametnika, sustavi odvodnje bujičnih voda i sustavi za uštedu energije, smještajni objekti mogu diverzificirati prakse zaštite okoliša (Yi *et al*., 2018). Neki temelje odluke na ocjeni trenutne žurnosti, drugi potiču mjere koje daju najveće smanjenje troškova korištenja resursa. Okolišna odgovornost može poprimiti mnoge oblike, uključivši i upravljanje energijom ili postupke recikliranja, isključivanje svjetala, kontrolu korištenja klima uređaja ili recikliranja otpada (Bansal i Roth, 2000). Tablica 1 pokazuje primjere elemenata upravljanja okolišem. S obzirom na kupovinu sirovina i proizvoda, smještajni objekti trebali bi birati lokalne proizvode i specijalitete, a time i podržavati lokalnu infrastrukturu, osigurati edukaciju osoblja za uporabu novih tehnologija i pridržavati se načela zelenog menadžmenta. Također bi trebali prijateljski poticati okolišnu osviještenost svojih gostiju (Brodsky, 2007). Osnovni zadaci obuhvaćaju razvrstavanje otpada i višestruko ponovno korištenje recikliranih materijala. Smještajni objekti također investiraju resurse u energetski učinkovito osvjetljenje, što može dovesti do značajnih ušteda (Scholz i Linderová, 2016).

Rješavanje problema okoliša obuhvaća promjenu klime i emisiju stakleničkih plinova, štednju vode i energije, upravljanje recikliranim otpadom, resurse prikladne za okoliš, zaštitu i očuvanje prirodnih resursa, minimizaciju utjecaja na okoliš te stvaranje zelenih standarda za gradnju novih hotela. Na primjer, u pregledu strategije vlastite okolišne održivosti, hotelska korporacija Wyndham Destinations navodi rizike, poput onih za prirodu, u područjima davanja usluga smještaja. Među ostalima, oni uključuju povećane troš-

and office supplies, the amount of waste, noise pollution, toxic emissions, etc. as well as at increasing the use of natural materials and the aestheticization of the environment, (Chan and Lam, 2001; Wie and Shanklin, 2001; Hillary, 2004; Patúš and Gúčik, 2004; Mensah, 2006; Bohdanowicz, 2005; Chen and Hsieh, 2011). In practice, accommodation facilities adopt various approaches in choosing environmental protection measures and their owners and hotel managers are not the only ones worried about the environmental issues. Due to the increased awareness and advanced green technologies such as nontoxic pest control, stormwater systems, and energy-saving systems for properties, accommodation facilities are able to diversify their environmental practices (Yi *et al*., 2018). While some decide based on what is most urgent at the time, others focus on measures that result in the greatest reduction in resource usage at the lowest cost. Environmental responsibility takes on various forms, including power management or recycling procedures, switching off lights, watching the use of air-conditioning units or waste recycling (Bansal and Roth, 2000). Table 1 contains examples of environmental management elements. With respect to the purchase of raw materials and products, accommodation facilities should prefer local products and specialties, strive to support the local infrastructure, ensure continual training for their staff in working with new technologies, and observe the principles of green management. They should also raise their guests' environmental awareness (Brodsky, 2007) in a friendly manner. Essential tasks include sorting waste and multiple reuses of recycled materials. Accommodation facilities also invest resources in energy efficient lighting, which can result in significant savings (Scholz and Linderová, 2016).

Solving environmental problems includes climate change and greenhouse gas emissions, water and energy conservation, recycling and waste management, environmentally-friendly resources, protection and conservation of natural resources, minimi-

Tablica 1: Primjeri elemenata upravljanja okolišem

Ekonomske i društvene aktivnosti	– kupovanje roba i proizvoda unutar regije, – podrška lokalnoj infrastrukturi, – korištenje javnog prijevoza i bicikala, – upošljavanje lokalnih stanovnika, itd.
Komuniciranje i osvještavanje zaposlenika i gostiju	– plan stalne edukacije osoblja za rad s novim tehnologijama, – postavljanje postupaka za rad i provjeravanje njihove primjene, – promoviranje javnog programa za okoliš – blago promoviranje poštivanja okolišnog principa, čak i kod gostiju, itd.
Menadžment	– primjenjivanje standarda EMAS, EN ISO 14 001, – kupovanje u velikim količinama, – davanje prednosti ekološki prihvatljivim proizvodima, – kupovanje kvalitetnih i zaista potrebnih proizvoda, – kupovanje od lokalnih/regionalnih dobavljača, – mjerenje zadovoljstva potrošača, itd.
Upravljanje otpadom	– razvrstavanje otpada na mjestu smještajnog objekta, – kante za recikliranje plastike, papira, itd. u hotelskim sobama, – višestruka uporaba materijala za recikliranje, – kompostiranje organičkog otpora, itd.
Očuvanje energije	– geotermalna energija i korištenje otpadne topline – kontrola grijanja i hlađenja – kompaktne fluorescentne lampe i LED žarulje – energetski učinkoviti uređaji – minimalno klasa A (A+, A++; A+++), – energetski učinkovite tehnologije, – termalna izolacija zgrada, itd.
Zaštita voda	– instaliranje jednoručnih pipa i ozračivača ventila – instaliranje prskalica za tuševe koje štede vodu, – dualni vodokotlići, – korištenje sivih voda, – hvatanje kišnice, itd.

Izvor: Vlastita izrada autora, 2019, temeljena na Belešová, 2014; Scholz, 2014

kove goriva, energije i vode. U pogledu vode, u zapadnim zemljama gosti mogu koristiti takozvani prirodni bazen (*Living Pool).* Na prvi pogled, on izgleda kao tipičan bazen, ali zapravo je to pravi biološki bazen s prirodnom vodom. Uz korištenje posebnog filtera kojim se apsorbiraju hranjive tvari iz vode, uvjeti u ovakvim prirodnim bazenima isti su kao i u planinskom jezeru. Kao u planinama, alge ne dobivaju hranu, a voda u bazenu je čista. Ako smještajni objekt ima konvencionalni bazen, može se preinačiti u takav bazen koji ne zahtijeva uporabu kemikalija (ekopool.cz).

zation of impacts on the environment and creating green construction standards for building new hotels. For example, in an overview of its environmental sustainability strategy, the Wyndham Destinations hotel corporation characterizes risks, including those for natural areas, where accommodation services are provided. Among others, they include increasing fuel, energy and water-related costs. When it comes to water, in western countries guests can use the so-called Living Pool. At first sight, it looks like a typical pool, but in fact it is a ful-

Table 1: Examples of environmental management elements

Economic and social activities	– purchasing commodities and products within the region – supporting local infrastructure – utilizing public transport and bikes – employing local residents, etc.
Communication and raising employees' and guests' awareness	– a steady plan for staff training in working with new technologies – setting work procedures and checking their implementation – promoting a public environmental program – promoting gently the observance of environmental principles even by guests, etc.
Management	– implementing EMAS, EN ISO 14 001 standards – purchasing in bulk – giving priority to "eco-friendly" products – purchasing quality and truly needed products – purchasing products from local suppliers – measuring customer satisfaction, etc.
Waste management	– sorting waste at the accommodation facility – recycling bins for plastic, paper, etc., in hotel rooms – multiple reuse of recyclable materials – composting organic waste, etc.
Energy conservation	– utilizing geothermal energy and waste heat – controlling heating and air-conditioning – compact fluorescent lamps and LED light bulbs – minimum Class A energy-efficient appliances (A+, A++; A+++) – energy efficient technologies – thermal insulation of buildings, etc.
Water conservation	– installing single lever taps and faucet aerators – installing water-saving shower heads – dual-flush toilets – utilizing gray water – rain water catchment, etc.

Source: Author's own elaboration, 2019, based on Belešová, 2014; Scholz, 2014

Potrošnja energije i vode danas je vrlo aktualan problem, što je razlog zašto se smještajni objekti također bave ovim problemom. Indikatori potrošnje vode i energije za određene grupe hotela vidljive su u Tablici 2.

Vrijedno je istaknuti i problem povećanja regulatornih uvjeta, što može usporiti rast i negativno utjecati na operativnu dobit od poslovanja. Prvi korak k smanjivanju ekološkog otiska jest izmjeriti utjecaj koji je doveo do utvrđivanja potrošnje energije i posljedično tome emisije stakleničkih plinova kao najznačajnijih aspekata zaštite okoliša. Tely-fledged biological swimming pool with natural water. Using a special filter that absorbs nutrients in the water, the conditions in this natural pool are the same as those in a mountain lake. Just like in the mountains, the algae do not have nutrition and the water in the pool is clear. If an accommodation facility has a conventional pool, it can be converted such a pool that does not require the use of chemicals (ekopool.cz).

Energy and water consumption is currently a very topical issue, which is why accommodation facilities also deal with this

Tablica 2: Indikatori porošnje vode i energije u odabranim skupinama hotela

Indikator	Dobra	Zadovoljavajuća	Nezadovoljavajuća	Slaba
Mali hoteli (40–50 soba)				
Električna energija (kWh/m^2 godišnje)	<60	60 – 80	81 – 100	>100
Plin, nafta, toplinska energija (kWh/m^2 godišnje)	<180	80 – 210	211 – 240	>240
Kombinirano (kWh/m^2 godišnje)	<240	240 – 290	291 – 340	>340
Voda (litara po gostu po noći)	<330	330 – 380	381 – 440	>440
Hotel srednje veličine (50–150 soba)				
Električna energija (kWh/m^2 godišnje)	<70	70 – 90	91 – 120	>120
Plin, nafta, toplinska energija (kWh/m^2 godišnje)	<190	190 – 230	231 – 260	>260
Kombinirano (kWh/m^2 godišnje)	<260	260 – 320	321 – 380	>380
Voda (litara po gostu po noći)	<440	440 – 500	501 – 600	>600
Veliki hoteli (više od 150 soba)				
Električna energija (kWh/m^2 godišnje)	<165	165 – 200	201 – 250	>250
Plin, nafta, toplinska energija (kWh/m^2 per year)	<200	200 – 240	241 – 300	>300
Kombinirano (kWh/m^2 godišnje)	<365	365 – 440	441 – 550	>550
Voda (litara po gostu po noći)	<600	600 – 700	771 – 880	>880

Izvor: Vlastita izrada autora bazirana na Kirk, 1996; 2019

Table 2: Indicators of water and energy consumption in selected groups of hotels

Indicator	Good	Satisfactory	Unsatisfactory	Poor
Small hotel (4–50 rooms)				
Electricity (kWh/m^2 per year)	< 60	60 – 80	81 – 100	>100
Gas, oil, steam (kWh/m^2 per year)	<180	80 – 210	211 – 240	>240
Combined (kWh/m^2 per year)	<240	240 – 290	291 – 340	>340
Water (liters per guest per night)	<330	330 – 380	381 – 440	>440
Medium-sized hotel (50–150 rooms)				
Electricity (kWh/m^2 per year)	< 70	70 – 90	91 – 120	>120
Gas, oil, steam (kWh/m^2 per year)	<190	190 – 230	231 – 260	>260
Combined (kWh/m^2 per year)	<260	260 – 320	321 – 380	>380
Water (liters per guest per night)	<440	440 – 500	501 – 600	>600
Large hotel (more than 150 rooms)				
Electricity (kWh/m^2 per year)	<165	165 – 200	201 – 250	>250
Gas, oil, steam (kWh/m^2 per year)	<200	200 – 240	241 – 300	>300
Combined (kWh/m^2 per year)	<365	365 – 440	441 – 550	>550
Water (liters per guest per night)	<600	600 – 700	771 – 880	>880

Source: Authors' own elaboration based on Kirk, 1996; 2019

meljeno na analizi energetske učinkovitosti, inovativne mjere koje primjenjuju hotelski lanci klasificirane su kako slijedi: (1) proslava Sata Zemlje, (2) tehnike koje reduciraju korištenje energije i tople vode, (3) izvori energije za napajanje objekata, (4) energetski učinkoviti aparati, oprema i infrastruktura, (5) učinkovita kontrola i upravljanje energijom, (6) energetski učinkoviti sustavi (Petkova, 2017).

Na primjer, hotelska grupacija InterContinental Hotels Group upoznata je s problemom raspoloživosti slatke vode u mnogim dijelovima svijeta koji prate klimatske promjene i pogoršavaju situaciju. InterContinental Hotels Group upozorava da bi hoteli u umjerenim klimatskim područjima mogli uštedjeti 10-20% vode i ističe raznovrsne inicijative za očuvanje vode kao i uporabu štednih svjetala i aparata, obrade i ponovne uporabe vode za navodnjavanje. Drugi lanac hotela, Marriott, objavio je izvješće o integriranoj globalnoj strategiji u području zaštite okoliša. Ovom se strategijom nastoji pojačati energetska učinkovitost, štednja vode te gradnja smještajnih objekata koji će biti manje štetni po okoliš. Okolišna strategija hotelskog lanca Marriott također bi trebala poduprijeti visoko kvalitetne projekte koji su usmjereni na smanjivanje emisije stakleničkih plinova i definiranje pokazatelja uspješnosti zaštite okoliša kako globalno tako i na pojedinim kontinentima. Time Marriott pokazuje aktivnosti za razvoj sektorskih standarda u mjerenju ugljikovog otiska, definiranje kriterija za okolišno prihvatljiv namještaj i opremu restorana, održivu nabavu u suradnji s vladama, nevladinim organizacijama i interesnim skupinama te zajednicama o raznim inicijativama za zaštitu okoliša. Još se jedna kompanija iz SAD-a, Best Western (2012), obvezala da će se svi njihovi hoteli pridržavati određenih općenitih okolišno-prihvatljivih praksi, od kanti za recikliranje do programa višestruke primjene za korištenje geotermalne i solarne energije. Na isti način veliki hoteli u Rusiji već

problem. Water and energy consumption indicators for certain groups of hotels are listed in Table 2.

Also worthy of attention is the issue of increasing regulatory requirements, which may inhibit growth and have a negative impact on operating profits. The first step in reducing the ecological footprint is to measure the impact that led to identifying energy consumption and resulted in greenhouse gas emissions as the most significant environmental aspects. Based on the analysis of energy efficiency, innovative measures applied by hotel chains have been classified as follows: (1) celebration of Earth Hour, (2) techniques that reduce energy and hot water usage, (3) energy sources to power properties, (4) energy-efficient appliances, equipment, and infrastructure, (5) effective energy control and management, (6) energy-efficient systems (Petkova, 2017).

For example, InterContinental Hotels Group is aware of the problem with freshwater availability in many parts of the world, which accompanies climate change and makes matters worse. InterContinental Hotels Group notes that hotels in temperate climate zones could conserve 10–20% of water and informs of its various water conservation initiatives as well as the use of energy-saving lights and appliances, water treatment and its reuse in irrigation. Another hotel chain, Marriott, has published a report on its integrated global strategy in the area of environmental protection. This strategy is aimed at improving energy efficiency, water conservation and building accommodation facilities that will be less harmful to the environment. Marriott Hotels' environmental strategy should also support high-level projects aimed at reducing greenhouse gas emissions and define performance indicators in the area of environmental protection on both the global scale as well as on individual continents. Marriott thus demonstrates its activity in developing industry standards in measuring the carbon footprint, defining criteria for environmentally-friendly furniture and restaurant equipment, sustain-

su uveli resursno učinkovite tehnologije, kao npr. promjenu sustava osvjetljenja na štedljive sustave, korištenje prirodno obnovljivih izvora energije kao dodatnu mjeru, a u nekim slučajevima i kao način potpunog podmirivanja troškova grijanja hotela te učinkovitu potrošnju vode u odjelu hrane i pića, integraciju sustava „pametne kuće“ u infrastrukturu hotela (Alekseeva *et al*., 2018). Nadalje, istraživanje provedeno u Melbournu (Australija), u kojem su ispitivane posebne okolišno održive prakse u nezavisnim hotelima i hotelskim lancima, otkrilo je da većina velikih hotelskih kompanija daje informiracije o svojim okolišnim politikama na mrežnim stranicama dok manji hoteli to ne čine (Khatter *et al*., 2019).

Nekoliko odabranih poslovnih subjekata naglašava svoje obaveze u svezi održivog korištenja resursa. Na primjer, Hyatt tvrdi da njihovi postupci nabave uključuju 100% reciklirane materijale, npr., bočice za šampon i losion za lice ili tapisone i ostale podne obloge. U svojim je hotelima kompanija instalirala 74.000 LED žarulja. Prije 20 godina nabolje su inovacije bile, na primjer, tekstilne salvete i frotirni ručnici, višekratno uporabljivi pribor za jelo i korištenje TV prijamnika za osvještavanje o recikliranju (Enz i Siguaw, 1999). Najbolje prakse danas u Marriottu su uporaba ključeva-kartica izrađenih od recikliranih materijala, ekološki-pametnih jastuka, kemijskih olovaka od recikliranih materijala, bio-razgradivih vrećа za rublje, štednih žarulja i toaletnog papira bez kartonske tube.

Prvi hotel na svijetu koji je dobio priznanje EarthCheck's Sustainable Design Gold Certification nezavisni je hotel, Zuri Zanzibar. To je priznanje dio programa svjetski najpriznatijeg referentnog vrednovanja i certificiranja koje je oblikovano posebno za putovanja i turizam, a ima preko 1.500 klijenata u 70 zemalja. Taj je program baziran na načelima Agende 21 kojima se prate projekti u kritičnim područjima, poput održivog pristupa, energije, vode i planiranja otpada, društvenog, kulturnog i ekonomskog

able procurement in cooperation with governments, non-governmental organizations and interest groups, and communities on various environmental protection initiatives. Another US company, Best Western (2012) presents a more general pledge indicating that its hotels use a number of environmentally-friendly practices, from recycling bins to multiple-application programs for the use of geothermal and solar energy. Likewise, large hotels in Russia are already implementing resource-efficient technologies such as: change of the lighting systems to energy-efficient ones, use of natural renewable energy sources as an additional measure, and, in some cases, economical water consumption in the F&B department and integration of the "smart house" system into the hotel infrastructure to fully cover the heating costs (Alekseeva *et al*., 2018). Furthermore, research comparing independent and chain affiliated hotels in Melbourne, Australia, to examine specific environmentally sustainable practices found out that most large hotel companies displayed environmental policy on their web pages while the smaller independent hotels did not (Khatter *et al*., 2019).

A number of selected companies emphasize their obligation in terms of the sustainable use of resources. For example, Hyatt states that their procurement procedures include 100% recycled materials, e.g., shampoo and face lotion packaging as well as carpeting. In their hotels, the company has installed 74,000 LED light bulbs. Twenty years ago, the best innovations include, for example, cloth napkins and terry towels, reusable cutlery, and the use of TV sets for raising awareness about recycling (Enz and Siguaw, 1999). Today, Marriott's best practices include the use of hotel key cards made from a recycled material, Eco-Smart pillows, pens from recycled materials, bio-degradable laundry bags, energy-saving light bulbs and so-called "coreless" toilet paper (without the cardboard tube).

An independent hotel, Zuri Zanzibar has been recognized as the first hotel in the

dobrostanja te inovacija. Nagrada odražava nepokolebljivu opredjeljenost ovog odredišta za održivost putem pozitivnih promjena na smanjivanju ekološkog otiska i unaprjeđivanju društvenog utjecaja. Isto tako je Zuri Zanzibar jedinstven u svom pristupu prirodi i lokalnoj kulturi: potpuno je povezao turizam s lokalnom zajednicom čijim je članovima omogućena edukacija nakon koje su postali neophodni članovi timova osoblja. Nadalje, odredište rabi sve vrste lokalnih namirnica, sirovina, ili čak i proizvoda kojima se jedinstveni karakter otoka savršeno prezentira svim posjetiteljima. I posljednje, ali ne manje važno, potrebno je naglasiti nastojanja k minimiziranju ekološkog otiska hotela na okoliš. Stoga se voda za piće crpi iz vlastitih bunara ili se dobiva desalinizacijom. Otpadne vode prerađuju se za korištenje u vrtovima kao tehnička voda ili u inovativnom sustavu za hlađenje koji koristi samo četvrtinu uobičajene potrošnje električne energije (zurizanzibar.com).

Yi *et al*. (2018) tvrde da svi smještajni objekti koriste raznolike zelene prakse. Najčešća je opetovana uporaba ručnika, tj. praksa da hotel mijenja ručnike samo na zahtjev gosta, a ne svaki dan. Ovo pomaže smanjenju korištene energije, vode i kemijskih deterdženata, čime se smanjuje emisija stakleničkih plinova. Hotel također nudi promjenu posteljine na zahtjev ili svakih nekoliko dana, a u svakoj sobi postavljene su kante za recikliranje proizvoda od papira, stakla, metala, plastike, itd. koji se dalje prerađuju. Prihvativši zelene prakse i inovativnu opremu, hotel educira goste o temama zaštite okoliša i traži od njih povratne informacije o zelenim postupcima. Kao što je dobro poznato, češki turisti pri odabiru potencijalnih hotela uglavnom ne razmišljaju o zelenim aktivnostima kao glavnim čimbenicima usporedbe prema cijeni, čistoći i lokaciji. Chen *et al*. (2018) tvrde da mnogi gosti hotela znaju kada neki hoteli provode prakse koje su zelene samo na površini, a zapravo su samo taktika za smanjenje troškova.

world to be awarded by the EarthCheck's Sustainable Design Gold Certification. This is the world's leading environmental benchmarking and certification program designed specifically for the travel and tourism industry, having over 1,500 clients in 70 countries. The program is built on Agenda 21 principles, monitoring projects in critical areas such as sustainability approach, energy, water and waste planning, social, cultural and economic wellbeing, and innovation. The award reflects the unwavering resort's commitment to sustainability, by making positive changes to reduce the ecological footprint and improve social impact. In addition, Zuri Zanzibar is unique in its responsible approach to nature and local culture: it entirely connected tourism with the local community, whose members were allowed to take training courses and subsequently become indispensable members of the staff team. Furthermore, the resort uses all kinds of local food, raw materials, or even craft products that perfectly bring the unique character of the island to all visitors. Last but not least, it is essential to highlight the effort to minimize the ecological footprint that the hotel leaves. Therefore, for example, it uses drinking water from its own wells and desalination equipment. Wastewater is further treated to be usable in the garden as utility water or uses an innovative air conditioning system that consumes only a quarter of regular electricity consumption (zurizanzibar.com).

Yi *et al*. (2018) state that each accommodation facility uses various green practices. The most favorite practice is towel reuse, i.e. the hotel changes guest towels only upon request or not every day. This helps to reduce energy use, water and chemical detergents, and it results in less greenhouse gas emission. Further, the hotel changes linen only upon request or every few days, and places recycling bins in each guest room and recycle products (paper, glass, metal, plastic …). Having embraced green practices and innovative equipment, the hotel educates guests on environmental issues, asks guests feedback on green practices. As is well known,

Hotel Adalbert u Češkoj rabi samo štedne žarulje, dok se većina svjetala hodnicima pali senzorima za pokrete, a gasi automatski. Svi prozori u hotelu su termalno izolirani, a grijanje se regulira posebno u svakoj sobi dok se središnja ventilacija uopće ne koristi. Količina protoka vode u umivaoniku ili tušu ne prelazi 9 litara u minuti. Sav otpad koji se stvara tijekom rada hotela obrađuje se i reciklira do najvećeg mogućeg stupnja. Akumulatori, ulošci s tonerom za pisače i ostali opasni otpad odlaže se na prikladan način. U hodnicima se nalaze posebne kante za papir, plastiku i staklo. Sapunski otpad je smanjen korištenjem dozatora za tekući sapun, a ručnici i posteljina mijenjaju se svaka tri dana ili češće samo na zahtjev. U hotelu pokušavaju koristiti samo okolišno prihvatljive deterdžente, a kupovanje proizvoda za jednokratnu uporabu smanjeno je na najmanju moguću mjeru. Sav tekstil ili namještaj koji se treba zbrinuti hotel donira u dobrotvorne svrhe (interni materijali, hoteladalbert.cz). Osoblje hotela redovito se educira o svim procedurama.

3. CILJ ISTRAŽIVANJA I METODOLOGIJA

Cilj je ovog istraživanja analizirati provođenje načela upravljanja okolišem u izabranom hotelskom lancu u Republici Češkoj. Obzirom na cilj istraživanja postavljeno je sljedeće istraživačko pitanje: *Koje se mjere upravljanja okolišem najčešće provode u konkretnom lancu hotela?*

Hotelski lanac obuhvaćen ovim ispitivanjem ima ukupno četrdeset smještajnih objekata od kojih je 68% sudjelovalo u istraživanju. Za skupljanje podataka korišteni su kvalitativni polustrukturirani intervjui vrhunskih menadžera lanca. Intervjui su se provodili od veljače do svibnja 2018. godine, a dodatne informacije prikupljene su putem upitnika emailom ili telefonom. Upitnik se sastojao od trinaest pitanja. Prvih pet pita-

when selecting potential hotels Czech guests mostly do not consider their green activities as the main factor in comparing them to the price, cleanliness, and location. Chen *et al*. (2018) state that numerous hotel guests understand when some hotels only implement practices that are green on the surface only and are actually cost-saving tactics.

In the Czech Republic, the Adalbert hotel uses only energy-saving light bulbs and the majority of lights in corridors are activated by a motion sensor and switch off automatically. All windows at the hotel are thermally insulated and heating is regulated individually in each room, and the hotel does not use any central ventilation. Water flow rate in the sink or shower does not exceed 9 liters per minute. All the waste generated by the hotel's operation is processed and recycled to the greatest degree possible. Batteries, printer cartridges and other hazardous waste is disposed of appropriately. In the corridors, there are separate bins for paper, plastic and glass. The hotel limits soap waste by the use of liquid soap dispensers. Towels and bed linen are washed every three days, more frequently only upon request. The hotel tries to use only environmentally-friendly detergents and limits the purchase of disposable products as much as possible. Any textiles and furniture that the hotel disposes of are donated to charity (internal materials, hoteladalbert.cz). The hotel staff are trained regularly on these procedures.

3. RESEARCH GOAL AND METHODOLOGY

The objective of this article is to analyze the application of environmental management principles in a selected hotel chain in the Czech Republic. In connection with the research goal, the following research question was posed: *What environmental management measures are most applied in the particular hotel chain?*

The examined hotel chain has a total of forty accommodation facilities, 68% of

nja bila su opće prirode sa svrhom identificiranja smještajnog objekta i klasifikacije hotela u prikladne kategorije, itd. Ostala pitanja bila su usmjerena na menadžment zaštite okoliša, pri čemu je bilo važno ustanoviti ima li određeni smještajni objekt uopće koncept upravljanja okolišem. Drugi dio upitnika bavio se individualnim mjerama i elementima upravljanja okolišem. Pitanja su bila formulirana tako da su ispitanici mogli birati između nekoliko mogućnosti, a također su mogli izraziti svoja mišljenja o određenom problemu. Upitnik je također propitivao korist provođenja upravljanja okolišem za smještajni objekt i stav o nastojanjima za dobivanje certifikata za upravljanje okolišem. Na kraju je postavljeno pitanje o načinima informiranja gostiju o aktivnostima zaštite okoliša u smještajnom objektu.

Evaluacija je povedena korištenjem metode korespondencijske analize (Correspondence analysis – CA), metode generaliziranja te matematičkih i statističkih metoda. Grafički alati CA omogućavaju opisivanje povezanosti nominalnih ili ordinalnih varijabli i dobivanje grafičkih prikaza odnosa u multidimenzionalnom prostoru – odnosno lakše razumijevanje. Analizom se dobivaju dodatni dokazi o odnosima koje postoje među varijablama.

Korespondencijska analiza (CA) je multivarijatna statistička tehnika koja je konceptualno slična analizi glavnih sastavnica, ali se primjenjuje na kategorijske, a ne na kontinuirane podatke. Na sličan način kao i analiza glavnih sastavnica, ova analiza prikazuje i sumira skupine podataka u dvodimenzionalnom grafičkom obliku (Zámková i Prokop, 2014). Svi podaci trebaju biti ne-negativni i primjenjivi na istoj skali za CA, a metoda jednako određuje retke i stupce. Obično se primjenjuje na tablice kontingencije – CA rastavlja statistiku hi-kvadrata koja se povezuje s ovom tablicom i ortogonalne čimbenike. Razmak između dvije točke definira se kao hi-kvadrat udaljenost. Udaljenost između redaka *i* i *i*' prikazana je formulom:

which took part in this research. The data were collected using qualitative semi-structured interviews with members of the chain's top management. The interviews were conducted between February and May 2018. Additional information was acquired by way of a questionnaire survey by email or telephone. The questionnaire consisted of thirteen questions, the first five questions being of a general nature and serving the purpose of identifying the accommodation facility, and classifying the hotels into appropriate categories, etc. Of other questions focusing on the use of environmental management, the most important was question was whether a particular accommodation facility had an environmental management concept at all. Another section of the questionnaire dealt with individual environmental management measures and elements. The questions were formulated in such a way that respondents could choose from several options, and they could express their own opinion or position on the particular issue. The questionnaire also asked whether the implementation of environmental management was an advantage for the accommodation facility, and whether they would strive to gain an environmental management certificate. Finally, it posed questions about the different ways in which guests were informed about the accommodation facility's environmental activities.

The evaluation was conducted by using the analysis method (Correspondence analysis – CA), a method of generalization, and mathematical and statistical methods. The use of CA graphic tools makes it possible to describe an association of nominal or ordinal variables and to obtain a graphic representation of a relationship in multidimensional space – in other words, easier understanding. The analysis provides further evidence that dependencies exist between variables.

Correspondence analysis (CA) is a multivariate statistical technique that is conceptually similar to principal component analysis, but applies to categorical rather than continuous data. In a similar manner to principal

$$D\left(i,i¥\right)=\sqrt{\sum_{j=1}^{c}\frac{\left(r_{ij}-r_{i¥j}\right)^{2}}{c_{j}}} \qquad (1)$$

gdje su r_{ij} elementi redaka matrice R, a vrijednosti c_j odgovaraju centroidu stupca u multidimenzionalnom prostoru. Udaljenost između stupaca j i j‘ definira se slično, vrijednosti odgovaraju elementima vektora redaka r i zbroju svih redaka. U korespodencijskoj analizi dobivamo odnos između jednostrukih kategorija i dvokategorijskih varijabli. Rezultat ove analize jest podudarajući prikaz koji uvodi koorinate u reduciranom koordinatnom sustavu, gdje se jednostruke kategorije obaju varijabli prikazuju u grafičkom obliku. Cilj je ove analize smanjiti multidimenzionalni prostor redaka i stupaca i sačuvati koliko je god moguće originalnih podatkovnih informacija. Svaki redak i stupac korespodencijske tablice može se prikazati u c-dimenzionalnom (ili r-dimenzionalnom) prostoru s koordinatama koje su jednake vrijednostima odgovarajućih profila. Koordinate redaka i stupaca na svakoj su osi poredane kako bi imale inercije slične osnovnoj inerciji po toj osi: to su glavne koordinate redaka i stupaca (Hebák, 2007).

Za model korespodentne analize, definiran je stupanj disperzije točaka, tj. kategorija redaka i stupaca ili takozvana *total* inertia. Pojam inercija dolazi iz mehanike gdje se definira kao zbroj umnoška mase i kvadratnih udaljenosti od centroida svih čestica predmeta. U geometrijskom smislu inercija izražava stupanj disperzije točaka u multidimenzionalnom prostoru i može se objasniti analogijom s disperzijom poznatom iz statističkog modeliranja. U korespodentnoj analizi, ukupna inercija (I) jednaka je ponderiranom prosjeku (s ponderima p_{i+}) hi-kvadrata udaljenosti profila redaka od svojih srednjih vrijednosti (vektor **c**)

$$I=\sum_{i=1}^{r}p_{i+}\left(\mathbf{r}_{i}-\mathbf{c}\right)^{\mathbf{T}}\mathbf{D}_{\mathbf{c}}^{-1}\left(\mathbf{r}_{i}-\mathbf{c}\right) \qquad (2)$$

component analysis, it provides a means of displaying or summarizing a set of data in a two-dimensional graphical form (Zámková and Prokop, 2014). 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 between single points is defined as a chi-squared distance. The distance between the *i*-th and *i*'-th row is given by the formula:

$$D\left(i,i¥\right)=\sqrt{\sum_{j=1}^{c}\frac{\left(r_{ij}-r_{i¥j}\right)^{2}}{c_{j}}} \qquad (1)$$

where r_{ij} are the elements of row profiles matrix R and weights c_j correspond to the centroid of the column in multidimensional space. The distance between columns j and j‘ is defined similarly, weights correspond to the elements of the row loadings vector r and sum over all rows. In correspondence analysis we observe the relation between single categories of two categorical variables. The result 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 as far as possible original data information. Each row and column of the correspondence table can be displayed in c-dimensional (r-dimensional respectively) space with coordinates equal to the values of the 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 (Hebák, 2007).

For the correspondence analysis model, the degree of dispersion of points is defined, i.e., row and column categories, or total inertia. The term inertia comes from mechanics,

Isto kao što je ponderirana srednja vrijednost (s ponderima p_{+j}) hi-kvadrat udaljenosti profila stupaca njihove sredine (vektor **r**)

$$I = \sum_{j=1}^{c} p_{+j} \left(\mathbf{c}_j - \mathbf{r} \right)^{\mathbf{T}} \mathbf{D}_{\mathbf{r}}^{-1} \left(\mathbf{c}_j - \mathbf{c} \right) \qquad (3)$$

Značajan dio ukupne inercije izvorne tablice obično se objašnjava pomoću prvih nekoliko osi. Zato je obično dovoljno da se rezultat korespodentne analize prikazuje u prostoru prvih dviju ili triju osi. Ukupna inercija jednaka je zbroju svih svojstvenih vrijednosti matrice. Stoga je moguće odrediti koliko ordinalnih osi je razumno interpretirati. O ovome se može odlučiti na jedan od dva načina: 1) postaviti prag (npr. 80%) da bi se odredilo koliko osi ima ukupnu inerciju veću od postavljenog praga; 2) interpretirati ordinalne osi čija je svojstvena vrijednost iznad srednje, tj. viša nego srednja vrijednost svih svojstvenih vrijenosti.

Doprinosi točaka redaka inerciji u odgovarajućoj dimenziji definiraju se kvocijentom

$$\frac{r_i f^2 ik}{\lambda_{(k)}} \qquad (4)$$

gdje f_{ik} odgovara elementima matrice **F** (rezultat redne kategorije *i* u dimenziji e *k*), elementi r_i vektora retka i $\lambda_{(k)}$ je inercija koja se izražava dimenzijom *k* (svojstvena vrijednost matrice). Doprinos točaka redaka inerciji odražava relativan stupanj učinka dane kategorije na konačnu orijentaciju glavnih osi.

Na sličan način, doprinosi točaka stupaca na inerciju su izraženi u odgovarajućoj dimenziji

$$\frac{c_j g^2 jk}{\lambda_{(k)}} \qquad (5)$$

gdje se za svaku kategoriju retka može izračunati ukupna inercija retka kao

$$\sum_k r_j f^2 jk \qquad (6)$$

defined as the sum of the product of mass and square distances from the centroid of all object's particles. Geometrically, inertia expresses the degree of dispersion of points in multidimensional space and it can be understood as an analogy to the dispersion known from statistical modeling. In a correspondence analysis, the total inertia (I) is equal to the weighted average (with weights p_{i+}) chi-square of the distance of row profiles from their average/mean (vector **c**)

$$I = \sum_{i=1}^{r} p_{i+} \left(\mathbf{r}_i - \mathbf{c} \right)^{\mathbf{T}} \mathbf{D}_{\mathbf{c}}^{-1} \left(\mathbf{r}_i - \mathbf{c} \right) \qquad (2)$$

the same as the weighted average (with weights p_{+j}) chi-square of the distance of the column profiles from their average (vector **r**)

$$I = \sum_{j=1}^{c} p_{+j} \left(\mathbf{c}_j - \mathbf{r} \right)^{\mathbf{T}} \mathbf{D}_{\mathbf{r}}^{-1} \left(\mathbf{c}_j - \mathbf{c} \right) \qquad (3)$$

A significant part of the total inertia of the original table is usually explained by the first several axes. That is why it is generally sufficient to represent the result of the correspondence analysis in the space of the first two or three ordinal axes. Total inertia equals the sum of all eigenvalues of the matrix. Therefore, it is possible to specify how many ordinal axes it is reasonable to interpret. This can be decided in two ways: 1) set a threshold value (e.g., 80%) to determine how many axes have higher cumulative inertia than the set threshold value; 2) interpret the ordinal axes whose eigenvalue is above-average, i.e. higher than the average of all eigenvalues.

The contributions of the row points to inertia in the corresponding dimension are defined by the quotient

$$\frac{r_i f^2 ik}{\lambda_{(k)}} \qquad (4)$$

where f_{ik} corresponds with the elements of the matrix **F** (the score of the *i*-th row cat-

Također za kategorije stupaca ukupna inercija se može definirati kao

$$\sum_k c_j g^2 jk \qquad (7)$$

Vrijednosti inercije za pojedine stupce i retke pokazuju značaj raznih kategorija u dobivenoj ordinaciji.

4. REZULTATI I RASPRAVA

Lanac hotela koji je obuhvaćen u ispitivanju ima ukupno 40 smještajnih objekata. Orijentiran je prvenstveno na hotele najviše kategorije i na manje smještajne objekte u kategoriji standardne kvalitete. Posluje uglavnom u Republici Češkoj, ali se širi i na slovačko i rusko tržište. Posebno je usmjeren na pružanje usluga kongresnog turizma (78%). U ovom istraživanju sudjelovalo je 68% smještajnih objekata ovoga lanca diljem Republike Češke, od kojih skoro tri četvrtine (73%) spada u najvišu kategoriju, dok su ostali dio standardne kategorije (27%). Svi analizirani objekti pripadaju kategoriji „hotela“, s time da jedan objekt spada u kategoriju privatnog smještaja. Ovaj članak bavi se isključivo kategorijom hotela, a kategorija privatnog smještaja uključena je u grafičkom prikazu primjene upravljanja okolišem.

Skoro tri četvrtine (73%) analiziranih hotela locirani su u gradovima, 23% ih je izvan grada, a 4% u planinama (Tablica 3). Većina hotela nalazi se u Pragu (55%) i regiji Liberec (14%). Skoro polovina hotela (46%) ima između 21 i 49 soba, drugih 46% hotela imaju od 50 do 99 soba, a njih 8% ima kapacitet od preko 100 soba. Hoteli s manje od 20 soba nisu uključeni u ovo istraživanje.

Skoro 2/3 hotela (64%) imalo je plan upravljanja okolišem, što pokazuje stav da im je zaštita okoliša važna. Kao što se vidi na Slici 1, većina načela zaštite okoliša primjenjuje se u odvajanju otpada (82%) i štednje energije (73%). Preko plovice analiziranih

egory in the *k*-th dimension), r_i elements of the row loadings vector and $\lambda_{(k)}$ is inertia expressed by the *k*-th dimension (an eigenvalue of the matrix). A contribution of the row points to inertia expresses the relative degree of effect of the given category on the final orientation of the main axes.

In a similar fashion, the contributions of column points to inertia are expressed in the corresponding dimension

$$\frac{c_j g^2 jk}{\lambda_{(k)}} \qquad (5)$$

For each row category the total calculated row inertia can be defined as

$$\sum_k r_j f^2 jk \qquad (6)$$

Similarly, for column categories the total column inertia is defined as

$$\sum_k c_j g^2 jk \qquad (7)$$

The values of inertia for individual columns and rows indicate the significance of the various categories on the resulting ordination.

4. RESULTS AND DISCUSSION

The examined hotel chain operates a total of 40 accommodation facilities. It focuses primarily on hotels in the First Class category and on a smaller scale on accommodation facilities of the Standard category. The hotel chain does business mainly in the Czech Republic, but it is also expanding to the Slovak and Russian markets. It focuses particularly on offering congress and convention services (78%). This research was conducted with the participation of 68% of the chain's accommodation facilities located throughout the Czech Republic. Almost 3/4 of the accommodation facilities (73%) fall in the First Class category, with the remaining facilities in the Stan-

Tablica 3: Uzorak istraživanja / Table 3: Research sample

Lokacija hotela / Hotel location	**%**	**Distribucija po regijama / Distribution per region**	**%**
grad / city	73	Prag / Prague	55
izvan grada / country	23	Liberec	14
planine / mountains	4	Vysočina	5
toplice / spa	0	Južna Češka / South Bohemia	5
Kapacitet hotela / Hotel capacity	**%**	Južna Moravska / South Moravia	5
≤ 20 soba / rooms	0	Pilsen	5
21–49 soba / rooms	46	Hradec Králové	5
50–99 soba / rooms	46	Pardubice	5
≥ 100 soba / rooms	8	Središnja Češka / Central Bohemia	5

Izvor: Vlastita izrada autora, 2019 / Source: Authors' own elaboration, 2019

hotela (55%) ulaže nastojanja za smanjenje potrošnje vode, a isti postotak hotela (55%) smanjio je svoju potrošnju kemijskih deterdženata. Skoro polovica ispitanih hotela (46%) nastoji komunicirati i educirati osoblje i goste u ovom području koristeći sučelja društvenih medija, njihove mrežne stranice, brošure, itd.

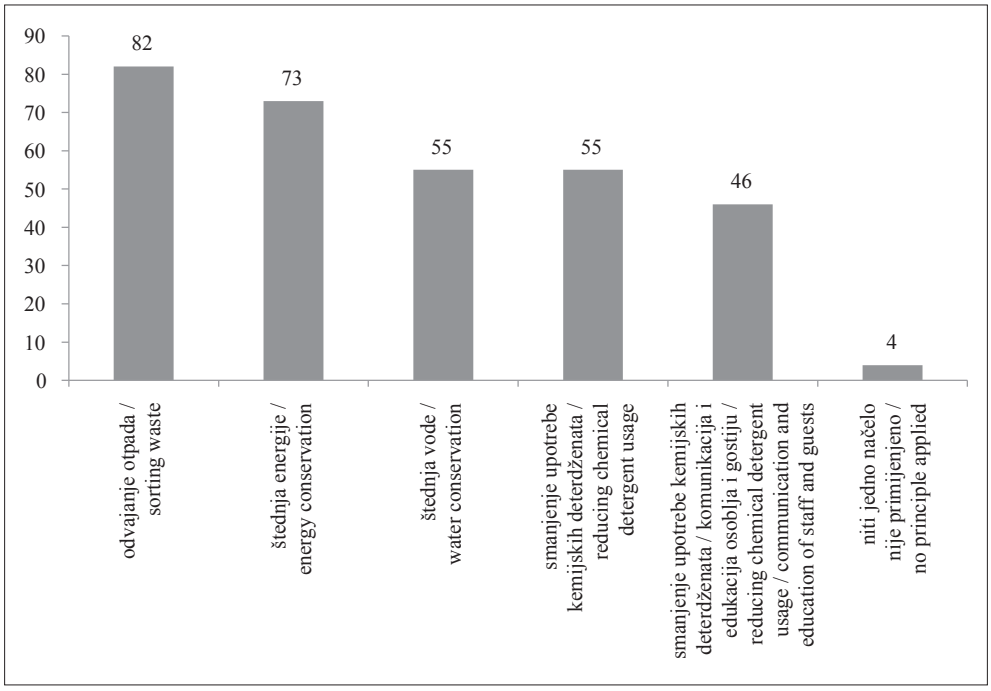
U području upravljanja otpadom, više od 2/3 analiziranih hotela (67%) izjavilo je da sortiraju otpad u odvojene kante i 55% hotela također odvaja organski otpad. S druge strane, Zakon o otpadu (Act No. 185/2001 Coll.) nalaže odvajanje otpada svakom smještajnom objektu. Smatramo da je postotak hotela koji odvajaju otpad trebao biti značajno veći. Više od 1/5 hotela (23%) potvrdilo je korištenje recikliranog uredskog papira za potrebe recepcije i administrativnog osoblja. Ova postotna vrijednost također je trebala biti veća, a prije odlaganja papira, gdje god je to moguće, trebalo bi koristiti obje strane uredskog papira. Natprosječni rezultati ostvareni su u pogledu uštede energije. Izvrsne vrijednosti (95%) zabilježene su uglavnom u odnosu na korištenje štednih svjetala. U povijesnim zgradama klasične žarulje sa žarnom niti u velikoj su mjeri zamijenjene kompaktnim fluorescentnim lampama, a danas su kompaktne zamijenjene LED (Light Emitting Diode) žaruljama, koje proizvode

dard category (27%). All the examined facilities belonged to the "hotel" category, with one facility falling in the "boarding house" category. This article will deal solely with the Hotel category and only the graph depicting the benefits of the application of environmental management will include data for the Boarding House category.

Almost three quarters (73%) of the examined hotels were located in cities, 23% of them in the country and 4% in the mountains (see Table 3). Most of the hotels were located in Prague (55%) and the Liberec Region (14%). Close to half of the hotels (46%) had between 21-49 rooms, another 46% of the hotels had between 50-99 rooms and less than 1/10 (8%) of the hotels had an accommodation capacity of over 100 hotel rooms. Hotels with fewer than 20 rooms were not included in this research.

Almost 2/3 of the hotels (64%) had an environmental management concept, which shows that they find the issue of environmental protection a significant one. As seen in Figure 1, most environmental principles were applied in the area of waste sorting (82%) and energy conservation (73%). More than half of the examined hotels (55%) made an effort to reduce water consumption and the same percentage of the hotels (55%) reduced their consumption of chemical detergents. Almost

Slika 1: Primjena principa upravljanja okolišem (%) /
Figure 1: The application of environmental management principles (%)



Izvor: Vlastita izrada autora, 2019 / Source: Authors' own elaboration, 2019

mnogo jače svjetlo. Ova zamjena ne uključuje velike investicije pa u relativno kratkom vremenu smještajni objekti mogu ostvariti značajne financijske uštede. Na primjer, hoteli srednje veličine s otprilike 300 svjetala mogu ostvariti uštedu od više od 1,5 milijuna CZK ako se izvrši kompletna zamjena (Tablica 4). Osim financijske uštede, druga je prednost manja emisija CO_2 i manja potrošnja energije iz neobnovljivih izvora.

Više od 3/4 hotela (77%) izjavilo je da koriste središnje sklopke za svjetlo u sobama. U doba informacijskih i komunikacijskih tehnologija sve više hotela koristi sustav hotelskih ključeva-kartica koje se koriste za otvaranje soba, paljenje i gašenje svjetla, uključivanje i isključivanje klima, itd. Čak i za goste korištenje ključeva-kartica može predstavljati pogodnost jer se izvlačenjem

half of the examined hotels (46%) tried to communicate and educate their staff and guests in this area using social media sites, their websites, brochures, etc.

In the area of waste management, more than 2/3 of the examined hotels (67%) stated that they used separate bins to sort waste and 55% of the hotels sorted organic waste. Nevertheless, since the Act on Waste (Act No. 185/2001 Coll.) requires each accommodation facility to sort waste we deem that the percentage shares of hotels sorting waste should have been significantly higher. More than 1/5 of the hotels (23%) used recycled office paper for the needs of the reception and its administrative staff. This percentage value also should have been higher and, where applicable, both sides of office paper should be used, e.g., for note taking, prior to disposing of the

Tablica 4: Svjetla i njihova učinkovitost

Svojstva svjetala / vrsta svjetla	**Klasična žarulja sa žarnom niti**	**Kompaktna fluorescentna žarulja**	**LED žarulja**
Vataža/Snaga	40 W	11 W	5 W
Cijena	15 CZK	120 CZK	300 CZK
Životni vijek	1.000 h	6.000 h	30.000 h
Sati rada godišnje (5 sati rada dnevno)	1.825 h	1.825 h	1.825 h
Godišnja potrošnja energije u kWh (5 sati rada dnevno)	73 kWh	20,075 kWh	9,125 kWh
Godišnja cijena rasvjete (1kWh = CZK 4,83)	352,59 CZK	96,96 CZK	44,07 CZK
Godišnja ušteda energije u CZK	---	255,63 CZK	308,52 CZK
Povrat na investiciju u fluorescentne žarulje	---	171,34 days	354,92 days
Uštede tijekom vijeka trajanja fluorescentne žarulje	---	840,43 CZK	5.071,56 CZK

Izvor: Vlastita izrada autora, 2019

Table 4: Lights and their efficiency

Light properties / type of light	**Classic incandescent light bulb**	**Compact fluorescent light bulb**	**LED light bulb**
Wattage	40 W	11 W	5 W
Price	15 CZK	120 CZK	300 CZK
Lifetime	1,000 h	6,000 h	30,000 h
Hours of operation annually (5 hours of operation daily)	1,825 h	1,825 h	1,825 h
Energy consumption in kWh annually (5 hours of operation daily)	73 kWh	20.075 kWh	9.125 kWh
Lighting costs annually (1kWh = CZK 4.83)	352.59 CZK	96.96 CZK	44.07 CZK
Energy savings in CZK annually	---	255.63 CZK	308.52 CZK
Return on investment in fluorescent light bulbs	---	171.34 days	354.92 days
Savings over the lifetime of a fluorescent light bulb	---	840.43 CZK	5,071.56 CZK

Source: Authors' own elaboration, 2019

kartice iz utora svi uređaji automatski gase pa ne moraju pamtiti jesu li ugasili svjetlo ili TV aparat. Još jedna mjera štednje energije, koju koristi 67% hotela, je individualizirana kontrola grijanja u svakoj sobi posebno. Ako

paper. Above-average results were achieved in terms of energy conservation. Excellent values (95%) were achieved mainly in the use of energy-saving lights. In historical buildings, classic incandescent light bulbs have to a

se hotelska soba ne koristi i tek čeka korisnika, nije ju potrebno hladiti ili grijati. Dovoljno je uključiti klimu ili grijanje nekoliko sati prije dolaska gosta.

Prema istraživanju skoro 2/3 hotela (64%) koristi aparate koji štede energiju (A+, A++, A+++). Ove su mjere prvo uvedene u hotelske odjele za proizvodnju hrane kada su uveli energetski učinkovitu opremu (uglavnom konvekcijske peći, električne ploče za kuhanje), čime se značajno smanjuje vrijeme potrebno za pripremu hrane. Više od 1/3 hotela (36%) imalo je termoizolirane prozore koji zadržavaju toplinu u zimi, dok se ljeti željena temperatura u sobi održava klimom. Kod planiranja novog smještajnog objekta treba uzeti u obzir energetski učinkovitu gradnju koja smanjuje gubitak topline.

Još jedna važna mjera je štednja vode. Najveća potrošnja vode se povezuje s radom opreme za wellness & spa, perilica i suđerica. U hotelskim sobama štednja vode uglavnom se regulira dvjema mjerama – smanjenje mlaza vode u slavinama i uporaba dvokoličinskih vodokotlića kojima se kod povlačenja vode može izabrati potrošnja 6 ili 3 litara vode. Ove mjere se koriste u 55% hotela. Ostale mjere uključuju uređaje poput perlatora i prskalica za tuševe koje štede vodu. Prvi mogu uštedjeti oko 70% vode bez smanjivanja udobnosti za korisnika. Potrošnja vode u drugom slučaju je skoro 40% manja, tj. protok od 12-15 litara u minuti u usporedbi s klasičnim prskalicama. Kao i u slučaju zamjene rasvjetnih tijela, troškovi ovih uređaja nisu visoki. Cijene perlatora i štednih prskalica iznose otprilike 500 CZK.

Zamjena posteljine i ručnika na zahtjev još je jedna široko rasprostranjena mjera štednje (68%) koja se provodi uz sudjelovanje hotelskih gostiju. U nekim kupaonicama nalazila se informacija kojom se gostima skretala pozornost na odluku o tome je li im zaista potrebna promjena ručnika: *„Dragi gosti, možete li zamisliti koliko tona ručnika se pere u hotelima diljem svijeta svaki dan i*

great degree been replaced with compact fluorescent lamps, and nowadays these are being replaced with LED (Light Emitting Diode) light bulbs, whose lumen output is many times higher. This replacement does not entail a major investment and accommodation facilities can achieve significant financial savings in a relatively short amount of time. For example, a medium-sized hotel with approx. 300 lights can achieve savings of over CZK 1.5 million as a result of their complete replacement (see Table 4). Apart from financial savings, another advantage is lower CO_2 emissions and lower power consumption from the use of non-renewable resources.

More than 3/4 of the hotels (77%) stated that they used central light switches in their hotel rooms. In an era of information and communication technologies, more and more hotels are using the system of hotel key cards that are used for opening hotel rooms, turning on/off the lights, the air-conditioning, etc. The use of a key card is beneficial even for the guests as all appliances in the rooms are automatically switched off upon removal of the key card from the slot, and so they do not have to remember whether they turned off the lights or the TV set. Another measure in energy conservation, used by 67% of the hotels, is individual heating control for each room separately. If a hotel room is not being used by a guest and is only ready to be used, it is not necessary to use air-conditioning or heating. It is sufficient to turn on the air-conditioning or heating several hours before the guest's arrival.

Close to 2/3 of the hotels (64%) used energy-saving appliances (A+, A++, A+++). These measures were primarily implemented in the hotels' food production facilities that used energy-efficient equipment (mainly convection ovens, electric cooktops), which significantly reduce the time required to prepare food. More than 1/3 of the hotels (36%) used thermally insulated windows, which retain heat in the room in winter while in summer the required temperature in the room is

koliko nezamisliva je količina deterdženata za pranje koji zagađuju izvore vode? Molimo, odlučite sami: ako ostavite ručnike u tušu/kadi značit će da ih želite zamijeniti, a ako ih objesite na vješalicu značit će da ih želite i dalje koristiti.“

Sljedeća mjera povezana je s uporabom ekološki prihvatljivih proizvoda i njihovim pakiranjem. Više od 1/3 hotela (36%) izvijestilo je da ne koriste proizvode u jednokratnoj ambalaži (maslac, džem, sapun, gel za tuširanje, itd.). Proizvodi u jednokratnoj ambalaži zamjenjuju se s onima koji se mogu ponovno puniti, najčešće u staklenim spremnicima, tako da se može pretpostaviti da će se time smanjiti količina nastalog otpada. Najmanje korištena mjera (9%) bila je davanje prioriteta proizvodima koji su okolišno prihvatljivi. Ovaj mali postotak rezultat je visoke cijene ovih proizvoda u usporedbi s drugima.

Posljednji tip mjera odnosi se na osvješćivanje zaposlenika o upravljanju okolišem (32%) i informiranje hotelskih gostiju o nastojanjima u očuvanju okoliša (18%). Oba su postotka vrlo mala pa bi njihov porast bio poželjan. Oni hoteli koji su informirali postojeće i potencijalne goste o svojim nastojanjima za očuvanje okoliša učinili su to najčešće korištenjem brošura koje su bile dostupne gostima na recepciji (56%), na mrežnim stranicama (33%) i na portalima za rezervacije hotela (11%). Osim gore spomenutih mjera za očuvanje okoliša, neki su hoteli opremljeni i stanicama za punjenje električnih vozila (5%; Slika 2).

Više od 3/4 analiziranih hotela (82%) nije razmatralo stjecanje certifikata o sustavu upravljanja okolišem, što savršeno ocrtava situaciju u Republici Češkoj. Razlog je jednostavan – certifikacija EMS uključuje značajan financijski trošak: cijena registracije u prvoj godini pa zatim svake godine cijena za prava na korištenje certifikata. Hotel također treba imati zaposlenika koji je odgovoran za sve aspekte zaštite okoliša i pridržavanja politike zaštite okoliša, čime se također

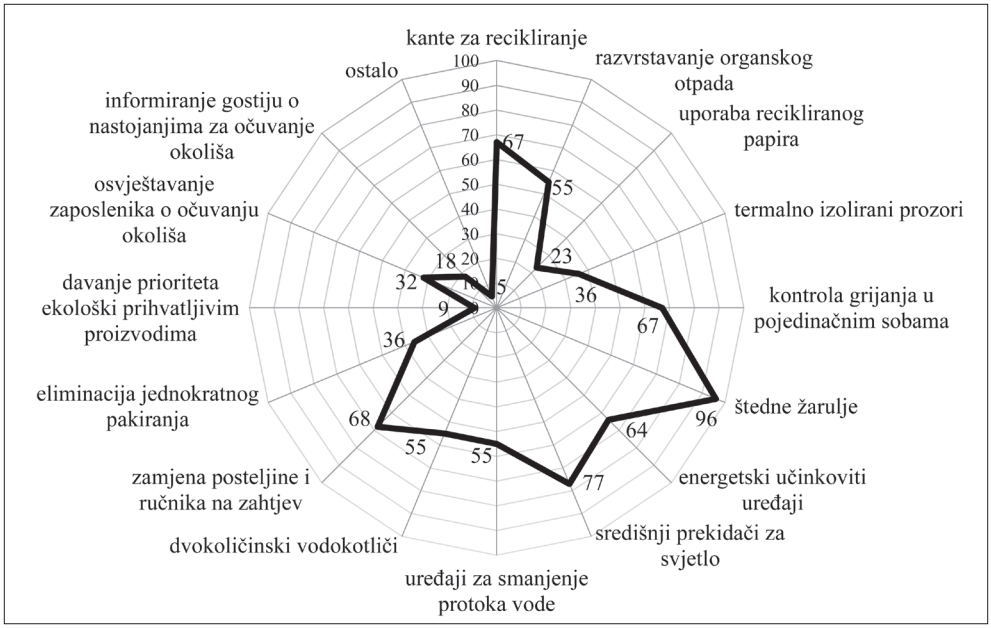
maintained by air-conditioning. When planing a new accommodation facility, it is worth considering constructing an energy-efficient building, which reduces heat losses.

Another important measure is water conservation. The highest water consumption is connected with operating a wellness & spa, a laundry facility and a dishwasher. As for the hotel rooms, water conservation entails mostly two measures – reducing water flow, and using dual flush toilets which allows users to choose between flushing the toilet with 6 or 3 liters of water. Both were used by 55% of the hotels. Other measures include water flow reducing devices, such as tap aerators and water-saving shower heads. The former can result in about 70% reduction in water usage without reducing user comfort. The water consumption reduction rate of the latter is close to 40%, i.e. to a flow rate of 12-15 liters per minute, compared to classic shower heads. Just like the replacement of light fixtures, the costs of these devices are not high. A tap aerator and a water-saving shower head cost approximately CZK 500.

The third most widely used measure (68%) applied with respect to hotel guests was the replacement of bed linen and towels upon request. In some bathrooms, there was information available to guests drawing their attention to whether they really need their towels to be replaced with new ones: *“Dear guests, can you imagine how many tons of towels are washed in hotels around the world every day, and the unfathomable amount of laundry detergents polluting the water sources? Please decide for yourselves: leaving hand towels and bath towels in the shower/bath means you would like them to be replaced. Hanging them on a hook means you wish to continue using them.”*

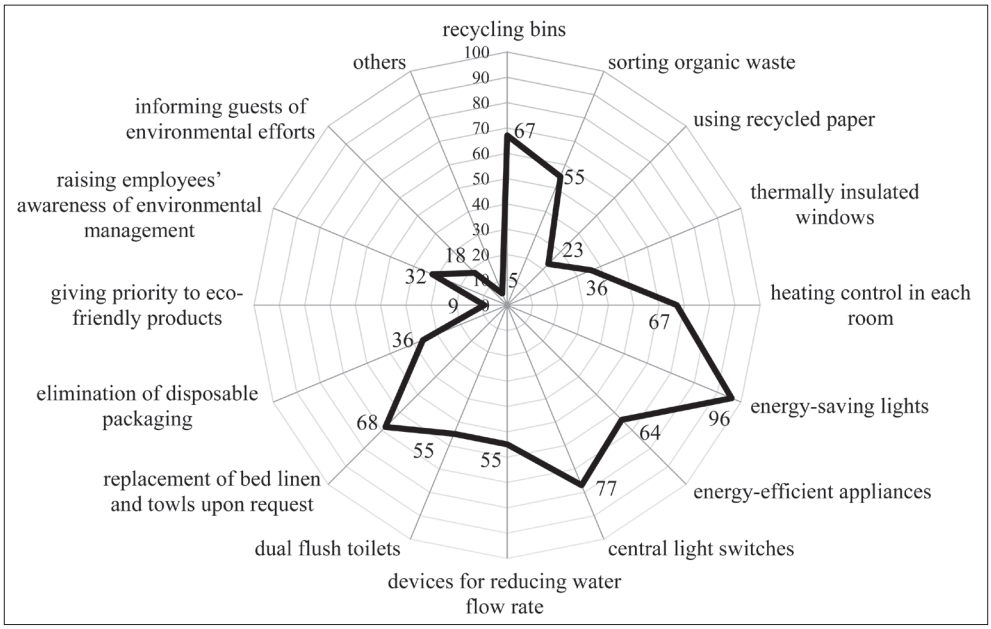
Another measure was connected with the use of eco-friendly products and the handling of packaging. More than 1/3 of the hotels (36%) did not use products in disposable packaging (butter, jam, soap, shower gel, etc.). These disposable packaging solutions are

Slika 2: Uporaba mjera zaštite okoliša



Izvor: Vlastita izrada autora, 2019

Figure 2: The application of environmental measures



Source: Authors' own elaboration, 2019

uvećava trošak za smještajni objekt. To je razlog zašto se većina smještajnih objekata u Češkoj pridržava određenih principa upravljanja okolišem iako ne posjeduju certifikat o upravljanju okolišem, što je također slučaj i hotelskog lanca koji je predmetom ovog istraživanja. Stoga se može ustvrditi da analizirani hoteli vide korisnost primjene načela upravljanja okolišem, i to prvenstveno u smanjenju troškova (86%), zaštite okoliša (68%), poboljšanja kvalitete hotela (50%), preferencijama gostiju i konkurentskoj prednosti u usporedbi s drugim smještajnim objektima (svaki sa po 9%), oglašavanju, promociji i povećanom prihodu (svaki sa po 5%). S obzirom na različite kategorije i vrste smještajnih objekata, hoteli prve kategorije daju prednost najviše koristima od zaštite okoliša, smanjenju troškova i konkurentskoj prednosti u odnosu na druge hotele. Hoteli u standardnoj kategoriji vide koristi u odnosu na unaprjeđenje kvalitete hotela. Treba istaknuti da su neki menadžeri izrazili nepovjerenje u svezi s koristima primjene načela upravljanja okolišem, što je također bio slučaj i u kategoriji pansiona. Ipak, niti kod jednog smještajnog objekta nije uočen *greenwashing*, tj. nisu postojale nejasne ili neistinite tvrdnje kojima bi procese predstavljali kao ekološki prikladne. Naglašavamo da je *greenwashing* aktualna tema i da nove generacije gostiju preferiraju usluge i proizvode koji su ekološki prikladni i zato neki smještajni objekti ističu da su „zeleni“, eco-friendly, itd. (Slika 3).

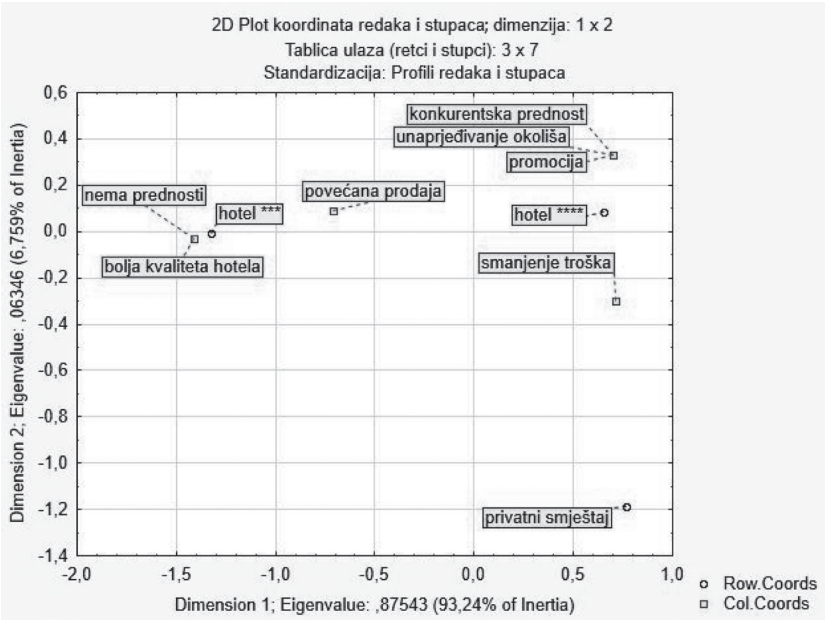
S druge strane, još uvijek ima menadžera i vlasnika hotela koji oklijevaju investirati u inicijative za očuvanje okoliša i nisu uvjereni u financijsku učinkovitost ovih investicija. Također, neki gosti hotela žalili su se na neugodu zbog niskotlačnih slavina i tuševa. Nadalje, primjena određenih novih zelenih postupaka, načela i politika zahtijeva značajne investicije s manje opipljivih učinaka, kao što su poboljšanje ugleda smještajnog objekta. Međutim, iz dugoročne perspektive investicije u zelene inicijative isplate se ne samo s ekonomskog stanovišta.

being replaced with refillable ones, most frequently glass containers, so it can be assumed that this will reduce the amount of waste generated. The least used measure (9%) was giving priority to products that are environmentally friendly. This low figure was caused by the higher costs associated with these products compared to other products.

The last type of measures concerned raising employees' awareness of environmental management (32%) and informing hotel guests about the hotel's environmental efforts (18%). Both values are very low and it would be desireable to increase them. The hotels that did inform their guests and prospective guests about their environmental efforts did so most often in the form of brochures available at the reception (56%), on their websites (33%), and on hotel reservation portals (11%). Apart from the aforementioned environmental measures, some hotels were equipped with charging stations for electric vehicles (5%; Figure 2).

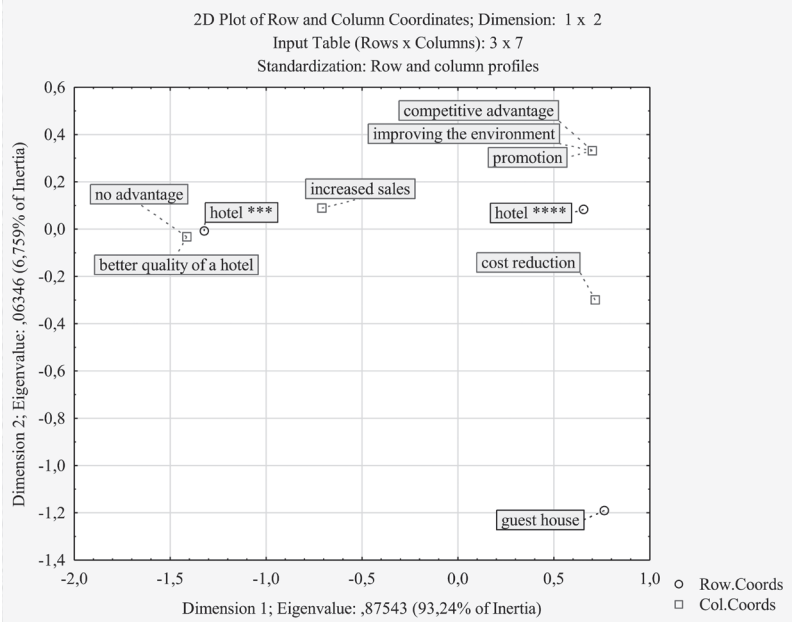
More than 3/4 of the examined hotels (82%) did not consider getting an environmental management system certification, which perfectly illustrates the situation in the Czech Republic. The reason is simple – EMS certification entails substantial financial costs; the cost of registration in the first year and then each year for the right to use the certificate. The hotel should also have an employee responsible for all things environmental and environmental policy compliance, which represents additional costs for the accommodation facility. That is why the majority of accommodation facilities in Czechia apply certain principles of environmental management, but do not possess an environmental management certificate, which is also the case of the hotel chain that was the subject of this research. It can thus be said that the examined hotels find the application of environmental management principles to be beneficial. It was primarily the reduction in costs (86%), environmental protection (68%), improving the hotel quality

Slika 3: Koristi primjene upravljanja okolišem



Izvor: Vlastita izrada autora, 2019

Figure 3: The benefits of applying environmental management



Source: Authors' own elaboration, 2019

Stoga treba uzeti u obzir da zaštita okoliša i primjena mjera zaštite okoliša zahtijeva dugoročno planiranje.

Hotelski lanci u Bugarskoj (Hilton, Accor, IHG, Kempinski, etc.) provode mnoge inovativne mjere, kao što su one za učinkovitost energije i vode, upravljanje otpadom te zaštita biljaka i životinja, kao i okolišne mjere koje uključuju osoblje, goste, dobavljače i smanjenje emisije ugljikovih plinova. Za usporedbu, bugarski hoteli ne rabe tako širok spektar inovativnih ekološki prihvatljivih mjera. Štoviše, oni u razvoju novih okolišnih inovacija primjenjuju samo široko rasprostranjene mjere koje nisu pretjerano kreativne niti inventivne. Osoblje tih hotela ne organizira događaje za osvještavanje o okolišu, niti ne sudjeluje u akcijama čišćenja gradova i odredišta (Petkova, 2017).

Junzhen et al. (2018) tvrde da poslodavci, uz ekonomske koristi, trebaju snositi i socijalnu odgovornost za zeleni razvoj, snažno se zauzimati i promovirati zelene proizvode i tehnologije i njihovu primjenu, podupirati zeleni menadžment i otvarati više zelenih radnih mjesta.

(50%), guests' preferences, competitive advantage compared to other accommodation facilities (9% each), advertising, promotion and an increase in revenue (5% each). If we focus on the various categories and classes of accommodation facilities, hotels in the First Class category prefer mainly the benefits of environmental protection, cost reduction, and the competitive advantage over other hotels. In the Standard category, the benefits stated were related to improving the quality of the hotel. It needs to be said that some managers did not find any benefits in the application of environmental management principles. This view was also found in the Boarding House category. However, no accommodation facility practiced greenwashing. In other words, they did not make false or unsubstantiated claims to present their practices as environmentally friendly. We must say that greenwashing is a topical issue and the current generation of guests prefer services and products that are environmentally friendly. That is why some accommodation facilities state that they are "green", eco-friendly, etc. (Figure 3).

On the other hand, there are still hotel managers and owners who are reluctant to invest in environmental initiatives, as they are not convinced that these investments are financially effective. Some hotel guests also complained that low pressure water taps and showerheads felt uncomfortable. Furthermore, the implementation of certain new green procedures, principles and policies requires significant investments that have fewer tangible results, such as improving the reputation of the accommodation facility. Nevertheless, from the long-term perspective, investments in green initiatives pay off not only from the economic standpoint. Therefore, it needs to be taken into account that environmental protection and the application of environmental measures requires long-term intent.

Hotel chains in Bulgaria (Hilton, Accor, IHG, Kempinski, etc.) conduct many innovative measures such as energy and water efficiency, waste management, and plant and animal protection, as well as environmental

5. OGRANIČENJA

Ovaj članak istražio je neke aspekte okolišnih mjera u smještajnim objektima odabranog hotelskog lanca u Republici Češkoj, ali ima i nekoliko ograničenja. Ta ograničenja pokazuju smjer za daljnja istraživanja. Prvo, naše se istraživanje ne može generalizirati jer je istraživanjem obuhvaćen jedan hotelski lanac. Bilo bi zanimljivo istražiti druge važne međunarodne hotelske lance u drugim zemljama i usporediti te podatke s rezultatima češkog lanca hotela. Vjerujemo da bi ovakva usporedba bila poželjna. Drugo, sveobuhvatnija i dublja analiza okolišnih mjera nije ostvarena. Nije bilo navedeno jesu li hoteli bili usmjereni na određene okolišne mjere ili ne. Nadalje, daljnja istraživanja trebala bi se baviti vezama između uvođenja okolišnih mjera i profitabilnosti hotela. Druge varijable za istraživanje trebale bi se dotaći primjene okolišnih mjera i zadovoljstva gostiju, ako ta korelacija postoji. Konačno, želimo se fokusirati na pojedine mjere za okoliš, npr. analiziranje praksi čvrstog otpada u hotelima uključujući kategorije poput papira, kartona, vrtnog i kuhinjskog otpada, bacanja hrane, papirnatih rupčića, PET ambalaže, najlona, plastike, stakla itd. Prema našem mišljenju, ti rezultati imali bi značajniju vrijednost.

measures involving staff, guests, suppliers, and carbon emission reduction. In comparison, independent Bulgarian hotels do not use a wide range of innovative eco-friendly measures. Moreover, they apply only the widely-spread ones and are not very creative and inventive in developing new environmental innovations. The staff of Bulgarian hotels also do not organize events related to raising environmental awareness, nor do they participate in cleaning campaigns in towns and resorts (Petkova, 2017).

Junzhen *et al.* (2018) state that employers, in addition to economic benefits, should bear the social responsibility of green development, and emphatically develop and promote green products and technologies, strengthen green management, and provide more green jobs.

5. LIMITATIONS

This paper deals with the research of hotels' environmental measures at accommodation facilities in a selected hotel chain in the Czech Republic in some aspects, but there are several limitations. However, they provide directions for further research. Firstly, our research cannot be generalized as we examined merely one Czech hotel chain. It would be intriguing to investigate additional important international hotel chains in other countries and compare this data with the results of the Czech hotel chain. We assume that a comparison of other countries would be desirable. Secondly, an in-depth analysis was not realized with environmental measures. It was not stated whether the hotels were focused on the particular environmental measures or not. Furthermore, in our future research, we would like to investigate the connection between the implementation of environmental measures and the profitability of the hotel. The other variables for exploration should be between the implementation of environmental measures and guest satisfaction if there is any correlation.

6. ZAKLJUČAK

Smještajni objekti ključni su dionici u turizmu pa bi stoga mogli polučiti značajne učinke. Dionici u turizmu sve su više osviješteni o svom utjecaju na okoliš i zato se uključuju u razne programe volontiranja u kojima se traže prikladne mjere kojima bi mogli doprinijeti zaštiti okoliša kako na lokalnoj tako i na nacionalnoj razini. Primjena načela upravljanja okolišem i održivog razvoja tipičan je trend u području usluga smještaja. Ti se trendovi pojavljuju uglavnom u velikim hotelskim poduzećima, iako smještajni objekti s manjim kapacitetom također pokazuju interes za očuvanje okoliša. Osim svijesti o važnosti zaštite okoliša, smještajni objekti koriste taj koncept i kao prikladno marketinško sredstvo za odvajanje od konkurencije. Ovaj članak doprinosi istraživanjima za promicanje razumijevanja posebnog značaja čimbenika koji određuju uvođenje zelenog upravljanja.

Ovaj članak bavi se analizom primjene okolišnih mjera u smještajnim objektima odabranog lanca hotela u Republici Češkoj. U odnosu na temu i zadani cilj, definirano je sljedeće istraživačko pitanje: Koje mjere upravljanja okolišem se najčešće primjenjuju u određenom lancu hotela? Najrašireni identificirana okolišna mjera bila je štednja energije, i to naročito postavljanjem štednih žarulja (96%) i središnjih prekidača svjetla (77%), kao i zamjena posteljine i ručnika na zahtjev (68%). Mjera koja se pokazala najmanje popularnom bila je korištenje okolišno prikladnih proizvoda (9%), informiranje gostiju o nastojanjima hotela za očuvanje okoliša, kao i uporaba recikliranog uredskog papira. U smještajnim objektima odabranog hotelskog lanca potrebno je značajnije unaprijediti osvještavanje zelenog upravljanja. Vrlo mali broj smještajnih objekata izvijestio je o informiranju klijenata o uporabi metoda zelenog upravljanja okolišem, kao i o polaganju pozornosti na edukaciju osoblja u ovom području. Iako mjere certificiranja u upravFinally, we want to focus on environmental measures individually, e.g. analyzing solid waste practices in hotels regarding categories such as paper, cardboard, garden waste, kitchen and food waste, tissues, PET, nylon, plastic, glass, etc. In our opinions, the results would have a more meaningful value.

6. CONCLUSION

Accommodation facilities are key tourism actors and therefore cause considerable impacts. Stakeholders in the tourism industry are increasingly aware of their impact on the environment, which is why they are involved in various voluntary programs and look for appropriate measures by which they could contribute to environmental protection on both the local as well as national level. The application of environmental management and sustainable development principles is one of the typical trends in accommodation services. These trends are seen mainly in large hotel enterprises, though accommodation facilities with a smaller capacity are interested in going green as well. These facilities are also aware of the importance of environmental protection and use this concept as a suitable marketing tool in setting themselves apart from their competitors. This paper contributes to research by furthering understanding of the particular relevance of factors determining green management implementation.

The aim of this article was to analyze the application of environmental measures in accommodation facilities of a selected hotel chain in the Czech Republic. In connection with this subject matter and the set goal, we defined the following research question: What environmental management measures are most applied in the particular hotel chain? The most widely used environmental measures related to energy conservation Specifically, the use energy-saving light bulbs (96%) i central light switches (77%), and the replacement of bed linen and towels upon request (68%). The least frequently used measures were using environmentally-friendly products (9%),

ljanju okolišem i zapošljavanja menadžera za Sustav upravljanja okolišem predstavljaju dodatan trošak, one smještajnom objektu mogu donijeti određene koristi i uštede.

S povećanjem iskorištavanja okoliša, gosti također postaju sve kritičniji na prakse hotela, naročito u slučajevima gdje je teže provjeriti daje li se prednost okolišu ili trošku. Glavni razlozi za usvajanje mjera očuvanja okoliša su također gosti. Naime, neki od njih općenito prepoznaju hotele koji su prihvatili ekološke mjere pa pokazuju spremnost platiti višu cijenu i odreći se dijela vlastitog komfora i luksuza zbog njihovih provođenja. S obzirom na rezultate ovoga istraživanja smatramo da je primjena načela i mjera zaštite okoliša u lancu hotela ekonomski djelotvorna i društveno korisna, a da njihova uporaba može imati sinergijski učinak.

Zahvala

Ovo istraživanje je omogućila financijska podrška sveučilišta University of West Bohemia iz Pilsena, Republika Češka putem projekta SGS-2019-004 *Korištenje alata marketinškog spleta u uslužnim poduzećima.*

informing guests about the hotel's environmental efforts, and the use of recycled office paper. Big room for improvement in terms of environmental management at accommodation facilities of the selected hotel chain is needed in raising awareness of green management and realizing its importance. A very small percentage of accommodation facilities inform their customers of the green management methods they use and pay little attention to the training of their staff in this area. Although environmental management certification and employing an Environmental Management System manager are costly measures, they can bring the accommodation facility a number of advantages and reduce costs.

With the rise of environmental consumption, guests are also increasingly critical of hotel practices, especially in cases where it is difficult to verify that environmental themes take precedence over that cost. The main reasons for the adoption of environmental measures are also guests. Some of them generally recognize the practices of eco-friendly hotels by showing their willingness to pay more, sacrificing part of their comfort and luxury during the implementation of environmental measures. Given the findings of this research, we consider the application of environmental principles and measures in the hotel chain economically effective and socially beneficial. The use of these environmental principles and measures can have a synergistic effect.

Acknowledgement

This research article was made possible with the financial support of the University of West Bohemia in Pilsen, by project SGS-2019-004 Utilizing Marketing Mix Tools in Service Companies.

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Primljeno: 9. listopada 2019. / Submitted: 9 October 2019

Prihvaćeno: 18. ožujka 2020. / Accepted: 18 March 2020