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Towards Sustainable Hospitality: Key Green Practices in the Hotel Industry

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Abstract:

This study examines the adoption and impact of green practices in the hotel industry, with a particular focus on their environment, economic and reputational outcomes. A descriptive and analytical methodology was employed, with case study analysis of leading international hotel chains, namely Hilton and Best Western Premier Hotel Victoria. The findings reveal that green practices, including energy conservation, water management, and waste reduction, significantly contribute to reducing environmental impact while simultaneously enhancing operational efficiency, corporate image, and customer loyalty. The results further highlight the importance of integrated management systems and technological innovation in achieving consistent sustainability performance.

Keywords: Green Practices, Sustainable Hospitality, Hotel Industry, Environmental Performance, Sustainable Tourism.

JEL Classification Codes : Q56, L83, M14.

1. INTRODUCTION

Tourism is a complex and wide-ranging industry with significant impacts on people's lives and various economic sectors. It can be understood as an interconnected network of individuals, enterprises, organizations, and destinations that collaborate to create and deliver meaningful travel experiences (Idjri & khelifa , 2025, p. 322). Furthermore, Tourism is one of the major economic factors contributing to growth and jobs worldwide. According to World Tourism Organization (UNWTO), An estimated 1.52 billion international tourists (overnight visitors) were recorded around the world in 2025, an increase of 4% over 2024. International tourism recovered 88% of pre-pandemic levels, supported by strong pent-up demand. The latest World Travel & Tourism Council data also highlights the economic impact of recovery. The travel and tourism industry accounts for 9.8% of the global GDP and employs more than 366 million people (WTTC, 2025).

Hotels constitute a key element of the organised chain of activity in the travel and tourism industry, and occupy a crucial place in concerns over environmental protection related to tourism and travel. However, the hospitality industry also imposes negative

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impacts on the environment and community, which can include issues such as over-tourism, environmental degradation, and exploitation of local workers. Additionally, hotels are among the biggest consumers of energy all around the world, and sadly most of this consumption comes from non-renewable sources of energy. Moreover, Hotels produce a large amount of waste in a year, which contributes to the pollution of the environment. Hotels also consume and use a lot of water in various activities of their operations including food and beverage production, housekeeping and laundry, gardening, swimming pools and spas. Thus, Hotels are major users of energy, water, and materials, in fact "green practices" in this sector are a key tool for more sustainable tourism. Abdou et al. (2020) shows these practices can cut environmental impact while also improving hotel image, guest loyalty, and profits. For that reason, it is important for hotels businesses to prioritize sustainable practices to mitigate these negative effects.

Furthermore, according to Booking.com's susainable travel report, 68% of global travellers said that travelling sustainably is important to them, with half citing climate change as a major influence on purchase choices (Booking, 2025, p. 23). It is clearly vital for hotels to implement more environmentally-conscious processes into their services and operations and make these visible to their customers. Bender (2013) also examined the results of a survey conducted by TripAdvisor and stated that around two thirds (62%) of travellers consider environmental issues when deciding to stay at a hotel. In other words, tourists prefer to stay at hotels which are taking measures to protect the environment. Indeed, consumer awareness of environmental issues has increased rapidly and the hospitality industry has recognized its significance, both for its business and for the communities where it operates.

❖ **Research Problem:** According to above, the main research question of this study is formulated as follows:

To what extent do green practices adopted by hotels contribute to sustainable tourism development, and what lessons can be drawn from the experience of leading international hotel chains?

❖ **Research Hypotheses:** To answer the research question, the following hypotheses were formulated:

1. Hotels implement a diverse range of green practices, mainly in energy conservation, water management and waste reduction, which generate positive environmental, economic and reputational outcomes.
2. The adoption of green practices by hotels contributes to sustainable tourism development, particularly in its environmental and economic dimensions, by reducing resource consumption and responding to the growing demand of environmentally conscious travellers.
3. Leading hotels have integrated green practices into their strategies and management systems, achieving measurable results (reduced carbon emissions, water use and waste, and cost savings) that can serve as a practical model for other hotels.

- **Research Objectives:** This study aims to:
  1. Define and categorize the key green practices implemented by hotels, assess their environmental, economic, and reputational impacts.
  2. Examine the adoption of green practices within the hospitality and tourism industry, and evaluate their contribution to sustainable tourism development.
  3. Draw practical insights that may inform green strategy adoption across the broader hospitality sector, through an analysis of leading international hotel chains.
- **Research Methodology:** To answer the research question and test the hypotheses, this study adopts a descriptive-analytical approach combined with a qualitative multiple case study method, based on secondary data such as ESG reports, the EMAS environmental statement and published studies. The descriptive approach is used in the theoretical part of the study to define green practices in the hotel industry, classify them into their main categories (energy conservation, water management and solid waste management), and present their role in sustainable tourism, drawing on recent academic literature and reports of international organisations (UN Tourism, UNEP, WTTC). The analytical approach is used in the applied part to examine and interpret the green practices implemented by the selected hotels and the results they achieved, to compare these results with the findings of previous studies, and to verify the research hypotheses. Further, two cases were selected purposively: the Hilton hotel chain, a large global company operating more than 9,100 properties in 143 countries, and the Best Western Premier Hotel Victoria in Freiburg (Germany), a four-star urban hotel certified under the EU Eco-Management and Audit Scheme (EMAS) since 2005. The two cases were chosen because they are widely recognised as benchmarks of environmental management in the hospitality sector, because they publish detailed and audited environmental data, and because their contrast in size makes it possible to examine how green practices are applied both at the level of a global chain and at the level of a single property.
- **Limitations:** The study depends on data reported by the hotels themselves, which may involve a degree of self-reporting bias, and the small number of cases limits the generalisation of the results. In addition, reputational outcomes and guest loyalty are addressed through the literature rather than measured directly.

2. LITERATURE REVIEW

The accelerating pace of environmental degradation and the intensification of climate-related challenges have compelled the hotel and hospitality industry to reassess its operational frameworks in favour of sustainable development. Given its substantial consumption of natural resources alongside its generation of considerable waste and greenhouse gas emissions, the sector has converged on "green practices" as a strategic

and ethical imperative for hotels seeking to reduce their ecological footprint while meeting evolving regulatory standards and guest expectations.

Green hospitality is built on the foundational ideas of sustainable development. Daneshwar and Revaty (2024) define "green tourism" as a collection of behaviours designed to minimise the adverse environmental, social, and cultural effects of tourism activities. While Pereira et al. (2021) extend this in the context of luxury hotels, demonstrating that sustainability involves both environmental and social dimensions targeting energy efficiency, water conservation, carbon emission reduction, and community support simultaneously. Moise et al. (2021) further argue that hotels develop green practices not only in response to regulatory requirements but also to address growing guest awareness and improve institutional image, positioning them as antecedents of guest trust and satisfaction.

A recurring finding across the literature is the diversity of green practices adopted by hotels, spanning energy management, water conservation, waste reduction, procurement, and housekeeping operations. Abdou et al. (2020) demonstrate that green hotel practices contribute directly to SDG 6 (clean water), SDG 7 (clean energy), SDG 12 (responsible consumption), and SDG 13 (climate action). Winanti et al. (2025) document specific housekeeping programmes at Radisson Blu Bali including linen reuse and waste separation protocols and illustrating how sustainability intentions are sometimes lost in day-to-day practice. Barakagira and Paapa (2024) identify energy conservation, waste management, and environmental purchasing as the three dominant practice categories, a pattern equally observed by Fadhil (2015) in Kenya and Amer et al. (2023) across five-star hotels in Egypt and Saudi Arabia. Across these geographically diverse studies, energy efficiency and waste management consistently emerge as the most widely adopted categories, while community-oriented approaches remain comparatively nascent.

Understanding why hotels adopt green practices is as important as understanding what they adopt. Abdou et al. (2020) identify institutional environmental commitment as the primary driver, while Chandran and Bhattacharya (2019) argue that green practices are increasingly embraced as tools for competitive differentiation enabling hotels to enhance reputation and attract eco-conscious guests. Langgat et al. (2023) employing PLS-SEM on data from 169 managers, find that perceived ease-of-use and top management support are the most critical determinants of adoption, with external client pressure serving as a persistent stimulus. Furthermore, Sakshi et al. (2019) demonstrate through structural equation modelling that environmental policies and training programmes are positively and significantly related to actual sustainability practices, showing how organisational intent is translated into operational action.

3. THEORETICAL FRAMEWORK OF THE STUDY

3.1 Green Practices in Hospitality and Tourism Industry

In the tourism literature, "green" practices have been defined as “internal efforts or activities of a hotel to implement environmentally friendly practices towards the goal of becoming a green facility” (Khalil, et al., 2024, P. 656). Green practices in the hotel industry mainly include saving energy, reducing water consumption and waste management and reduction (Barakagira & Paapa, 2024, p. 9422). In this context, Hotels can reduce their environmental footprint and benefit from cost savings. Sustainable management practices implemented in the hospitality industry are promoted as an important component for industries to be competitive in today’s business context. Thus, green practices include sustainable management of water, energy conservation, solid waste management, ensuring air quality, environmental purchasing, community awareness and maintenance of permits, highlighted below are the various green practices adopted by hotels:

1.1.1. Energy conservation

Hotels are among the biggest consumers of energy all around the world, and sadly most of this consumption comes from non-renewable sources of energy. In fact, hotels and other types of accommodation account for 2% of the 5% global CO2 emitted by the tourism sector (UN Tourism, 2026). In the recent years, hotels start to look for energy conservation measures that they can implement, as well as turning towards sourcing their energy from environmentally friendly renewable sources (sunlight, wind, rain, tides, geothermal heat and biomass). For instance, LED lighting, motion sensors, smart cards for room power, efficient air-conditioning, solar and other renewables, pool covers, group re-lamping (Pereira, et al., 2021, p. 04).

1.1.2. Water management

Hotels consume and use a lot of water in various activities of their operations. According to a study done by Tang (2012) on two Malaysian resorts, the water consumption per guest in guest rooms for both resorts is about 500 liters per day (Tang, 2012, p. 511). This clearly shows the high volumes of water consumed by hotels in a day with the scarcity of this natural resource a greater need to have water management as a green practice is presented. For instance, Low-flow taps/toilets, smart taps reusing greywater, irrigation at sunset, drought-tolerant plants, linen/towel reuse programs (Amer, et al., 2023, p. 313).

1.1.3. Solid waste management

Waste management involves properly disposing of and recycling materials in order to reduce the environmental impact of hotel operations. Proper waste management can also lead to financial savings for hotels by reducing costs associated with disposal, as well as improved customer satisfaction. Hotels produce a large amount of waste in a year, which contributes to the pollution of the environment. According to United Nations Environmental Programme (UNEP) and UNWTO, Tourism produce more than 35 m tones of solid waste annually, and About 1.6 kg of waste is produced per tourist per day. For that reason, Hotels businesses are obliged to reduce the amount of waste

they generate and improve their waste disposal practices. Furthermore, reusing, and recycling solid waste can benefit a hotel's business and the environment. where waste cannot be avoided (Barakagira & Paapa, 2024, p. 9423). Thus, the best way for hotels to manage these different types of guest waste is by implementing proper recycling systems that are easily accessible to guests in all areas of the hotel. Further, composting, separating waste, cutting single-use plastics, eco-purchasing, using durable items, office paper saving.

Overall, green hotel practices are considered to be one of the environmentally friendly initiatives that aim to eliminate the negative impact on the environment by saving energy (e.g., by installing energy-efficient appliances and implementing renewable energy programs), reducing water consumption (e.g., by installing water-efficient devices and equipment and implementing a linen and towel reuse program) and waste management and reduction (e.g., by implementing recycling programs and using durable items rather than disposable ones). Table 1 illustrates examples of pro-ecological and pro-social work pursued by hotel-type organisations.

Table 1. Examples of pro-ecological and pro-social work pursued by hotel-type organizations

Type of activity	Description
Facility design and construction stage	
Location of facility	Choice of facility location affects subsequent activities taken in the area of pro-ecological and pro-social endeavours. Facility location depends on facility type and other factors. Urban locations make it possible to utilize existing power and water infrastructure, and this is the case with many business hotels. Hotels located outside major cities have the option of using alternative sources of both water and electrical energy, as is the case with many health spas and recreational-type hotels.
Location of facility and the scheme of rooms	Hotel rooms need full access to sunlight and should face south. Kitchens and warehousing areas should face north.
Utilization of ecological construction technologies and construction materials	Technologies, materials, insulation, sources of energy including alternative sources, saving water, wastewater generation.
Installation of ecological elements of hotel interiors including reused elements	Furniture, floor coverings, bathroom appliances and equipment, entertainment equipment such as television sets.
Greenery as an element of proenvironmental Policy	Design of green areas outside the hotel facility and allocation of potted plants inside the facility.
Pro-social efforts	Employment of a local labour force and products made locally.
Everyday hotel operations	

Water and sewage	Water and sewage Reduced water usage via the use of faucet aerators, use of stored rainwater, requests to guests
Electrical energy and heat	Energy savings via the use of electronic access systems, devices with proper energy certificates, power-conserving lightbulbs, alternative heating sources.
Household waste Waste	Waste reduction by using products sold in large packages, use of multiple-use materials,
Ecological certificates and standards	E.g. Green Key, Ecolabel, Green Globe, Trevelife, appropriate ISO standards.
Hotel services	Hotel room strategy: ask guests to make an effort to save energy, water, and segregate trash.
Employee-related efforts	-Counteracting discrimination, protection of employee rights, and dialogue with employees. Concern for employees via healthcare packages, fitness packages, creative training options. - Efforts to hire employees with the following key concerns in mind: gender equality, professional development, employee mobility, efforts to counteract age discrimination. Employee training and designation of employees to implement the principles of sustainable growth and formulate pro-environmental policies as well as monitor the outcomes of all above efforts
Employee-related efforts	Use of honest practices in marketing, employment contracts, other contracts, education, hotel security, and service quality. Informing hotel guests about efforts in the area of sustainable development. The hotel facility should feature signs and pictograms that show guests how to save water, electricity, and heat. Show appreciation for guests who do generate savings and reward this type of guest behaviour.
Obligations to suppliers	Honesty-based relationships with partner companies/suppliers. Informing and promising partners that certain practices are in fact being employed. Giving consideration to sustainability issues when selecting business partners. Collaboration with partners on issues associated with sustainable development.
Obligations to the local community	Attempts at social dialogue. Purchasing products from local producers, supporting nongovernmental organizations, focusing on local organizations, initiatives related to children's homes, schools, and assistance to children from families experiencing difficulties

Source: Kapira, I. 2018, « Sustainable development in the hotel industry: Between theory and practice in poland ». Turyzm, 28 (2), PP :23– 30, P27.

1.2.The Role of Green Practices in Sustainable Tourism

Green practices in the hospitality sector do not operate in isolation; rather, they constitute a foundational pillar of the broader sustainable tourism agenda. At the most structural level, Abdou et al. (2020) demonstrate that green hotel operations contribute directly to internationally agreed environmental goals, with specific practices mapping onto SDG 6 (clean water and sanitation), SDG 7 (affordable and clean energy), SDG 12 (responsible consumption and production), and SDG 13 (climate action). This SDG-alignment dimension is significant because it elevates green hotel practices from mere operational optimisation to a form of institutional contribution to global sustainability

architecture which is increasingly relevant as hotels seek to communicate their broader societal impact to stakeholders, investors, and guests.

From an environmental standpoint, the adoption of green practices translates into measurable ecological benefits, including lower carbon emissions, reduced water consumption and waste generation, and improved biodiversity protection (Daneshwar & Revaty, 2024, p. 2795). These outcomes are not merely symbolic; they represent a tangible reduction in the ecological footprint of an industry historically characterised by intensive natural resource use. The consistency of these benefits across the reviewed literature reinforces the view that green practices, when genuinely and systematically implemented, can meaningfully reverse some of the environmental pressures that mass tourism has historically generated.

Beyond environmental performance, green practices generate substantial economic returns that reinforce their strategic appeal. Chandran and Bhattacharya (2019) argue that hotels embracing environmental best practices benefit from enhanced reputation, reduced operational costs, and access to growing green market segments. These findings are corroborated by Sakshi et al. (2019), whose structural equation modelling demonstrates that resource and energy conservation practices exert significant positive effects on financial performance. Taken together, these studies challenge the long-standing perception that sustainability and profitability are in tension, suggesting instead that green investment represents a strategically rational business decision with measurable returns.

Green practices also shape tourism demand dynamics in important ways. Eco-conscious guests increasingly prefer and demonstrate greater loyalty toward green or eco-labelled hotels, with positive downstream effects on occupancy rates and institutional reputation (Chandran & Bhattacharya, 2019, p. 2018). This demand-side dynamic creates a market reinforcement mechanism whereby hotels that invest in credible green practices attract and retain a growing segment of environmentally aware travellers effectively transforming sustainability from a regulatory compliance concern into a competitive differentiator.

Finally, at the destination level, the cumulative effect of green practices across hotels contributes to the overall resilience and attractiveness of tourism destinations. Fadhil (2015) highlights that better resource management and meaningful community engagement help sustain the natural and cultural assets upon which tourism ultimately depends, thereby reinforcing the long-term viability of destinations in the face of increasing environmental pressures. This destination-level dimension underscores the fact that green practices in individual hotels are not merely firm-level decisions but collective contributions to the sustainability of the tourism ecosystem as a whole.

2. KEY APPLICATIONS OF GREEN PRACTICES IN SELECTED INTERNATIONAL'S HOTELS

2.1. Hilton Hotel-chain Case Study

In the last decade, the leading international hotel chains are increasingly emphasizing their commitment to sustainability and integrating it into their strategic plan. Hotels are major users of energy, water, and materials, so “green practices” in this sector are a key tool for more sustainable tourism. Thus, these practices can cut environmental impact while also improving hotel image, guest loyalty, and profits (Abdou, et al., 2020, p. 03). For instance, Hilton is a leading global hospitality company with a portfolio of 25 world-class brands comprising more than 9100 properties with more than 1.3 million rooms in 143 countries and territories. With more than 9000 hotels Hilton serves about 4 billion guests (Hilton, 2025, p. 12), and employs 510,000 Team members around the world (Hilton, 2025, p. 03).Hilton is aware of its vital duty and responsibility to save the environment for the benefit of future generations. For this reason, the Hilton hotel-chains are committed to halving their environmental footprint by conserving resources, reducing the negative environmental impact, and collaborating with local communities to invest in projects that contribute to environmental stewardship and resiliency.

The Hilton hotel-chain has directed its sustainability philosophy in Environmental direction, which is presented in their Environmental, Social and Governance (ESG) report titled “Travel with purpose”. Paving the way to net zero; Managing efficiency and performance of their natural resources; Investing in partnerships that support restoration and awareness. Travel with Purpose is Hilton’s ESG strategy to drive responsible travel and tourism globally. Hilton seek to create positive Environmental impacts across their operations, supply chain, and communities. The environmental goals aim to reduce Hilton's overall carbon footprint by 75% from managed hotels by 2030 (Hilton, 2025, p. 08) through responsible hospitality across their value chain. Thus, by implementing green practices, Hilton can enhance its reputation, attract Environmentally conscious customers, and ultimately increase profitability. Additionally, green practices can also lead to cost savings through efficient resource management.

According to ESG 2025 report, Hilton environmental goals led to reductions in carbon output by 50.9%, waste output by 64.7%, water use by 37.1% in managed Hotels, and 135 estimated tones of plastics reduced through the use of digital key, which can save the company millions of dollars in operating costs and help to operate more efficiently and sustainably in the long run (Hilton, 2025, p. 08). Overall, Hilton's commitment to environmental goals has resulted in significant cost savings for the company and made also a positive impact on sustainable tourism. This commitment to sustainability not only enhanced Hilton's reputation but also contributed to a more positive and impactful corporate image. Here some examples of green practices which are implemented by Hilton:

- **Carbon reduction and Energy conservation:** Hilton was the first hospitality company to sign on to the U.S. Department of Energy’s Better Climate Challenge, a

national leadership initiative of organisations committed to reducing greenhouse gas (GHG) emissions, creating jobs, and promoting healthy, safe, and thriving communities Hilton's participation in this initiative shows their commitment to sustainability, this commitment is in line with their ongoing efforts to reduce both hotels' carbon footprint and energy consumption and generate long-term cost savings on electricity bills. For instance, in 2024, Hilton Hawaiian Village advanced its transition to fully LED lighting by replacing all illumination in common areas. The upgraded system includes motion sensors that automatically dim or switch off lights when spaces are unoccupied, maximizing energy efficiency. Once the conversion is finalized, the hotel will have installed more than 20,000 LED bulbs and fixtures, generating estimated annual savings of approximately $1.3 million, achieving a 14% reduction in energy use through this and other efficiency projects (Hilton, 2024, p. 12; Hilton, 2025, p. 16). Furthermore, U.S managed hotels saw a remarkable 88% year-over-year growth in renewable electricity consumption, using around 152 million kWh of renewable energy, a quantity sufficient to meet the nnual power needs of approximately 14,500 homes (Hilton, 2025, p. 15). In fact, Hilton try to achieve on-going reductions in energy and emissions through a relentless focus on energy efficiency, electrification, and transition to renewable energy. In this regard, Hilton has set ambitious targets validated by the Science Based Targets initiative (SBTi) to reduce emissions across its entire global portfolio. This includes initiatives such as (Hilton, 2022, p. 03) :

- Reducing single-use plastic amenities in hotels.
- Expanding the use of energy-efficient LED light bulbs.
- Offering on-property electric vehicle charging.
- Providing carbon-neutral options for meetings and events.
- Opening the net-zero Hotel Marcel New Haven in the United States.
- Strategic investment in Fifth Wall's Climate Tech Fund to support decarbonizing technologies in real estate.

According to Hilton's latest ESG reporting (2025), the company continues to strengthen its commitment to reducing greenhouse gas (GHG) emissions and improving energy efficiency, electrification, and the transition to renewable energy across its global portfolio. Hilton has achieved approximately 50.9% reduction in carbon emissions intensity compared to its 2008 baseline. Continued progress toward its goal of reducing emissions by 75% (managed hotels) and 56% (franchised hotels) by 2030 (Hilton, 2025, p. 08). While, energy consumption has increased compared to pandemic years due to full recovery in travel demand; efficiency improvements ensure that emissions intensity continues to decline.

❖ **Water conservation:** Hilton remains committed to water stewardship across its operations. Through initiatives such as low-flow fixtures, greywater recycling systems, and optimized irrigation, the company has significantly reduced water consumption.

Recent ESG updates indicate 37.1% reduction in water consumption intensity compared to the 2008 baseline. Examples include hotels implementing greywater recycling and advanced water management systems, particularly in water-stressed regions such as the Middle East. In 2024, the company introduced the Water Efficiency Playbook, a practical guide designed to help hotels reduce water consumption, lower costs, and conserve resources while maintaining high standards of guest comfort. A notable example is Conrad Dubai's partnership with A1RWATER, which uses air-to-water technology to extract moisture from the atmosphere and convert it into purified water with minimal energy use. Each unit can produce up to 100 litters of water over a 24-hour period and store 60 litters, ensuring a steady supply of fresh water thereby providing a reliable and environmentally sustainable water source in a region facing water scarcity. All these practices reflect that Hilton's commitment to sustainability is extremely well presented (Hilton, 2024, p. 13).

- **Waste Reduction:** According to the UNEP an estimated 17% of total global food production goes to waste, of which 5% comes from the food service industry (UNEP, 2021, p. 08). For this reason, Hilton have committed to reduce waste across their value chain by encouraging their hotels to adopt a prevention, recovery and recycling strategy. For instance, the Green Ramadan initiative was implemented first in three of Hilton's hotels: Waldorf Astoria Lusail Doha, Conrad Dubai, and Hilton Riyadh Hotel HYPERLINK to measure, manage, and mitigate food waste across key markets in the Middle East (UAE, Saudi Arabia, and Qatar) in 2023. The collaboration combined Hilton's Travel with Purpose strategy and the UNEP West Asia's 'Recipe of Change'. Hilton partnered with Winnow, utilizing their artificial intelligence technology which allowed for precise tracking of food waste from production to the plate. In 2025 the program grew to include 45 hotels across 14 countries, resulting in a 26% reduction in plate waste, which is equivalent to serving over 6,000 meals, over 2.6 tons of food waste avoided, and 10.9 tons of CO2 emissions (Hilton, 2025). The global impact of hotels worldwide utilizing Winnow achieved an impressive average food waste reduction of 60% demonstrating a strong commitment to sustainable operations. This significant reduction translated into more than 7 million meals saved which contributed to avoiding over 13,000 tons of CO2 equivalent emissions (Hilton, 2025, p. 17).

Moreover, Hilton's commitment to sustainability is further demonstrated by its partnership with Clean the World, a global health organization that recycles discarded soap and shampoo products to reduce waste and prevent hygiene-related illnesses. In this regard, Hilton aims to send zero soap to landfill by recycling all used quest soap bars by 2030. Through these initiatives, Hilton continues to lead the way in environmental stewardship within the hospitality industry. As a result, the Landfill waste reduction for managed hotels was approximately 64.7% in 2025 compared to 2008

(Hilton, 2025, p. 08). The table below illustrates highlights from Hilton ESG 2025 Report:

Table 2. Results of implementing Green Practices in Hilton-hotel chains

	Progress to date
Energy efficiency	- 48.1% reduction in carbon emissions intensity (managed Hotels). - 32.7% reduction in carbon emissions intensity (franchised Hotels). -100% of hotels mapped in lightStay against climate risks. -Established LED bulbs as a global brand standard for new builds and existing buildings across all brands. -Facilitated ongoing certification to three ISO standards (ISO 14001, ISO 50001 and ISO9001) through Dekra's comprehensive audit progress for our global hotel portfolio, ensuring top international standards for environmental, energy and quality management.
Water efficiency and nature	- 37.1% reduction in water intensity (managed hotels). - Activate 17 community water projects to increase access and resilience. -100% of hotels mapped to WWF's Water Risk Filter.
Waste reduction	- 64.7% reduction in landfilled waste intensity (managed hotels). - 2.9M+ Bars of soap donated in 2025. -80% of hotels enrolled with soap recycling organizations in 2025. - Empowered all hotels with the Hotel Kitchen platform. Developed by WWF and AHLA. - In 2025, scaled Green Ramadan across 45 hotels in 14 countries in EMEA and Asia Pacific (APAC). Globally, 73% of hotels report having a food-waste reduction program in place. -more than 80% of Hilton's properties offer Digital Key, eliminating 100+ tons of plastic annually.

Source : Prepared by Authors based on Hilton 2025 ESG report, « Travel with purpose », PP 08-20.

In fact, Hilton set and track carbon, energy, water and waste reduction goals for every hotel through their LightStay system. Since 2009, Hilton has used « LightStay » its award winning corporate responsibility management platform, which originally designed to track environmental data to measure and manage their performance. Furthermore, this system also enables Hilton-hotels to meet certain ISO 14001 (environmental management), ISO 50001 (energy management), and ISO 9001 (quality management) requirements by tracking emissions reductions following the implementation of their investments in efficiency and resilience. In fact, Hilton is the only major hotel brand that has achieved ISO certification across its global portfolio of hotels. Moreover, Hilton encourage their owners to build or renovate hotels to the highest green building standards that can apply to the hotel's location (e.g. A Waldorf Astoria Hotel/ Rome Cavalieri, has achieved Green Key certification for the fourth consecutive year) (Hilton, 2022, P. 14). This certification reflects the hotel's commitment to sustainability and environmental responsibility which can enhance its reputation and attract a wider range of guests.

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Finally, these practices reflect Hilton's commitment to sustainability and positive global impact. They are strategically designed to align with their 2030 Goals. The company set long term goals in 2018 to cut its environmental footprint in half. In other words, Hilton aims to cut managed carbon emissions intensity by 75% and cut water consumption and landfilled waste by 50% by 2030. The table below summaries Travel with Purpose 2030 Hilton's environmental and social Goals which closely align with the United Nation's Sustainable Development Goals (SDGs):

Table 3. Hilton's 2030 Goals

	Hilton's 2030 Goals
Environmental Goals	- Reduce Scope 1 and 2 carbon emissions intensity from managed Hotels by 75% (MTCO2e/m2, 2008 baseline). - Reduce Scope 3 carbon emissions intensity from franchised Hotels by 56% (MTCO2e/m2, 2008 baseline), through collaborative efforts with franchisees. -Align with global environmental certifications that require third-party verification.
	-Reduce water use intensity in managed operations by 50% (Liters/m2, 2008 baseline). -Activate 20 community water projects to increase access and resilience.
	-Reduce landfilled waste intensity in managed operations by 50% (MT/m2, 2008 baseline). -send zero soap to landfill by recycling all used quest soap bars, where available. - Participate in food donation program where allowed by law (managed hotels). - implement a food waste reduction program in every kitchen across global operations to reduce food waste.

Source: Prepared by Authors based on Hilton 2025 ESG report, « Travel with purpose », P 08.

2.2. Best Western Premier Hotel Victoria Case Study

The Best Western Premier Hotel Victoria Freiburg is a four-star, eco-certified urban hotel that has become one of Europe's most recognised benchmarks for environmentally responsible hotel management. The hotel obtained EMAS (Eco-Management and Audit Scheme) certification from the European Union in 2005, making it the first hotel in Freiburg (Germany) to achieve this distinction (European Commission, 2021). Given that the property consumes approximately 230,000 kWh of electricity and 410,000 kWh of thermal energy annually, that is as much electricity as 60 households use and as much heat as is needed to heat 15 detached houses. Each guest consumes around 30 kWh of energy per night (Hotel Victoria, 2024, p. 03). The scale of its energy management challenge is considerable, yet it has met this challenge through an integrated portfolio of renewable technologies and behavioural initiatives. Here is a comprehensive breakdown of the green practices at Best Western Premier Hotel Victoria Freiburg:

❖ **Energy Efficiency:** Electricity Generation through On-site Renewables: The hotel generates a substantial portion of its own electricity through a rooftop energy park combining a 200 m2 photovoltaic solar array, producing approximately 20,000 kWh per year, with four small wind turbines that contribute an additional 2 kW of installed capacity. Together, these installations produce sufficient electricity to power all guest rooms. The remaining demand is sourced from Stromrebellen, a community-owned renewable energy cooperative based in Schönau, ensuring that every kilowatt-hour purchased from the grid is also certified green. Beyond on-site generation, the hotel participates in a wind energy park in Ettenhein, through which a further 70,000 kWh of renewable electricity is generated annually (Hotel Victoria, n.d.). an investment in distributed energy infrastructure that reflects a long-term commitment rather than a one-off initiative (Bohdanowicz & Martinac, 2007).

Heating and Building Insulation: In the spring of 2002, the hotel replaced its oil-fired heating system with a modern wood pellet heating system equipped with a flue gas cleaning system. Thanks to the flue gas cleaning system and an intelligent heating control system, emissions are well below the required limits. The system has a heating capacity of 300 kilowatts. Approximately 70 metric tons of wood are used each year to meet the space heating and hot water needs of our guests (Hotel Victoria, 2024, p. 04). Thus, space heating and hot water in the hotel are supplied by a wood-pellet boiler with a flue-gas cleaning system. The pellets are made from compressed sawdust sourced locally from the nearby Black Forest, which makes the system more sustainable. Since the CO2 released during combustion is roughly equal to the amount absorbed by the trees during their growth, and because the forest is sustainably managed, this process can be considered nearly carbon-neutral (Sloan, et al., 2013, p. 48). The hotel also improved its energy efficiency by installing triple-glazed windows and renovating the insulation of two rear wings with 24 cm panels, reducing heating energy demand by about 60% (Hotel Victoria, 2024, p. 04) (Hotel Victoria, 2024, p04). Such building envelope improvements are considered among the most effective long-term energy-saving investments in hotels (Zhao, et al., 2012, p. 1525).

Passive Groundwater Cooling: Rather than installing conventional refrigerant, based air conditioning among the most energy, intensive systems in hotel operations. Hotel Victoria draws groundwater at a stable temperature of approximately 10°C from a depth of 24 meters through a dedicated suction well in its inner courtyard. This water circulates through a ceiling pipe network across all guest rooms and is returned to the ground at a maximum temperature of 16°C, where it re-cools passively through soil contact (Hotel Victoria, n.d.). The system requires no compressors, no refrigerants, and virtually no electricity beyond the circulation pump, making it an elegant and replicable passive cooling solution (Bohdanowics, 2006).

In-Room Energy-Saving Devices: Particularly resource-saving devices were installed throughout the rooms, including flat-screen TVs consuming less than 1.2W in

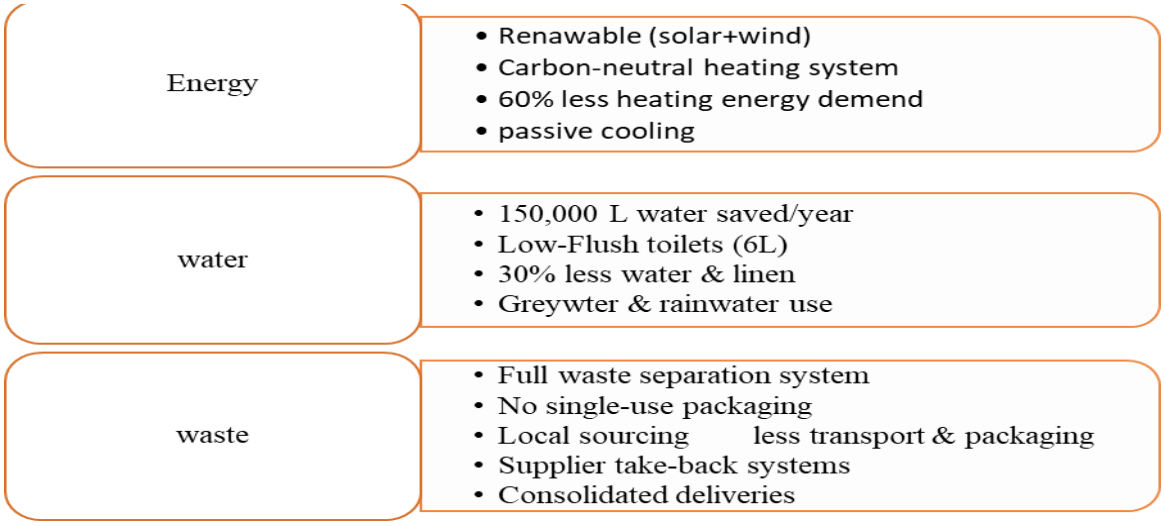
standby mode, energy-efficient LED lamps, and mini-bars with Fuzzy Logic technology consuming 30% less energy than conventional devices (Hotel Victoria, n.d.).

❖ **Water Efficiency:** The hotel applies several practical water-efficiency measures to reduce consumption without affecting guest comfort. All toilets have been fitted with stop-button low-flush systems using six litres per flush instead of the usual nine litres, saving around 150,000 litres of drinking water annually, which is important because toilet flushing represents as a major share of hotel water use. Flow restrictors on taps and showers, together with bathtubs designed to use about 30% less water, further improve efficiency while maintaining service quality (Hotel Victoria, n.d.). The towel and linen reuse programme also reduce laundry-related water, detergent and energy use at very low cos. In addition, eco-certified cleaning products adapted to Freiburg's water hardness help limit chemical use and pollution (Hotel Victoria, 2024, p. 06). Finally, the permeable courtyard surface allows rainwater to soak naturally into the ground, supporting drainage and groundwater recharge (Berardi, et al., 2014, pp.421-422).

❖ **Waste Reduction:** The hotel adopts a comprehensive waste reduction strategy by separating waste into glass, plastic, paper, organic, and residual categories, ensuring proper handling through certified disposal partners. It reduces single-use packaging by eliminating individual portions at the breakfast buffet, using reusable detergent containers, and replacing cans with recyclable bottles, packaging is further minimized through suppler take-back systems and proper disposal of special waste at authorized recycling centres. Moreover, the hotel prioritizes locally sourced and organic products, which helps reduce both packaging waste and transport related emissions. Delivery processes are optimized by consolidating shipments and favoring regional and Fair-Trade suppliers (Hotel Victoria, n.d.). Such integrated waste management practices are widely recognized as effective in enhancing environmental performance and reducing operational impacts in the hospitality sector (Sloan, et al., 2013, pp. 67-68).

According to above the figure below illustrates highlights of results of implementing Green Practices in the Best Western Premier Hotel Victoria.

Fig.1. Green Practices Results -Best Western Premier Hotel Victoria Freiburg-



Source: Prepared by Authors.

5. RESULTS AND DISCUSSION

This research shows that green practices are now a key element of sustainable tourism, consistent with other research. In line with Barakagira and Paapa (2024), Amer et al. (2023), and Fadhil (2015), the analytical analysis confirms that energy, water, and waste management are the most common and effective practices in hotel operations. This study shows further a high level of congruence between theory and practice, particularly in the case of Hilton and Best Western Premier Hotel Victoria.

The findings also confirm the multiple advantages of green practices. Consistent with previous research sustainability practices not only influence the environment performance, but also cost efficiency, reputation, and customer loyalty. The study indicates that such practices generate clear environmental benefits, including significant reductions in carbon emissions, water use and waste, through energy-efficient technologies and waste reduction systems. In fact, Hilton achieved a significant decline in carbon emissions (50.9%), water consumption (37.1%) and waste (64.7%) provide concrete evidence that green practices can effectively decline the ecological footprint of large scale hotel operations. Similarly, the Best Western case shows that even small hotels can achieve massive environment improvements through integrated and well managed systems. These results are consistent with Daneshwar and Revaty (2024) and align with findings of Sakshi et al. (2019), who demonstrate that green tourism practices lead to measurable reductions in resource use and environmental degradation.

Overall, the long term efficiency plans adopted by Hilton and the substantial reductions at Hotel Victoria confirms that sustainability is not a cost to manage, but an investment that delivers real returns. Ultimately, the study confirms that sustainable hospitality is best supported by integrated green practices that are technology enabled and strategically related to firms and destinations.

6. CONCLUSION

This study aimed to examine the adoption of green practices in the hospitality industry and their role in advancing sustainable tourism. After analysing the cases of Hilton and Best Western Premier Hotel Victoria Freiburg alongside the theoretical literature, the study reached the following conclusions:

- Green practices, energy conservation, water management, waste reduction, and eco-friendly procurement contribute directly to the SDGs and have become a strategic necessity in the face of growing environmental pressure and evolving guest expectations.

- Their benefits are both environmental and financial. Hilton achieved a 50.9% reduction in carbon emissions intensity, a 37.1% decrease in water use, and a 64.7% reduction in landfilled waste since 2008. Hotel Victoria demonstrates that comparable results are equally attainable by smaller hotels when sustainability is pursued with consistency.

- With 68% of global travellers stating that sustainable travel matters to them, green credentials have become a mainstream purchasing criterion, and certification schemes such as EMAS and ISO 14001 serve as credible trust signals that reinforce guest loyalty.

- The most impactful outcomes are produced not by isolated initiatives but by integrated management systems such as Hilton's LightStay platform confirming that durable green adoption requires investment in organisational culture as much as in physical infrastructure.

Further research is needed to examine how small and medium-sized hospitality enterprises in developing economies can effectively adopt and sustain green practices, and what role digital technologies may play in enhancing their effectiveness.

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