



ENVIRONMENTAL PRACTICES AND HOTEL PERFORMANCE IN MINNA, NIGER STATE: THE ROLE OF COMPETITIVE ADVANTAGE

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ABSTRACT

This study examines the effect of environmental practices on hotel performance in Minna, Niger State, Nigeria. The hospitality industry is increasingly adopting green initiatives to minimize environmental degradation while enhancing competitiveness. Despite this global shift, empirical evidence from the Nigerian hospitality sector particularly in Niger State remains limited. The study investigated the relationship between environmental practices and hotel performance, with competitive advantage introduced as an intervening variable. The study population comprised 150 managerial and supervisory staff drawn from registered hotels in Minna, from which a sample size of 50 hotels was selected using a purposive sampling technique. A quantitative research design was adopted, and structured questionnaires were administered to respondents across the selected hotels. Data were analyzed using descriptive statistics, correlation analysis, and multiple regression techniques. Findings revealed that environmental practices such as energy efficiency, waste management, water conservation, and green procurement exert a positive and statistically significant effect on hotel performance ($\beta = 0.642, p < 0.01$). Further results showed that competitive advantage contributes to the relationship between environmental practices and performance, suggesting that hotels that adopt eco-friendly operations not only reduce operational costs but also improve customer loyalty and brand image. The study concludes that environmental practices, to which going green is part of, are strategic assets capable of providing hotels with a sustainable competitive edge. It recommends that hotel operators and policymakers strengthen green certification programs, invest in environmental training, and improve access to green financing to enhance sustainability initiatives within the hospitality industry.

Keywords: Green business practices; Environmental management; Competitive advantage; Hotel performance; Sustainability; Niger State

JEL Classification Code:

1.0 Introduction

The hospitality industry is one of the fastest-growing sectors globally, contributing significantly to national economies through tourism, job creation, and foreign exchange earnings. However, it remains one of the most resource-intensive sectors, consuming large amounts of energy and water while generating substantial waste and greenhouse gas emissions. With increasing awareness of environmental degradation and global climate change, organisations—especially hotels—are now compelled to adopt environmentally sustainable practices that minimize their ecological footprints while maintaining competitiveness (Han & Hyun, 2023). Environmental or “green” practices involve operational strategies aimed at reducing negative environmental impacts through energy conservation, waste reduction, water management, recycling, and environmentally responsible procurement. These practices are no longer viewed only as corporate social responsibility but as strategic tools for long-term competitiveness and profitability (Mensah, 2022). Evidence

shows that hotels integrating green practices improve their public image, attract environmentally conscious customers, and reduce costs associated with utilities and waste management (Kim et al., 2021).

In Nigeria, the hospitality sector is growing due to urbanisation, domestic tourism, and private investments yet it faces environmental challenges such as poor waste management, inefficient energy use, and limited adoption of sustainable technologies. In Minna, many hotels operate with outdated systems, limited awareness of green standards, and minimal environmental policies, creating a performance gap between hotels that implement green initiatives and those that do not. Although global studies demonstrate the positive influence of environmental sustainability on organizational performance, empirical evidence from Nigeria – particularly Niger State – remains limited, as many hotels struggle with inadequate green technology and low managerial commitment. This study seeks to fill this gap by examining how environmental practices influence hotel performance in Minna, with competitive advantage serving as a mediating factor.

The study aims to quantitatively assess the effect of environmental practices on hotel performance, measure their level of adoption, determine their statistical effect on financial performance, customer satisfaction, and operational efficiency, and evaluate the role of competitive advantage in explaining this relationship. It further addresses research questions related to the extent of green adoption, its impact on performance, and strategies for improving sustainable practices in Minna hotels. Guided by hypotheses that environmental practices and competitive advantage may not significantly affect hotel performance, the study interrogates these claims using empirical evidence.

The research problem highlights the growing pressure on hotels to adopt sustainable practices and the lack of systematic evidence in Niger State on whether such practices improve performance or how competitive advantage mediates this relationship. This gap limits the ability of hotel managers and policymakers to leverage sustainability for operational and financial benefits. It extends literature beyond major Nigerian cities, supports managerial decision-making, informs policy interventions, and contributes to environmental sustainability through improved practices aligned with global standards.

This study is organised into six distinct sections. Section One presents the introduction.

Section Two provides a review of relevant conceptual, theoretical and empirical reviews. Section Three deals with the research methodology. Section Four focuses on the presentation, analysis,

and discussion of the research results. Section Five summarises the key findings and discussion, while Section Six offers conclusion and recommendations and the study.

2.0 Literature Review

2.1 Conceptual Review

2.1.1 Environmental Practices

Environmental practices, often referred to as green or sustainable practices, encompass a wide range of organizational policies, strategies, and operational activities designed to minimize negative environmental impacts while promoting resource efficiency and sustainability. In the hospitality industry, these practices extend beyond regulatory compliance to proactive measures that integrate environmental responsibility into daily operations (Mensah, 2022; Kasimu et al., 2021). Typical green initiatives in hotels include:

1. Energy Efficiency: Implementing energy-saving technologies such as LED lighting, smart HVAC systems, motion-sensor lighting, and renewable energy sources like solar or wind power. Efficient energy management reduces operational costs while minimizing carbon emissions.
2. Water Conservation: Installing low-flow faucets, showerheads, and toilets; recycling greywater for landscaping; and promoting water-saving practices among staff and guests. These measures mitigate water scarcity concerns and reduce utility expenses.
3. Waste Management and Recycling: Reducing, reusing, and recycling waste materials, including food waste, plastics, paper, and packaging. Some hotels adopt composting or partnerships with recycling firms to manage solid waste sustainably.
4. Green Procurement: Sourcing eco-friendly products, locally produced items, and materials with minimal environmental footprints. This includes biodegradable amenities, recycled paper products, and sustainable food sourcing.
5. Guest Engagement and Awareness: Educating and encouraging guests to participate in environmental initiatives, such as towel and linen reuse programs or waste segregation, fosters a culture of sustainability and improves corporate image.

Environmental practices have evolved from being regulatory compliance measures to strategic tools that differentiate hotels in a competitive market. Hotels that actively embrace these initiatives can improve operational efficiency, reduce costs, and attract environmentally conscious clients, enhancing profitability and brand reputation (Han & Hyun, 2023). In the context of Minna, Niger State, adoption of such practices is gradually gaining recognition, though many hotels are yet to fully leverage their strategic potential.

2.1.2 Hotel Performance

Hotel performance represents the degree to which a hotel achieves its set objectives, both financial and non-financial. It is a multidimensional construct that captures not only profitability but also service quality, customer satisfaction, employee engagement, and brand reputation (Kim et al., 2021). Key dimensions of hotel performance include:

1. Financial Performance: Metrics such as revenue growth, net profit margin, average room revenue, and occupancy rates indicate the economic success of a hotel. Green practices can indirectly enhance financial performance by reducing energy and waste-related costs.
2. Operational Performance: Efficiency in processes, service delivery, and resource utilisation contributes to smoother operations and cost reduction. Energy management, waste minimization, and optimised water usage directly improve operational efficiency.
3. Customer-Centric Performance: Customer satisfaction and loyalty are critical performance indicators. Hotels that adopt environmental practices often gain positive recognition from eco-conscious guests, resulting in higher repeat patronage and enhanced reputation (Tukur & Ibrahim, 2023).
4. Sustainability-Based Performance Metrics: Modern hotel performance evaluation includes sustainability indicators such as carbon footprint reduction, energy intensity, waste diversion rates, and perceived environmental responsibility among guests. These metrics reflect the hotel's commitment to long-term ecological and social responsibility.

In the context of this study, hotel performance in Minna is measured using both traditional financial and operational indicators as well as customer satisfaction and brand reputation metrics, emphasizing how green practices contribute to holistic performance improvements.

2.1.3 Competitive Advantage

Competitive advantage is the unique positioning or capability that enables a firm to outperform its rivals by providing greater value to customers or achieving superior operational efficiency (Porter, 1985). In the hospitality sector, competitive advantage can be achieved through differentiation, cost leadership, or a combination of both. Environmental practices have increasingly become a source of sustainable competitive advantage, as hotels that adopt eco-friendly initiatives differentiate themselves in the market and gain customer trust. Key aspects include:

1. Cost Leadership through Efficiency: Green practices, such as energy-saving technologies and waste reduction programs, reduce operational costs, enabling hotels to operate more efficiently and improve profit margins.
2. Differentiation through Branding: Hotels that adopt renewable energy, sustainable materials, and eco-friendly services can position themselves as responsible, socially conscious brands. This attracts eco-conscious travelers, enhances loyalty, and strengthens market reputation (Rahman & Reynolds, 2021).
3. Innovation and Service Excellence: Environmental initiatives encourage process innovations, new product offerings, and enhanced service quality, all of which contribute to a competitive edge.
4. Strategic Link to Performance: By integrating green practices into daily operations, hotels not only improve internal efficiency but also create a link between environmental responsibility and superior performance outcomes, making competitive advantage an intermediary mechanism in this relationship.

In summary, competitive advantage serves as the strategic channel through which environmental practices influence hotel performance. In Minna, hotels that strategically implement green initiatives are likely to enjoy reduced costs, improved customer loyalty, and stronger brand positioning, confirming the strategic value of sustainability in hospitality management.

2.2 Theoretical Framework

2.2.1 Resource-Based View (RBV)

The Resource-Based View (RBV), articulated by Barney (1991), posits that an organization's sustained success is determined by its ability to possess and strategically utilize resources that are valuable, rare, inimitable, and non-substitutable (VRIN). In the context of hotels, environmental management capabilities such as green technologies, staff training in sustainability, energy-efficient systems, and eco-friendly operational processes constitute VRIN resources because they are difficult for competitors to replicate. Hotels that effectively integrate these green resources can achieve sustainable competitive advantages, resulting in enhanced operational efficiency, financial performance, and customer loyalty.

In this study, environmental practices (EP) are conceptualized as internal organizational capabilities that foster superior hotel performance (HP), providing a theoretical basis for linking sustainability initiatives to competitive positioning and performance outcomes.

2.2.2 Sustainability Theory

Sustainability Theory emphasises the integration of economic, environmental, and social objectives in organisational operations, often referred to as the "triple bottom line" (Elkington, 1998). Within the hotel sector, sustainability entails operating profitably while minimizing ecological harm, conserving natural resources, and contributing positively to community

well-being. Research indicates that hotels adopting sustainability-oriented practices enhance long-term competitiveness and profitability by attracting eco-conscious customers, improving operational efficiency, and fostering positive brand perception (Dube & Nhamo, 2022).

This theory underpins the study's argument that environmental practices not only reduce operational costs but also strengthen a hotel's social and market standing, thereby improving overall performance.

2.2.3 Porter's Competitive Advantage Theory

Porter (1985) theorised that firms achieve competitive advantage through cost leadership or differentiation strategies. In hospitality, environmental practices contribute to both dimensions. For example:

1. Cost Leadership: Implementation of energy-efficient systems, water conservation, and waste reduction reduces operational expenditures.
2. Differentiation: Eco-friendly branding, green certifications, and sustainable service offerings distinguish hotels from competitors, enhancing brand image and customer loyalty.

Hence, environmental practices can serve as a strategic mechanism through which hotels strengthen their market position and overall performance, aligning with the study's focus on competitive advantage as an explanatory factor.

2.3 Conceptual Framework

Based on the theoretical underpinnings, this study proposes the following conceptual model:

1. Environmental Practices (EP) → Hotel Performance (HP)
2. Environmental Practices (EP) → Competitive Advantage (CA) → Hotel Performance (HP)

Where:

1. EP includes energy efficiency, water conservation, waste management, and green procurement.
2. CA represents cost efficiency, brand image, and service differentiation.
3. HP comprises financial performance, operational efficiency, and customer satisfaction.

The framework suggests that environmental practices directly improve hotel performance and indirectly influence performance through competitive advantage.

2.4 Empirical Review

Recent studies globally and within Africa have highlighted the strategic importance of environmental practices in the hospitality sector:

1. Global Evidence:
 - i. Han et al. (2023) in South Korea found that energy conservation and waste management significantly improved profitability and customer loyalty in hotels.
 - ii. Lee and Kim (2021) reported that adoption of green procurement and water-saving technologies increased operational efficiency and enhanced brand trust.
 - iii. Boakye and Mensah (2022) in Ghana observed that green certification programs positively influenced hotel reputation and financial performance.

- iv. Ouma and Kihoro (2021) in Kenya indicated that environmental innovation increased customer satisfaction and repeat patronage.
- 2. Nigerian Context:
 - i. Adeola and Adebayo (2022) in Lagos found that eco-friendly practices such as recycling, solar energy use, and linen reuse programs significantly improved hotel profitability.
 - ii. Onah and Nwosu (2023) in Abuja demonstrated that green procurement and waste management significantly predicted operational performance.

Despite these insights, empirical evidence from Niger State is limited, with few studies examining the adoption of environmental practices and their impact on hotel performance. This gap underscores the need for a focused study in Minna to evaluate how environmental practices influence hotel outcomes and the role of competitive advantage in this relationship.

3.0 Methodology

3.1 Study Area

The study was conducted in Minna, the capital city of Niger State, Nigeria. Minna serves as the administrative, political, and commercial hub of the state and hosts a growing hospitality industry, including luxury, mid-range, and budget hotels such as Guddel Hotel, Haske Luxury Hotel, Falana Hotel, and Brighter Suites. Despite the sector's growth, many hotels face challenges in implementing sustainable environmental management practices.

3.2 Research Design

A descriptive survey research design was adopted for this study. This design is appropriate for systematically collecting and analyzing quantitative data to describe, explain, and test relationships among variables. It allows the examination of how environmental practices (independent variable) affect hotel performance (dependent variable) and the role of competitive advantage (intervening variable) in hotels within Minna metropolis.

The study focuses on four dimensions of environmental practices:

- i. Energy efficiency
- ii. Waste management
- iii. Water conservation
- iv. Green procurement

Hotel performance was assessed using financial outcomes, customer satisfaction, and brand reputation, while competitive advantage captured cost efficiency, brand image, and innovation.

3.3 Population and Sample Size

The target population comprised all registered hotels operating in Minna, as listed by the Niger State Tourism Board (2024), totalling 78 hotels.

A sample of 50 hotels was selected using simple random sampling to ensure equal representation across the population. From each selected hotel, three respondents one manager, one supervisor, and one senior staff member were purposively chosen, resulting in a total of 150 respondents.

This design ensured a balanced representation across managerial levels and provided sufficient data for meaningful statistical analysis. Out of 150 questionnaires distributed, 138

were completed and returned, yielding a response rate of 92%, which is considered excellent for survey-based research.

3.4 Instrumentation

Data were collected using a structured questionnaire, adapted from validated instruments in previous studies (Mensah, 2022; Kim et al., 2021). The questionnaire consisted of four sections:

- i. Demographic information: Age, gender, years of experience, and hotel category.
- ii. Environmental practices: Energy efficiency, waste management, water conservation, and green procurement.
- iii. Competitive advantage: Cost efficiency, brand image, and innovation.
- iv. Hotel performance: Financial outcomes, customer satisfaction, and reputation.

A 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used to measure responses.

3.5 Validity and Reliability

To ensure content validity, the questionnaire was reviewed by three experts in hospitality management and environmental studies at the Federal University of Technology, Minna. Their input enhanced clarity and alignment with the study objectives.

A pilot test involving 10 hotel employees outside the main sample was conducted to assess reliability. The instrument achieved a Cronbach's Alpha of 0.86, surpassing the recommended 0.70 threshold, confirming high internal consistency.

3.6 Method of Data Collection and Analysis

Questionnaires were distributed personally by the researcher and trained assistants to maximize response accuracy.

Data were coded and analyzed using SPSS Version 26.0, employing both descriptive and inferential statistics:

- i. Descriptive statistics: Frequencies, percentages, means, and standard deviations summarized respondents' demographics and levels of environmental practices.
- ii. Inferential statistics: Correlation, multiple regression, and mediation analysis using Hayes' PROCESS Macro were employed to test relationships, direct effects, and the mediating role of competitive advantage on hotel performance.

This methodology provides a robust framework for examining the effect of environmental practices on hotel performance and evaluating the strategic role of competitive advantage in Minna, Niger State.

3.7 Model Representation and Specification

Environmental Practices (EP) → Competitive Advantage (CA) → Hotel Performance (HP)

This framework aligns with the Resource-Based View (RBV), which posits that internal resources (environmental capabilities) leads to sustained competitive advantage and improved firm performance.

The regression model for the study is expressed as:

$$HP = \beta_0 + \beta_1 EP + \beta_2 CA + \varepsilon$$

Where:

- HP = Hotel Performance
- EP = Environmental Practices
- CA = Competitive Advantage
- β_0 = Constant
- β_1, β_2 = Regression Coefficients
- ε = Error term

The mediation effect was tested using the Baron and Kenny (1986) approach and confirmed through bootstrapping in the SPSS PROCESS macro.

4.0 Findings and Discussion

4.1 Demographic Characteristics of Respondents

Table 1 presents the demographic profile of respondents. Out of 150 questionnaires distributed, 138 were returned, yielding a 92% response rate.

Table 1: Demographic Characteristics of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	83	60.1
	Female	55	39.9
Age	20–29 years	27	19.6
	30–39 years	52	37.7
	40–49 years	41	29.7
	50 years and above	18	13.0
Position	Manager	50	36.2
	Supervisor	45	32.6
	Senior Staff	43	31.2
Experience	Below 5 years	22	15.9
	5–10 years	66	47.8
	Above 10 years	50	36.2

Discussion:

The results indicate that hotel management in Minna is dominated by a relatively young and active workforce (67.4% between 30–49 years). Managers form the largest group (36.2%), followed by supervisors and senior staff, ensuring balanced input from key decision-makers. About 47.8% of participants have 5–10 years of experience, reflecting a skilled and knowledgeable workforce. These findings suggest the importance of targeted sustainability training for mid-level professionals and the need to promote gender balance and policy support for environmental management practices.

Objective 1: Level of Adoption of Environmental Practices

Table 2: Descriptive Statistics of Key Variables

Variable	N	Mean	Std. Deviation	Interpretation
Energy Efficiency	138	3.91	0.66	High
Waste Management	138	3.78	0.72	Moderate-High
Water Conservation	138	3.85	0.69	High
Green Procurement	138	3.67	0.75	Moderate
Competitive Advantage	138	3.88	0.61	High
Hotel Performance	138	4.02	0.58	High

Discussion:

Hotels in Minna demonstrate moderate to high adoption of environmental practices, with energy efficiency (3.91) and water conservation (3.85) being the most implemented. Waste management and green procurement show moderate adoption, indicating areas for improvement. These results align with Mensah (2022) and Adeola & Adebayo (2022), who found similar trends in African hotels. The high mean for competitive advantage (3.88) suggests that green practices contribute positively to market positioning and innovation.

Objective 2: Effect of Environmental Practices on Hotel Performance

Correlation Analysis:

Variables	1	2	3
Environmental Practices	1	-	-
Competitive Advantage	0.672	1	-
Hotel Performance	0.713	0.689	1

Discussion:

Environmental practices are strongly positively correlated with competitive advantage ($r = 0.672$) and hotel performance ($r = 0.713$), indicating that sustainability initiatives significantly enhance both competitiveness and performance. Competitive advantage also correlates positively with performance ($r = 0.689$), confirming that hotels with stronger market positioning achieve better outcomes.

Regression Analysis (H_{01})

$R = 0.713$, $R^2 = 0.508$, Adjusted $R^2 = 0.503$

ANOVA: $F = 161.597$, $p < 0.001$

Coefficient: $\beta = 0.713$, $p < 0.001$

Discussion:

Environmental practices significantly predict hotel performance, explaining about 51% of its variance. The findings confirm that sustainability initiatives enhance operational efficiency, financial outcomes, and customer satisfaction, consistent with Han & Hyun (2023) and Boakye & Mensah (2022).

Objective 3: Mediating Role of Competitive Advantage

Mediation Analysis (H_{02} , PROCESS Macro Model 4)

Path	Effect	SE	t	p-value
EP → CA	0.682	0.058	11.759	0.000
CA → HP	0.391	0.067	5.821	0.000
Direct Effect (EP → HP)	0.422	0.071	5.940	0.000
Indirect Effect (EP → CA → HP)	0.267	0.051	-	95% CI [0.175, 0.371]

Discussion:

The results indicate that competitive advantage partially mediates the relationship between environmental practices and hotel performance. Hotels adopting green initiatives improve cost efficiency, brand image, and innovation, which in turn enhances financial, operational, and reputational outcomes. These findings support the Resource-Based View (RBV) and Porter's Competitive Advantage theory, demonstrating that internal green capabilities drive superior performance.

Objective 4: Recommendations for Improving Green Practices

Based on the findings:

- Implement staff training programs on sustainable hotel operations.
- Provide financial incentives for energy-efficient equipment and green procurement.
- Promote green certifications to strengthen brand differentiation.
- Engage guests in eco-friendly initiatives, such as linen reuse and waste segregation.

Discussion:

These recommendations align with Onah & Nwosu (2023) and Tukur & Ibrahim (2023), emphasizing that policy support, training, and stakeholder engagement are key to enhancing green practice adoption. Strengthening these areas can maximize the positive impact of environmental practices on hotel performance.

Summary of Key Findings

1. Hotels in Minna moderately to highly adopt environmental practices, with energy efficiency and water conservation being most prominent.
2. Environmental practices significantly enhance hotel performance ($R^2 = 0.508$, $p < 0.001$).
3. Competitive advantage partially mediates the relationship between environmental practices and performance (indirect effect = 0.267), indicating that green initiatives contribute to both efficiency and market positioning.
4. Policy, training, and financial interventions are recommended to strengthen sustainability adoption and improve performance outcomes.

Overall Discussion:

The study confirms that environmentally responsible hotels in Minna achieve better operational, financial, and reputational performance. Going green is not merely a social or ethical obligation; it represents a strategic asset that enhances competitiveness and aligns with the triple bottom line.

5.0 Conclusion and Recommendations

This study investigated the effect of environmental (green) practices on hotel performance in Minna, Niger State, with a focus on the mediating role of competitive advantage. Data were collected from 138 respondents across 50 hotels and analyzed using SPSS version 26, employing descriptive statistics, correlation, regression, and mediation analyses.

5.1 Conclusion:

The findings indicate that environmental practices energy efficiency, waste management, water conservation, and green procurement are moderately to highly adopted among hotels in Minna. These practices have a significant positive influence on hotel performance, highlighting that sustainability initiatives contribute to improved financial outcomes, customer satisfaction, and brand reputation.

Furthermore, the study established that competitive advantage partially mediates the relationship between environmental practices and hotel performance. This implies that hotels that adopt green practices not only achieve operational efficiencies but also strengthen their market positioning, innovation, and customer loyalty.

Overall, the study confirms that environmental practices are strategic assets rather than mere ethical obligations. Hotels that embrace sustainability gain ecological, economic, and reputational benefits, positioning themselves favorably in an increasingly competitive hospitality landscape. In Minna, integrating green practices is both an operational necessity and a source of sustained competitive advantage.

5.2 Recommendations

- i. **Integration of Green Practices:** Hotel managers should embed environmental initiatives into core business strategies rather than treating them as peripheral. Sustainability should be applied across energy management, housekeeping, food services, and procurement.
- ii. **Investment in Eco-Friendly Technologies:** Hotels should adopt renewable energy sources (e.g., solar power), water recycling systems, and energy-efficient appliances to reduce operational costs and enhance profitability.
- iii. **Staff Training and Capacity Building:** Continuous training programs on environmental management should be prioritized to ensure that all staff understand and implement sustainability practices effectively.
- iv. **Marketing Green Credentials:** Hotels should actively promote their eco-friendly initiatives to attract environmentally conscious guests. Certifications and environmental labels can improve brand reputation, customer trust, and market differentiation.
- v. **Policy Support and Incentives:** The Niger State Tourism Board should collaborate with hotel associations to develop clear guidelines, incentives, and recognition schemes for eco-friendly hotels. This support will encourage wider adoption of green practices and strengthen the sustainability of the hospitality sector.

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