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Environmental Safety Practices and Challenges among Hotels in Iloilo City

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Romar A. Lagunday[1], ORCID No. 0009-0003-2554-7205
Kenneth Gregg T. Bargo[1], ORCID No. 0009-0007-3682-3374

[1]Master in Hospitality Management, Iloilo State University of Fisheries Science & Technology, Barotac Nuevo, Iloilo, Philippines

Abstract

This study examined environmental safety practices among hotels in Iloilo City, with particular attention to implementation levels, operational challenges, and their interrelationship. Grounded in the need for sustainable hospitality management, the research aimed to generate practical insights for improving environmental performance in hotel operations. A descriptive-correlational design was employed, involving 200 hotel employees selected through purposive sampling. Data were gathered using a validated survey instrument and analyzed through descriptive and inferential statistics. Findings indicate that hotels generally demonstrate strong implementation of environmental safety practices, particularly in waste management, while other areas such as energy use, chemical handling, and air and water quality management are also consistently practiced. However, operational challenges remain evident, especially in resource handling and environmental control processes. A significant inverse relationship was identified between the level of practice implementation and the challenges encountered, suggesting that more consistent adoption of environmental measures contributes to reduced operational difficulties. The study offers a key insight that strengthening environmental safety practices is not only a compliance measure but also a strategic approach to minimizing operational constraints. These findings highlight the importance of integrating sustainability into daily hotel operations and provide a basis for management to enhance policy development, staff training, and resource allocation toward more sustainable and efficient practices.

Keywords: environmental safety practices, sustainable hospitality management, hotel operations, waste management and resource handling, environmental performance, Iloilo City

INTRODUCTION

Environmental safety practices have become a critical component of the hospitality industry amid growing concerns over climate change, pollution, and resource depletion. Hotels, as intensive users of energy and water and major contributors to waste generation, are increasingly expected to adopt sustainable and environmentally responsible operations. Globally, the industry is being urged to align its practices with sustainable development goals to reduce environmental impact and promote long-term sustainability (United Nations World Tourism Organization [UNWTO], 2018).

In the Philippine context, this global direction is reinforced through national tourism policies that promote sustainable tourism development. Hotels are encouraged to integrate environmental safety practices into their operations, including waste management, energy efficiency, water conservation, and proper handling of hazardous materials. These measures are essential not only for environmental protection but also for improving operational efficiency and ensuring compliance with regulatory standards (Department of Tourism [DOT], 2019).

At the local level, Iloilo City has emerged as a growing tourism destination with a strong commitment to sustainability. Hotels in the city have increasingly adopted eco-friendly practices to support environmental initiatives and enhance their competitiveness in the tourism industry. These efforts reflect the hospitality sector's recognition of the

importance of aligning business operations with environmental sustainability goals while maintaining quality service for guests (Mensah, 2006; Chan & Hawkins, 2010).

Despite these developments, there remains a gap in the literature regarding the extent to which environmental safety practices are implemented in hotels at the local level, particularly in Iloilo City. Existing studies have largely focused on broader national or international contexts, with limited attention given to the relationship between employees' demographic profiles, the level of environmental safety practices, and the challenges encountered in their implementation. This gap highlights the need for a localized investigation to better understand how environmental practices are carried out and what factors influence their effectiveness (Chan & Hawkins, 2010).

In light of increasing environmental demands and the need for sustainable hospitality operations, this study examines the environmental safety practices among hotels in Iloilo City, focusing on their level of implementation and the challenges encountered. While existing policies encourage sustainability, there remains limited localized evidence on how effectively these practices are carried out at the operational level and how challenges may hinder their success. Addressing this gap, the study aims to generate context-specific insights that can guide hotel managers in strengthening environmental initiatives. Ultimately, the findings seek to support more informed decision-making by balancing sustainability goals with service quality and operational efficiency.

Research Questions. The primary objective of this study is to assess the environmental safety practices among hotels in Iloilo City. Specifically, it seeks to answer the following questions:

1. What is the demographic profile of the respondents in terms of:
   1.1 Age;
   1.2 Sex;
   1.3 Years of experience; and
   1.4 Job position?

2. What is the level of environmental safety practices among hotels in Iloilo City in terms of:
   2.1 Waste Management;
   2.2 Chemical Handling;
   2.3 Energy Use; and
   2.4 Air and Water Quality Management?

3. What are the challenges in environmental safety practices among hotels in Iloilo City in terms of:
   3.1 Waste Management;
   3.2 Chemical Handling;
   3.3 Energy Use; and
   3.4 Air and Water Quality Management?

4. Is there a significant relationship between the level of environmental safety practices and the challenges encountered among hotels in Iloilo City?

Conceptual Framework. This study is anchored on Generational Cohort Theory (Mannheim, 1952) and Social Learning Theory (Bandura, 1977), which collectively explain how individual differences and workplace environments influence the adoption and implementation of environmental safety practices in hotels.

Generational Cohort Theory suggests that individuals belonging to different age groups and work backgrounds develop distinct values, attitudes, and behavioral tendencies shaped by shared life experiences. In this study, employee demographics such as age, sex, years of experience, and job position are expected to explain variations in environmental safety practices. These differences may influence how employees perceive the importance of sustainability, their willingness to comply with environmental policies, and the level of challenges they experience in applying such practices.

Social Learning Theory explains behavior adoption as a process shaped by observation,

imitation, and reinforcement within the workplace. In hotel settings, employees are likely to develop environmental safety behaviors through exposure to organizational policies, training programs, and modeling from supervisors and peers. This suggests that stronger institutional support and positive workplace reinforcement can enhance consistent practice implementation while potentially reducing perceived operational challenges.

Together, these theories explain that environmental safety practices are shaped both by employee characteristics (which account for differences in practice levels and perceived challenges) and by the organizational environment (which facilitates behavior adoption and sustainability compliance).

In this study, the independent variable is the level of environmental safety practices implemented by hotels, measured in terms of waste management, chemical handling, energy use, and air and water quality management. The dependent variable is the challenges encountered in the implementation of these environmental safety practices, assessed using the same operational dimensions to ensure alignment between practice areas and implementation issues.

The framework posits that the degree of implementation of environmental safety practices influences the extent of challenges experienced in hotel operations. Specifically, more effective and consistent implementation of environmental measures is expected to correspond with fewer operational challenges, while inadequate or inconsistent application of such practices is likely to result in increased difficulties in execution and compliance.

In addition, the study examines the relationship between the level of environmental safety practices and the challenges encountered to provide empirical evidence on how sustainability implementation affects operational efficiency within hotel settings in Iloilo City.

The respondents' demographic profile, including age, sex, years of experience, and job position, is treated as a descriptive variable. It is used to characterize the study participants and provide contextual understanding of the workforce but is not treated as an independent variable in the inferential analysis.

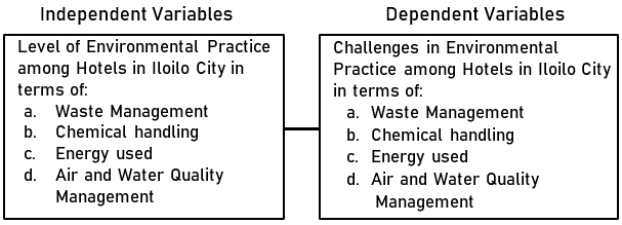

Figure 1
Framework Illustrating the Relationship Between Environmental Practices and Challenges in Iloilo City Hotels

LITERATURE REVIEW

Environmental Sustainability in the Hospitality Industry. Environmental sustainability has become a central concern in the hospitality industry due to its significant consumption of energy, water, and materials, as well as its contribution to waste generation. Hotels are increasingly expected to integrate environmentally responsible practices to reduce ecological impact and support sustainable development goals. Core practices such as waste management, chemical handling, energy efficiency, and air and water quality management are now widely recognized as essential components of sustainable hotel operations (UNWTO, 2018; Bohdanowicz, 2006; Mensah, 2006; Chan & Wong, 2006; Erdogan & Baris, 2007).

Recent literature further emphasizes that sustainability in hospitality has evolved from voluntary initiatives into strategic and regulatory requirements that influence competitiveness and long-term viability (Jones et al., 2020; Bohdanowicz, 2021; Legrand et al., 2022; Gössling et al., 2015; Hall, 2019). This shift highlights the increasing pressure on hotels to align their operations with global environmental standards while maintaining service quality and profitability.

Employee Role in Environmental Safety Practices. A growing body of literature highlights that the effectiveness of environmental sustainability initiatives is not determined solely by organizational policies but also by employee-related factors. Early studies suggest that employees' knowledge, attitudes, and participation are critical determinants of successful environmental management systems in hotels (Chan & Hawkins, 2010; Daily et al., 2009; Ramus & Steger, 2000; Govindarajulu & Daily, 2004).

More recent research reinforces this view, indicating that employee environmental awareness and engagement significantly affect the consistency and quality of sustainability practices in daily operations (Kim et al., 2021; Pham et al., 2019; Paillé et al., 2014; Robertson & Barling, 2013; Safari et al., 2018).

However, despite the presence of formal sustainability policies, gaps often exist between policy formulation and actual practice. Limited training, low motivation, and insufficient employee empowerment have been identified as key barriers that weaken implementation effectiveness (Pham et al., 2019; Kim et al., 2021; Daily et al., 2009; Paillé et al., 2014; Robertson & Barling, 2013). This indicates that environmental sustainability in hotels is not only a technical or procedural issue but also a behavioral and organizational challenge.

Waste Management and Operational Sustainability Practices. Waste management remains one of the most critical areas of environmental sustainability in hotels. Effective waste segregation, reduction, and disposal systems are consistently linked to improved environmental performance (Mensah, 2006; Pirani & Arafat, 2014; Yusof et al., 2020; Radwan et al., 2010; Papargyropoulou et al., 2016). Studies show that while many hotels implement basic waste management practices, the level of execution often varies depending on organizational commitment and staff compliance (Yusof et al., 2020; Pirani & Arafat, 2014; Radwan et al., 2010; Mensah, 2006; Papargyropoulou et al., 2016).

This inconsistency suggests that waste management effectiveness is closely tied to employee behavior and operational discipline, rather than policy presence alone. It also reinforces the need for continuous training and monitoring systems to ensure sustainability practices are consistently applied across hotel operations.

Challenges in Implementing Environmental Safety Practices. Previous studies have identified several persistent challenges in implementing environmental sustainability practices in hotels. Earlier research highlights barriers such as inadequate resources, insufficient training, and limited managerial support (Mensah, 2006; Chan & Wong, 2006; Erdogan & Baris, 2007; Bohdanowicz, 2006).

More recent studies expand these findings by identifying additional constraints, including high costs of sustainable technologies, resistance to organizational change, and weak monitoring systems (Legrand et al., 2022; Jones et al., 2020; Pham et al., 2019; Gössling et al., 2015; Hall, 2019). In developing contexts such as the Philippines, these challenges are further intensified by infrastructural limitations and varying levels of environmental awareness among employees (Calinao & Guevarra, 2021; Dodds & Joppe, 2005; Mensah, 2006; Gössling et al., 2015; Hall, 2019).

This suggests that sustainability implementation is highly context-dependent and influenced by both organizational capacity and workforce preparedness.

Employee Profile and Sustainability Implementation. Literature also suggests that employees' demographic and professional characteristics may influence their engagement in environmental practices. Employees with longer experience and higher positions are often more familiar with environmental policies and compliance requirements, while newer employees may require additional training and supervision (Kim et al., 2021; Bohdanowicz, 2021; Paillé et al., 2014; Daily et al., 2009; Govindarajulu & Daily, 2004).

Conversely, some studies argue that younger employees may demonstrate greater environmental awareness and adaptability, indicating that age and experience may have differing effects depending on organizational culture and exposure to sustainability practices (Bohdanowicz, 2021; Robertson & Barling, 2013; Safari et al., 2018; Paillé et al., 2014; Kim et al., 2021). These mixed findings suggest the need for a more nuanced understanding of how employee characteristics influence sustainability engagement.

Synthesis and Research Gap. Overall, the literature confirms that environmental sustainability in hotels is shaped by both organizational systems and employee-related factors. However, most existing studies examine environmental practices, employee behavior, or implementation challenges in isolation (Jones et al., 2020; Legrand et al., 2022; Gössling et al., 2015; Hall, 2019; Pham et al., 2019).

There is limited empirical research that simultaneously examines the relationship between the level of environmental safety practices and the challenges encountered, particularly within the context of hotel operations in Iloilo City. Furthermore, while demographic and professional profiles are frequently discussed as influencing factors, few studies integrate these variables in relation to both environmental practice implementation and operational challenges (Kim et al., 2021; Paillé et al., 2014; Robertson & Barling, 2013; Safari et al., 2018; Bohdanowicz, 2021).

This gap highlights the need for localized, integrative research that examines how employee characteristics and environmental practices interact to influence sustainability outcomes in the hospitality industry. This study addresses this gap by providing empirical evidence on environmental safety practices, associated challenges, and respondent profiles within Iloilo City hotels, contributing to a more context-specific understanding of sustainability implementation in developing urban hospitality settings.

METHODOLOGY

This study utilized a descriptive research design to determine the relationship between the respondents' profile and the level of environmental practices, as well as the challenges encountered by hotels in Iloilo City. The descriptive method was appropriate because it systematically describes existing conditions and examines relationships among variables without manipulating them. According to Creswell (2014), descriptive research aims to describe trends, attitudes, or characteristics of a population by studying a sample of that population. This design enabled the researcher to gather quantitative data regarding environmental practices and challenges as they naturally occur in hotel operations.

The respondents of the study consisted of hotel employees working in selected hotels in Iloilo City. These respondents included personnel from various departments and positions to ensure a comprehensive assessment of environmental practices within the organization. The sample size was determined using Slovin's formula with a 0.05 margin of error to ensure adequate representation and reliability of the data.

A purposive sampling technique was employed to select respondents who met the following inclusion criteria: (1) currently employed in a hotel in Iloilo City, and (2) directly involved in hotel operations or environmental practices such as waste management, chemical handling, energy use, and air and water quality management. This sampling method was appropriate because the study specifically required respondents who have relevant knowledge and experience regarding environmental practices in hotel settings.

The independent variable of the study is the respondents' profile, which includes age, sex, years of experience, and designation. The dependent variables are the level of environmental practices and the challenges encountered by hotels in Iloilo City, specifically in terms of waste management, chemical

handling, energy use, and air and water quality management. Data gathered were analyzed using appropriate statistical tools to determine relationships between variables and to provide an accurate description of environmental practices in the selected hotels.

Instrumentation. The primary instrument used in this study was a researcher-made questionnaire designed to gather data on the respondents' profile, the level of environmental safety practices, and the challenges encountered by hotels in Iloilo City. The instrument was developed through an extensive review of related literature and studies on environmental sustainability, hotel operations, and environmental management practices in the hospitality industry.

The questionnaire consisted of three parts. Part I gathered information on the respondents' profile, including age, sex, years of experience, and designation. Part II measured the level of environmental safety practices in terms of waste management, chemical handling, energy use, and air and water quality management. Part III assessed the challenges encountered in implementing environmental safety practices using the same four dimensions to ensure consistency and comparability of responses.

To ensure content validity, the instrument was reviewed and evaluated by three (3) experts in hospitality management and environmental sustainability. Their feedback was used to refine the clarity, relevance, and alignment of items with the research objectives. Revisions were made based on their recommendations, particularly in improving item clarity, eliminating redundant statements, and strengthening the alignment of indicators with sustainability practices in hotel operations.

The reliability of the instrument was tested through a pilot study, yielding acceptable internal consistency coefficients using Cronbach's alpha. The results indicated the following reliability values: Part II (Environmental Safety Practices): $\alpha = 0.87$, and Part III (Challenges Encountered): $\alpha = 0.85$, both interpreted as having good reliability. All items in Parts II and III were structured using a Likert scale to quantify responses and allow for statistical analysis.

The responses on Environmental Safety Practices among Hotels in Iloilo City were interpreted using the following scale:

Table 1
Interpretation of mean

Scale	Range	Interpretation
5	4.21 – 5.00	Very High Influence/Challenge
4	3.41 – 4.20	High Influence/Challenge
3	2.61 – 3.40	Moderate Influence/Challenge
2	1.81 – 2.60	Low Influence/Challenge
1	1.00 – 1.80	Very Low Influence/Challenge

Ethical Considerations. This study strictly observed ethical standards in the conduct of research involving human participants to ensure the protection of respondents' rights, dignity, and welfare throughout the research process.

Informed consent was obtained from all respondents prior to their participation in the study. They were adequately informed about the purpose of the research, the nature of their involvement, the procedures to be undertaken, and the intended use of the data collected. Participants were given sufficient time to ask questions and decide whether to participate.

Voluntary participation was fully upheld. Respondents were not coerced or pressured to take part in the study, and they were made aware that their participation was entirely optional. They were also informed that they could withdraw from the study at any point without any form of penalty or negative consequence.

Confidentiality and anonymity were strictly maintained. No names or identifying information were collected in the questionnaire, and all responses were treated with utmost confidentiality. Data were reported in aggregate form only, ensuring that individual respondents and specific hotels could not be identified in the presentation of findings. All collected data were

securely stored and used solely for academic purposes.

Data Analyses. The data gathered were encoded and analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, such as frequency count and percentage, were used to summarize the profile of the respondents, including age, sex, years of experience, and designation. Weighted mean was employed to determine the level of environmental safety practices and the challenges encountered by hotels in Iloilo City.

For inferential analysis, the Chi-square test of independence was used to examine significant relationships between categorical profile variables (age group, sex, years of experience, and designation) and categorized levels of environmental safety practices. The Chi-square test was deemed appropriate because these variables were grouped into categories and analyzed for association.

To determine the relationship between composite mean scores of environmental practices and the challenges encountered, Pearson's Product-Moment Correlation (Pearson r) was employed. Pearson r was appropriate because the aggregated Likert-scale scores approximated interval-level measurement and were suitable for measuring the strength and direction of linear relationships between variables.

The level of significance was set at 0.05. The results of these analyses provided the empirical basis for evaluating the environmental safety practices among hotels in Iloilo City and identifying areas that require improvement for effective environmental management.

RESULTS

Demographic Profile of the Respondents. Table 2 presents the demographic profile of the 200 respondents in terms of age, sex, years of experience, and designation. In terms of age, half of the respondents were 25–34 years old (50.0%), followed by those aged 18–24 years (25.0%), 35–44 years (17.5%), and 45 years and above (7.5%). This indicates that the workforce is predominantly composed of early- to mid-career employees who are actively engaged in hotel operations.

In terms of sex, female respondents comprised the majority (60.0%), while male respondents accounted for 40.0%, suggesting a female-dominated workforce in hotel operations within Iloilo City. Regarding years of experience, most respondents had 1–5 years of experience (45.0%), followed by 6–10 years (30.0%), 11–15 years (17.5%), and 16 years and above (7.5%). This reflects a workforce largely composed of relatively new to moderately experienced employees, with a smaller proportion of highly experienced staff.

Table 2
Demographic profile of the respondents

Demographic Variable	Category	Frequency (f)	Percentage (%)
Age	18–24 years	50	25.0
	25–34 years	100	50.0
	35–44 years	35	17.5
	45 years and above	15	7.5
Sex	Male	80	40.0
	Female	120	60.0
Years of Experience	1–5 years	90	45.0
	6–10 years	60	30.0
	11–15 years	35	17.5
	16 years and above	15	7.5
Designation	Front-line Staff	100	50.0
	Supervisor	50	25.0
	Manager	40	20.0
	Other	10	5.0

As to designation, half of the respondents were front-line staff (50.0%), followed by supervisors (25.0%), managers (20.0%), and other positions (5.0%). This indicates that the sample includes employees from both operational and managerial levels, ensuring a range of perspectives on environmental safety practices.

Overall, the demographic distribution shows a diverse yet front-line–dominant workforce, suggesting that the findings primarily reflect employees directly involved in daily hotel operations and environmental practice implementation.

Level of Environmental Practices among Hotels in Iloilo City. Table 3 presents the weighted

mean scores and interpretations of environmental practices among hotels in Iloilo City across four key areas. Waste Management obtained the highest rating (WM = 4.35, Very High Practice), indicating strong and consistent implementation of waste segregation, proper disposal, and recycling initiatives. This finding aligns with studies emphasizing that waste management is often the most developed component of hotel sustainability programs due to regulatory compliance and visible operational benefits (UNWTO, 2018; Jones et al., 2020).

Chemical Handling was rated high (WM = 4.10), suggesting general compliance with safety protocols in the storage, use, and disposal of chemicals. However, this also reflects the need for continued staff training and stricter reinforcement of operational procedures, consistent with findings that employee competence significantly influences environmental safety compliance in hotels (Kim et al., 2021). Energy Use obtained a high rating (WM = 3.85), indicating that hotels are implementing energy-saving measures such as efficient lighting systems and equipment management. This supports literature noting that energy efficiency remains a key but continuously improving area in hospitality sustainability practices due to cost and technology constraints (Legrand et al., 2022).

Air and Water Quality Management also recorded a high practice level (WM = 4.00), reflecting sustained efforts to monitor and maintain environmental quality standards. This is consistent with studies highlighting that environmental monitoring practices are increasingly integrated into hotel operations to ensure guest safety and regulatory compliance (Bohdanowicz, 2021). Overall, the grand mean (WM = 4.08) indicates a high level of environmental safety practices among hotels in Iloilo City. This suggests that sustainability initiatives are generally well-implemented, particularly in waste management, although areas such as energy use and chemical handling still present opportunities for further enhancement and optimization.

Table 3
Level of Environmental Practices among Hotels in Iloilo City

Environmental Practice Area	Mean	Interpretation of Level
Waste Management	**4.35**	Very High Practice
Chemical Handling	**4.10**	High Practice
Energy Use	**3.85**	High Practice
Air and Water Quality Management	**4.00**	High Practice
Overall Environmental Practice	**4.08**	High Practice

Challenges in Environmental Practices among Hotels in Iloilo City. Table 4 presents the weighted mean scores and interpretations of the challenges encountered by hotels in Iloilo City in implementing environmental practices. Waste Management recorded a high challenge level (WM = 3.95), indicating significant difficulties in segregation, disposal, and recycling. This aligns with studies noting that waste management challenges in hotels are commonly driven by limited infrastructure, insufficient staff training, and operational constraints (Mensah, 2006; Legrand et al., 2022). Despite established practices, implementation gaps often persist due to resource and compliance limitations.

Chemical Handling obtained the highest challenge rating (WM = 4.20), also interpreted as a high challenge. This suggests that safe storage, handling, and disposal of chemicals remain critical operational concerns. Consistent with prior research, inadequate training and weak enforcement of environmental protocols contribute to heightened risks in chemical management within hospitality operations (Pham et al., 2019; Kim et al., 2021). Energy Use was rated as a moderate challenge (WM = 3.70), indicating that while energy efficiency initiatives are present, hotels still face barriers such as high operational costs, aging equipment, and inconsistent monitoring systems. This supports findings that energy management remains one of the most cost-sensitive aspects of hotel sustainability practices (Legrand et al., 2022).

Air and Water Quality Management also registered a high challenge level (WM = 3.85),

reflecting difficulties in maintaining consistent environmental standards. These challenges are often associated with technical maintenance issues and compliance requirements, particularly in developing urban hospitality settings (Bohdanowicz, 2021). Overall, the grand mean (WM = 3.93) indicates that hotels in Iloilo City experience a high level of challenges in implementing environmental safety practices. These findings suggest that despite relatively strong environmental practice implementation, operational barriers persist. Addressing these challenges requires strengthened staff training, improved infrastructure, and more consistent enforcement of environmental policies to enhance sustainability outcomes in hotel operations.

Table 4
Challenges in Environmental Practices among Hotels in Iloilo City

Environmental Practice Area	Mean	Interpretation of Challenges
Waste Management	**3.95**	High Challenge
Chemical Handling	**4.20**	High Challenge
Energy Use	**3.70**	Moderate Challenge
Air and Water Quality Management	**3.85**	High Challenge
Overall Challenges	**3.93**	High Challenge

Relationship Between Level of Environmental Practices and Challenges. Table 5 presents the correlation between the level of environmental practices and the challenges encountered by hotels in Iloilo City. The results show a moderate negative correlation (r = -0.42) between the two variables, with a statistically significant p-value of 0.001 ($p < 0.05$). This indicates that higher levels of environmental safety practice implementation are associated with lower levels of operational challenges.
From a practical perspective, the findings suggest that hotels that consistently implement environmental practices such as waste management, chemical handling, energy efficiency, and air and water quality management tend to experience fewer difficulties in operational execution. This supports existing literature emphasizing that well-established environmental management systems reduce inefficiencies and improve organizational compliance in hospitality operations (Jones et al., 2020; Legrand et al., 2022).

The result can also be explained through Social Learning Theory (Bandura, 1977), which posits that behavior is strengthened through consistent reinforcement within the workplace. In this context, hotels that actively institutionalize environmental practices through training, supervision, and organizational support are more likely to develop efficient routines that reduce implementation-related challenges. Similarly, Generational Cohort Theory (Mannheim, 1952) suggests that differences in employee characteristics may influence adaptability to sustainability practices, which can indirectly affect how smoothly these practices are implemented.

Table 5
Correlation between Level of Environmental Practices and Challenges among Hotels in Iloilo City

Variables	r-value	p-value	Interpretation
Level of Environmental Practices vs Challenges	-0.42	0.001	Significant, Moderate Negative Correlation

p-value =.05

Notably, the findings also reveal an important analytical insight: although environmental practices are generally rated high, challenges remain at a high level in some areas. This suggests that implementation alone does not fully eliminate operational barriers. Instead, it reflects a transitional stage where hotels are actively adopting sustainability measures but are still constrained by resource limitations, technical capacity, and workforce readiness. This aligns with studies indicating that sustainability adoption often produces mixed outcomes during early or partial implementation stages in developing contexts (Bohdanowicz, 2021; Calinao & Guevarra, 2021).

Overall, the results highlight that strengthening environmental safety practices is not only associated with reduced challenges but also underscores the need for continuous improvement, capacity building, and

organizational support to fully optimize sustainable hotel operations.

DISCUSSION

Based on the analysis of the demographic profile, level of environmental practices, challenges, and their relationship, several conclusions can be drawn regarding environmental safety practices among hotels in Iloilo City:

The respondents were predominantly younger to middle-aged employees, with the majority aged 25–34 years, female, and primarily occupying front-line staff positions. Most respondents had 1–5 years of work experience. This demographic composition suggests that the study reflects the perspectives of employees who are directly involved in daily hotel operations and are actively engaged in implementing environmental safety practices.

Overall, hotels in Iloilo City demonstrated a high level of environmental practices, with waste management rated as very high and other areas such as chemical handling, energy use, and air and water quality management rated as high. This indicates that hotels are generally committed to implementing sustainable and safe operational procedures, particularly in waste management, while still having room for improvement in energy efficiency and chemical handling practices.

Despite the high level of practices, hotels continue to face significant challenges, particularly in chemical handling, waste management, and air and water quality management. Energy use was identified as a moderate challenge, indicating occasional operational barriers. These challenges highlight the need for enhanced training, better infrastructure, and stricter environmental protocols to ensure effective implementation of environmental practices.

The Pearson correlation analysis revealed a moderate negative correlation ($r = -0.42$, $p = 0.001$) between the level of environmental practices and challenges. This significant relationship suggests that hotels with higher implementation of environmental practices experience fewer challenges. Strengthening practices, therefore, can effectively reduce operational difficulties and improve overall environmental performance.

Although the findings indicate that hotels in Iloilo City generally demonstrate a high level of environmental safety practices, several important limitations should be acknowledged. First, the study relies on self-reported data, which may be influenced by social desirability bias, where respondents tend to overstate compliance with environmental standards. Second, the descriptive-correlational design limits the ability to establish causal relationships between environmental practices and challenges. Thus, while results show an inverse relationship, they cannot confirm direct causation. Third, the study focuses on hotel employees only, which may not fully capture the perspectives of top management or external stakeholders such as regulators and guests. These limitations suggest that the findings should be interpreted as indicative rather than definitive, particularly in explaining why challenges remain relatively high despite strong reported practices.

The persistence of high challenges despite generally strong environmental practices may be explained by implementation gaps identified in prior studies. Literature suggests that sustainability initiatives in hospitality often face structural and operational constraints, such as limited resources, inadequate infrastructure, and inconsistent training, even when formal policies are in place (Legrand et al., 2022; Calinao & Guevarra, 2021). This indicates that compliance at the procedural level does not always translate into smooth operational execution, especially in developing urban hospitality contexts.

In comparison with previous studies, the findings are generally consistent with literature emphasizing that environmental practices improve operational efficiency but do not

immediately eliminate implementation barriers (Jones et al., 2020). However, the continued presence of high-level challenges in this study also highlights a divergence from assumptions that strong sustainability practices automatically result in minimal operational difficulties, suggesting that contextual factors in Iloilo City may play a significant role.

To address these issues, hotels should enhance staff training programs focusing on chemical handling, waste management, and environmental monitoring to improve competency and reduce operational risks. Strengthening monitoring and compliance systems through regular audits, standardized checklists, and reporting mechanisms is also essential to ensure consistent implementation. Additionally, investment in sustainable infrastructure and technology, such as energy-efficient systems and advanced waste and water management facilities, can significantly reduce operational constraints and improve efficiency.

For future research, it is recommended that qualitative approaches such as interviews or focus group discussions be conducted to gain deeper insights into why implementation challenges persist despite high practice levels. Further studies may also focus on hotel management perspectives or conduct comparative analyses across different cities or regions. Longitudinal studies are likewise recommended to examine how environmental practices and challenges evolve over time as sustainability initiatives mature within the hospitality industry.

Author contributions. Romar Lagunday: Conceptualization; Introduction; Methods, Data gathering | Kenneth Gregg Bargo: Results, Institutional ethics; Discussion; References.

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Ethics approval statement. This study engaged human participants, though formal ethical clearance was not obtained from the authors' institution. The authors confirm that participation was voluntary, informed consent was secured, and confidentiality of responses was rigorously upheld. No procedures were conducted that could endanger or harm participants, ensuring adherence to ethical research standards.

Data availability statement. All data supporting the findings of this study are included within the manuscript and its supplementary materials.

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