

Effects of Green Food Procurement Practices on The Performance of 4 and 5 Star-Rated Hotels in Nairobi County, Kenya

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Abstract

The effectiveness of hotels in achieving their organizational objectives is expressed in their performance. Empirical evidence regarding the impact of green food procurement (GFP) on hotel performance is scarce, particularly in developing economies like Kenya, despite the fact that research suggests that green procurement can improve firm performance. GFP was defined in this study as including green product specification, green supplier selection, and green supplier development. The Balanced Scorecard (BSC) perspectives of internal process, learning and growth, financial, and customer were used to evaluate performance. The study was anchored in the Natural Resource-Based View (NRBV) and BSC and adopted a quantitative-dominant convergent mixed-methods design. Quantitative data were collected from 273 targeted respondents, of whom 252 completed questionnaires were analyzed, while qualitative data were obtained through semi-structured interviews with 13 purposively selected food and beverage managers. Pearson correlation results revealed strong and statistically significant positive associations between GFP dimensions and the four performance perspectives ($r = .804-.896$, $p < .001$). Structural equation modelling further established a positive and statistically significant effect of GFP from the unstandardized estimate on overall hotel performance ($\beta = 1.05$, $p < .001$). The Internal Process perspective recorded the highest performance mean ($M = 4.46$), while the financial perspective recorded the lowest ($M = 4.06$), suggesting that operational benefits may be more immediately evident than financial returns. Qualitative findings showed that sampled hotels emphasized certifications and product specifications more than direct supplier training. GFP also reduced waste and improved food quality and consistency through effective green supplier selection, enhancing service delivery, customer satisfaction, and financial performance. The study extends the NRBV to food procurement in African hospitality and demonstrates the applicability of the BSC as a multidimensional performance framework. It uniquely isolates food-related

procurement practices within Nairobi's 4- and 5-star hotels. The study recommends institutionalizing environmental supplier-selection criteria, allocating budgets for supplier environmental training, and strengthening monitoring of GFP implementation.

Keywords: green food procurement, green supplier selection, green product specification, green supplier development, performance

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Introduction

Background of the Study

Hotel performance is critical in the hospitality industry because it reflects the extent to which hotels achieve their organizational objectives while creating value for customers and other stakeholders. Hotel performance is a multidimensional concept that extends beyond financial outcomes to include customer, internal business process, and learning and growth dimensions. This broader perspective is important because profitability alone may not adequately capture a hotel's ability to satisfy customers, deliver services efficiently, develop employees and sustain competitiveness. The Balanced Scorecard (BSC) developed by Kaplan & Norton, (1992) provides a comprehensive framework for assessing these dimensions through four interrelated perspectives: financial, customer, internal business processes, and learning and

growth. The financial perspective encompasses outcomes such as cost reduction and profitability; customer performance includes satisfaction, loyalty, reputation and service quality; internal business processes focus on operational efficiency and waste reduction; while learning and growth emphasizes employee skills, training, innovation and organizational capacity. Consequently, the BSC provides an appropriate framework for assessing performance in hotels because it captures both financial and non-financial outcomes.

Within this performance context, green food procurement represents an important green supply-chain practice that may influence hotel performance. Green food procurement entails the deliberate incorporation of environmental standards into the initial procurement of food and beverages.

(Wang et al., 2013; Obiso et al., 2023). By incorporating environmental considerations into food purchasing, hotels may improve resource utilization, reduce unnecessary costs, enhance food quality and strengthen supplier relationships. Evidence from the broader procurement literature indicates that green procurement can positively influence operational, market and financial performance (Kozuch et al., 2024). Hospitality-specific research has also established a positive relationship between green supply-chain practices and organizational performance (Kusa et al., 2023) suggesting that green food procurement may contribute not only to environmental sustainability but also to broader hotel performance.

Despite increasing interest in green supply chain management, limited empirical attention has been given to the specific effect of green food procurement on multidimensional hotel performance, particularly in the Kenyan context. Existing studies have largely examined general green procurement or green supply-chain practices, while food-specific procurement has received comparatively less attention. Mbeche & Juma, (2025) for example, found a positive relationship between green procurement practices and hotel performance in the Maasai Mara Game Reserve, but their study examined green procurement broadly rather than specifically focusing on food procurement. Similarly, studies in the Kenyan food and beverage sector have demonstrated relationships between green procurement and performance outcomes, but their findings may not fully reflect the distinctive operational characteristics of hotels (Thiga et al., 2023; Wambui & Chege, 2024).

This gap provides justification for examining green food procurement as an independent variable and hotel

performance as the dependent variable. The study focuses on four- and five-star hotels in Nairobi County because of their complex operations, substantial food and beverage activities, formal procurement systems and exposure to growing sustainability expectations. Performance is assessed through the four BSC perspectives such as financial, customer, internal business process, and learning and growth performance to establish whether green food procurement translates into comprehensive organizational benefits.

Literature Review

Green food procurement (GFP) refers to the systematic integration of environmental criteria into the upstream acquisition of food and beverages, including green product specification, green supplier selection, and green supplier development (Wang et al., 2013; Obiso, 2023)). Green food procurement is particularly concerned with food-specific sustainability criteria, including the sourcing of local, organic, and seasonal products, reduction of food waste, and consideration of environmental impacts across the food supply chain (Molin et al., 2024). However, implementing green food procurement in the hospitality industry can be particularly challenging because hotels must simultaneously meet high and fluctuating demand, strict quality standards, food safety requirements, product perishability, cost pressures, and changing guest expectations. Hotels also rely heavily on fresh and highly perishable food products, including meat, fish, dairy products, fruits, and vegetables, which require reliable suppliers, timely deliveries, and appropriate storage systems (Mshenga, 2010). Consequently, the adoption of local and sustainable sourcing practices may be constrained by

inconsistent product availability, inadequate quantities, variable quality, transportation and logistics difficulties, supplier reliability, and price considerations (Kang & Rajagopal, 2014; Zocchi & Fontefrancesco, 2020).

The hotel industry significantly contributes to environmental degradation through intensive energy and water consumption, carbon emissions, and waste generation (Alreahi et al., 2023). In the hospitality context, GFP can be used to partly address these challenges. GFP extends beyond transactional purchasing to include collaborative supplier engagement, eco-label verification, menu-level carbon accounting, and ethical sourcing standards that address the disproportionate environmental footprint of meat and dairy relative to grains, fruits, and vegetables (Clune et al., 2017; Garnett, 2011). Collectively, these practices constitute a strategic capability through which hotels can reduce greenhouse gas emissions, minimize food waste, and align operational sourcing with sustainability-oriented guest expectations.

GFP practices are posited to generate valuable, rare, and inimitable environmental capabilities that enhance competitive positioning and long-term profitability (Hart, 1995). The green specifications direct suppliers towards environmentally responsible practices by establishing clear expectations for eco-friendly performance, thus fostering sustainable development (Koskei & Wachiuri, 2025). The East African Organic Products Standard (EAOPS/EAS 456) and Green Key certification are particularly relevant to green food procurement in Kenya because they provide mechanisms for promoting environmentally responsible food sourcing. Within the Kenyan context, Mulebo & Wachiuri, (2026) studied green supply chain

management and performance of the hospitality industry in Nairobi City County, Kenya, focusing specifically on 5-star hotels. Their study found that green purchasing had a positive and statistically significant effect on hotel performance. The study also reported that hotels used energy-efficient products and products that can be recycled at the end of their life cycle.

Green supplier selection incorporates environmental criteria into supplier evaluation, enabling firms to identify suppliers whose practices are aligned with sustainability objectives and potentially improving supply-chain efficiency, competitiveness, and sustainable performance (Fan & Kang, 2023; Masudin et al., 2022). According to Astawa et al. (2020), suppliers selected in the hospitality context should be certified, which means that they possess policies, procedures, documentation, and training that ensure consistent quality delivery. Research shows that selecting suppliers with strong environmental practices can improve profitability, sales growth, and market share by enhancing operational efficiency and reducing environmental costs (Abuzaid et al., 2024). Evidence from restaurants also indicates that green supplier selection is associated with improved environmental performance (Shin & Cho, 2023).

Green supplier development cultivates relational capabilities that embed sustainability into the supply chain through joint training, plant visits, and performance-based incentives, transforming transactional relationships into strategic assets (Blome et al., 2014; Wamalwa & Nang'ole Meyer, 2024). Supplier development in the context of the hotel industry includes activities such as supplier evaluation as well as visiting and helping suppliers to increase their performance (Aksoy & Akin, 2019). These mechanisms collectively lower waste-

related costs, reduce exposure to environmental regulation penalties, and signal legitimacy to eco-conscious stakeholders, thereby improving performance across financial and non-financial dimensions (Liu et al., 2025). Empirical evidence supports the argument that supplier development can contribute to organizational performance. For example, Aksoy & Akin, (2019) examined 71 hotels in Turkey and investigated supplier development in relation to hotel performance. Their findings showed that supplier development had a positive effect on performance.

Meta-analytic evidence provides strong support for the positive association between green procurement and organizational performance. Liu et al. (2025), synthesizing 25,433 samples from 116 empirical studies across 30 countries, concluded that green procurement significantly improves financial, operational, environmental, and social performance, with the effects amplified by supplier collaboration, environmental innovation, and ISO certification. Similarly, Holling and Backhaus (2023) confirmed in a meta-analysis that green supply chain practices positively affect operational, environmental, and economic outcomes, underscoring the multidimensional performance logic that underpins the Balanced Scorecard (BSC) approach. In the hospitality sector specifically, empirical research remains fragmented but increasingly supportive. Hamza and Rego (2025) conducted a qualitative multi-case study of nine hotels in Egypt and found that international chain hotels systematically embedded sustainable supply chain practices into their business operations although they faced barriers such as supplier engagement and infrastructure whereas local 4-star chains lagged due to financial and knowledge limitations. This finding

suggests that the performance benefits of sustainable supply chain practices such as GFP are contingent on organizational capacity and ownership structure. Al-Husain et al., (2024) surveyed employees in five-star Egyptian hotels and demonstrated that food supply chain quality management practices, including sustainable sourcing and digital integration, positively influenced food supply chain sustainable performance across environmental and operational dimensions.

In Türkiye, Balin and Sari (2023) found that green purchasing practices exerted positive effects on both environmental and financial performance among 455 companies, although their sample was not hospitality-specific. Evidence on green supplier development in hotels remains comparatively sparse; Murphy and Smith (2009), in a qualitative study of upscale restaurants in Canada, established that chef-supplier meetings enabled ingredient tasting, new product development, and quality monitoring, indicating that relational supplier engagement enhances operational outcomes. However, formal green supplier development programs characterized by environmental audits, joint improvement projects, and capability building remain under-documented in the hospitality literature, particularly in developing economies.

Research in Sub-Saharan Africa remains sparse but growing. Suleiman (2023), adopting the NRBV in a Tanzanian tourism context, found that green purchasing contributed to environmental, social, and economic performance, demonstrating that resource-based environmental capabilities are transferable to East African supply chain structures. In Kenya, Bor (2021) examined 187 food and beverage processing firms and reported a positive and significant relationship between green procurement

and organizational performance. Wambui & Chege, 2024) studying 217 food and beverage processing firms in Nairobi City County, established that green specifications positively influenced supply chain performance, particularly in environmental impact reduction and cost containment. Nyaga and Achuora (2020) similarly found that sustainable procurement practices enhanced procurement performance in Nairobi-based food and beverage manufacturing firms.

Within the Kenyan hotel sector specifically, Makokha et al. (2022) surveyed 95 employees across 17 star-rated hotels in Nakuru County and found that green procurement practices, including supplier evaluation, positively influenced organizational performance. Mulati and Juma (2019), using census data from 17 star-rated hotels in Kisumu City, established that green procurement training and supplier management practices significantly enhanced organizational performance through improved operational efficiency and environmental sustainability. Mbeche and Juma (2025) investigated hotels in the Maasai Mara Game Reserve and confirmed that green supplier assessment positively affected hotel performance. Chepkoech et al. (2015), focusing on SMEs comprising hotels, restaurants, and bars in Uasin-Gishu County, established a positive relationship between green procurement strategies and financial performance. More recently, Karanja et al. (2026) surveyed customers of star-rated hotels in Nairobi and found that green practices, including sustainable sourcing, explained 61.2% of the variance in hotel choice decisions, with a strong positive correlation ($r = .782, p < .01$), suggesting that procurement-driven sustainability signals directly influence market outcomes. Despite this encouraging evidence, no prior Kenyan

study has isolated food-specific procurement practices or applied the BSC to measure their multidimensional performance effects in the 4- and 5-star hotel segment.

However, Jassim et al. (2020) while examining shipping and automobile firms in Bahrain, found only a slight positive impact of green purchasing on performance, attributing the weak effect to low environmental consciousness among suppliers. Hussain et al. (2019), in a large-sample study of UAE hotels, reported that green procurement had a weak impact on sustainable performance relative to green technology and green products. Green Jr. et al. (2012) found that green purchasing was significantly linked to both environmental and economic performance among US manufacturing firms. Galeazzo et al. (2021) failed to find a direct positive relationship between green procurement and financial performance in tourism firms unless tourists' green purchasing behavior was introduced as a moderator. These inconsistencies suggest that the GFP–performance relationship is context-dependent, shaped by industry characteristics, regulatory maturity, supplier readiness, and customer environmental awareness (Liu et al., 2025). In developing economies, institutional voids, infrastructure deficits, fragmented supplier markets, and weaker enforcement of environmental standards may attenuate or delay performance outcomes (Hamza & Rego, 2025), underscoring the need for context-specific empirical inquiry.

The BSC offers a theoretically appropriate framework for capturing the multidimensional performance effects of GFP in hotels (Kaplan & Norton, 1992). From a financial perspective, sustainable purchasing practices can enhance purchasing performance by improving supply-chain sustainability and reducing

economic and operational risks (Hallikas et al., 2020). The customer perspective captures reputation enhancement, satisfaction, and loyalty among eco-conscious travelers who increasingly factor sustainability into accommodation choices (Yadav et al., 2019; Karanja et al., 2026). The internal business process perspective reflects operational efficiencies achieved through streamlined sourcing, reduced lead times, and compliance with food safety and environmental quality standards (Sarraf & Nejad, 2020), while the learning and growth perspective encompasses employee capabilities, organizational systems, and procedures that support continuous improvement (Fatima & Elbanna, 2023). Despite this conceptual alignment, empirical studies applying the BSC to measure GFP outcomes in African hotels are virtually nonexistent, representing a critical gap.

Existing Kenyan studies focus on manufacturing, food and beverage processing, or aggregate procurement practices without isolating food-specific upstream activities in the star-rated hotel sector, and no prior study has employed the BSC to examine how GFP practices simultaneously affect financial, customer, internal process, and learning and growth performance in Nairobi's 4- and 5-star hotels. These gaps justify the present inquiry. Drawing on the NRBV and the foregoing empirical evidence, this study tests the following null hypothesis:

H₀₁: *Green food procurement practices do not have a significant effect on the performance of 4- and 5-star rated hotels in Nairobi County, Kenya*

Theoretical Review

Natural Resource-Based View Theory

The Natural Resource-Based View (NRBV) theory arose from dissatisfaction with the traditional resource-based view

(RBV) for not addressing environmental issues effectively. The RBV claims that companies gain a competitive edge by using valuable, rare, hard-to-copy, and non-replaceable (VRIN) resources. Hart, (1995) expanded on this idea, arguing that environmental capabilities should also be seen as strategic resources that can lead to better performance. He introduced the NRBV theory, stating that firms can achieve sustainable competitive advantage through three main environmental strategies: pollution prevention, product stewardship, and sustainable development (Hart, 1995).

In the field of green supply chain management (GrSCM), the NRBV has become an essential theoretical framework. Some recent studies in the hospitality industry have used the NRBV to prove that green supply chain activities can result in the formation of specific capabilities that are hard to replicate for competitors. Indeed, hotels adopting green purchasing, collaborating with environmentally friendly suppliers, implementing waste-reduction programs, and being environmentally efficient can benefit from lower negative environmental effects and improved performance (Alreahi et al., 2023).

The Balanced Scorecard Model

Kaplan and Norton, (1992) developed the balanced scorecard model. The model was designed to overcome the limitations of traditional financial performance measures by integrating non-financial indicators across four perspectives: financial, customer, internal business processes, and learning and growth (Kaplan & Norton, 1992). According to them, from a financial perspective, the goal is to ensure that the organization is achieving financial objectives and delivering value to its shareholders. This perspective focuses on profitability, revenue growth, cost

management, and return on investment (ROI) (Kaplan & Norton, 2005). The customer perspective's goal is to ensure customer value proposition and focuses on how the organization sets itself apart from its competitors to engage, maintain, and strengthen connections with its desired customer base (Kaplan & Norton, 2005). Internal process perspective on the other hand emphasizes the internal operations that need to be improved or innovated to achieve the company's objectives while learning and growth perspective emphasizes on the organization's capacity to maintain and enhance its long-term growth and performance through the development of its internal competencies. Integration of the Balanced Scorecard approach in GrSCM literature makes it possible for the hospitality organization to measure the impact of their environmental efforts on both financial and non-financial measures.

Research Methodology

Research design

The present investigation employed a quantitative-dominant convergent parallel mixed-methods research design. A mixed methods research design is a combination of qualitative and quantitative research approaches (Dawadi et al., 2021). In social sciences, this method of conducting research involves collecting both quantitative (closed-ended) and qualitative (open-ended) data, combining the two, and then making inferences based on the strengths of both data sets to comprehend research issues (Creswell, 2014).

Quantitative data were collected from 273 respondents using structured questionnaires and were subjected to descriptive and inferential statistical analysis. The qualitative component

involved interviews with purposively selected food and beverage managers of the selected hotels. By the 13th respondent, saturation point had been reached. Qualitative research was intended to provide contextual explanations that could not be adequately obtained through closed-ended questionnaire responses, particularly regarding how green food procurement practices are implemented, the challenges encountered, and the mechanisms through which such practices influence hotel performance.

The convergent design enabled the quantitative and qualitative strands to be conducted within the same study period, analyzed independently, and subsequently integrated during interpretation. The qualitative findings were not treated as an appendix to the survey; rather, they were used to explain, complement, and contextualize the quantitative results. Areas of convergence and divergence between the two strands were examined. For example, where quantitative findings showed that a particular green procurement practice significantly affected a Balanced Scorecard performance dimension, interview evidence was used to explain the organizational or operational factors underlying that relationship. Similarly, qualitative explanations were considered where quantitative relationships were weak or insignificant. This integration strengthened the interpretation of the findings by combining statistical evidence with managerial experiences.

Research Philosophy

The pragmatism research paradigm served as the foundation for the current investigation. The philosophy was appropriate for the mixed-methods research because it allows researchers to select methods based on their usefulness in answering the research questions

rather than being restricted to a single philosophical tradition (Morgan, 2014). The philosophy was appropriate for this study because the objectives required both objective measurement of relationships between green food procurement and hotel performance and subjective understanding of how managers experience and implement green procurement practices.

Ontologically, the study recognized that green procurement practices and hotel performance have observable and measurable dimensions, while their implementation is also influenced by organizational and managerial contexts. Epistemologically, the study therefore accommodated both objective and subjective knowledge (Creswell & Plano Clark, 2018). The quantitative strand reflected a positivist orientation through standardized measurement and statistical testing, whereas the qualitative strand provided interpretivist insights into managerial experiences and perceptions.

Study Area

The research examined hotels in Nairobi County. As the capital city, it served as the center for Kenya's hospitality and tourism sector, featuring the highest concentration of 4–5-star rated hotels.

Target Population

The population or universe refers to all elements within an area of investigation (Kothari, 2004). This study targeted executive chefs, restaurant managers and procurement managers of all ninety-one (91) 4-5-star-rated hotels in Nairobi County, Kenya, as per the ratings of Tourism Regulatory Authority (TRA), booking.com and TripAdvisor. Additionally, purposively selected food and beverage managers were interviewed so as to triangulate the study

findings. The study targeted these respondents since they were deemed knowledgeable about green food procurement practices and performance. The current study had a sample size of 273 respondents using census enquiry. Additionally, 13 purposively selected food and beverage managers were interviewed for the current study.

The study focused specifically on 4- and 5-star hotels because these establishments generally have relatively extensive food and beverage operations, higher service standards, larger food procurement requirements, and more formalized procurement and supplier-management systems. These characteristics make them particularly suitable for examining green food procurement practices. Lower-rated and budget hotels were excluded because their scale of operations, procurement structures, resource capacities, and degree of organizational specialization may differ considerably from those of upper-tier hotels.

Data Collection Instruments

Data collection was done using a structured questionnaire which was self-developed. Additionally, an interview schedule was used to collect additional information that addressed the objective of the study from the food and beverage managers of the selected hotels.

Pretesting of Research Instruments

The research instruments were pretested in 4 and 5 star-rated hotels in Nyeri County. The Sample size for the pilot test was 27 which represented 10% of the study sample size. Nyeri was selected due to its proximity to Nairobi thus possess similar characteristics with the study location. Cronbach's alpha was used to test the reliability and internal consistency of the research instrument of the current study. Content validity was

assessed through expert review involving specialists in green supply chain management, hospitality management, procurement, and research methodology. The experts examined whether the items adequately represented the study constructs and objectives. Reliability was assessed using Cronbach's alpha to determine the internal consistency of the questionnaire scales, with values of 0.70 or above considered acceptable.

Validity

Construct validity was achieved by anchoring the study to theories relevant to the study. Convergent Validity is determined when the results from two distinct instruments assessing the same concept show a strong correlation (Taherdoost, 2016). The average variance extracted (AVE) was used to test convergent validity. Discriminant validity refers to how effectively a latent variable differentiates itself from other latent variables (Taherdoost, 2016). Discriminant validity was assessed using the Fornell–Larcker criterion and HTMT ratio, while cross-loadings were examined to establish whether indicators loaded more strongly on their intended constructs than on other constructs. PCA was therefore not used as the measurement-model procedure because PCA is a data-reduction technique and is conceptually distinct from the latent-variable measurement assessment undertaken in PLS-SEM.

Data Analysis

This study adopted descriptive statistics, content analysis and partial least squares structural equation modeling to analyze data. The analysis was done in SPSS V29, IBM AMOS and NVIVO applications. Qualitative interviews were analyzed through thematic content analysis. Transcripts were coded using both deductive codes

derived from the study objectives and inductive codes emerging from participants' responses. Related codes were grouped into themes concerning green food procurement implementation, supplier relationships, operational challenges, and performance outcomes. The qualitative themes were subsequently compared with the quantitative findings to identify convergence, complementarity, and divergence.

Results

Response rate

The study achieved a 92.6% response rate, with a 7.4% non-response rate. This was higher than the threshold of 60-80% often considered reliable from sample surveys. Non-response bias was assessed by comparing early and late respondents on the principal study variables, and no significant differences were observed, suggesting that non-response bias was unlikely to affect the findings. Of the 273 targeted respondents, 21 did not respond, while 0; substantially incomplete questionnaires were excluded from analysis. The high response rate was facilitated through prior engagement with participating hotels, personal delivery and collection of questionnaires, clear communication regarding confidentiality, and repeated follow-up reminders. These measures accommodated respondents' demanding schedules and encouraged timely questionnaire completion.

Reliability Analysis

The internal consistency of the research instrument items was assessed using Cronbach Alpha coefficient, ranging from 0 to 1, with a coefficient closer to 1, the stronger the internal consistency of the scale's components. Cronbach Alpha coefficients of the sub – items were

expected to yield an acceptable minimum coefficient value of 0.7 (Sekaran et al., 2016). The reliability value of each of the variables is presented in Table 1. It is evident that for this study, reliability was demonstrated since the overall Cronbach's alpha was greater than 0.7 at value of 0.862 and therefore no variable had to be removed. The findings indicate that green food procurement had a

coefficient of 0.879. Performance had a coefficient of 0.868. The same outcomes were also confirmed by Dijkstra-Henseler's rho (ρ_A) and Jöreskog's rho (ρ_C) since they had evidence of higher reliability, showing that they were accepted as constructs. The results indicate that the questionnaire used in this study was highly reliable for the actual survey.

Table 1: Reliability analysis

Construct	Dijkstra-Henseler's rho (ρ_A)	Jöreskog's rho (ρ_C)	Cronbach's alpha(α)
Green Supplier Selection	0.830	0.840	0.808
Green Product Specifications	0.819	0.810	0.819
Green Supplier Development	0.874	0.871	0.878
Financial Perspective	0.888	0.887	0.891
Customer Perspective	0.883	0.881	0.887
Internal perspective	0.864	0.870	0.870
Learning and growth	0.801	0.800	0.803
Performance	0.849	0.859	0.868

Validity Analysis

The validity test was also carried out. The study reported that the factor loadings for Green Food Procurement were higher than 0.708 (Hair et.al,2019),

an indication that the factors were valid, for use in PLS-SEM. This indicated that the factors were valid as shown in table 2 below.

Table 2: Green Food Procurement Validity Test

Green Food Procurement Items	Initial	Extraction
Green Supplier Selection		
Our establishment selects suppliers with Environmental certification & compliance, such as ISO 14001 standards	1.000	.891
Our establishment purchases products from local suppliers to reduce transportation emissions and support the local community	1.000	.956
Our establishment selects suppliers that use recyclable or eco-friendly packaging	1.000	.746
Our establishment selects suppliers who use eco-friendly raw materials in their production	1.000	.949
Our establishment selects suppliers with clear policies on waste reduction and recycling	1.000	.922
Green Product Specifications		
Our establishment purchases products that carry recognized eco-labels or certifications	1.000	.962

Our establishment avoids genetically modified ingredients when purchasing our food offerings	1.000	.970
Our establishment purchases food products that are free from harmful additives and chemicals	1.000	.947
Our establishment provides green packaging specifications to our suppliers	1.000	.915
Our establishment sources ingredients that consider fair trade and ethical labor practices	1.000	.938
Our establishment procures products that are designed to conserve water or have water-saving features	1.000	.985
Green Supplier Development		
Our establishment sets environmental performance goals for our suppliers	1.000	.879
Our establishment evaluates suppliers' environmental performance	1.000	.972
Our establishment provides feedback regarding suppliers' environmental performance	1.000	.982
Our establishment cooperates with suppliers to solve environmental problems	1.000	.941
Our establishment encourages suppliers to supply environmentally friendly products/services	1.000	.989
Our establishment provides training to suppliers to enhance their environmental capabilities	1.000	.884

Extraction Method: Principal Component Analysis

Source: Author (2026)

Performance Validity Test

The validity test reported that the factor loadings for performance were higher than 0.708 (Hair et.al, 2019), an

indication that the factors were valid. This indicated that the factors were valid as shown in table 3 below.

Table 3: Performance validity test

Performance Items	Initial	Extraction
Financial Perspective		
Our establishment experienced revenue growth compared to previous years	1.000	.868
Our establishment's food and beverage costs remained within the set budget	1.000	.879
The profit recorded by our establishment this year is higher than the profits reported in the previous years	1.000	.976
Our establishment's return on investment (ROI) from green initiatives is positive	1.000	.764
Our establishment's overall sales increased over the past year	1.000	.814
Customer Perspective		
Our establishment received positive feedback regarding customer satisfaction with their dining experience	1.000	.833

Our establishment experiences a significant portion of the customers returning to dine in the establishment again	1.000	.939
Our customers frequently recommend our establishment to others	1.000	.915
Our establishment effectively resolves customer complaints to their satisfaction	1.000	.844
Internal perspective		
Our establishment serves customers quickly from the moment they place an order	1.000	.930
Our food quality is consistently high across all offerings	1.000	.698
Our establishment successfully improved and streamlined its internal processes	1.000	.619
Our establishment demonstrates high efficiency with a favorable average table turnover rate per shift	1.000	.889
Learning and growth		
Our establishment is committed to investing in staff training and development	1.000	.919
Our employees generally express satisfaction with their work environment	1.000	.956
Our establishment actively identifies and develops employee skills through targeted training programs	1.000	.853
In the past year our establishment successfully introduced new menu items and services	1.000	.707

Extraction Method: Principal Component Analysis

Source: Author (2026)

The findings as witnessed from HTMT reported that discriminant validity existed in the model.

The outcomes showed that heterotrait-monotrait ratio (HTMT)

statistics showed that there existed discriminant validity in the model in table 4. This was since the values were above 0.9 to 1.0 (Hair et.al, 2019).

Table 4: HTMT Statistics

Construct	GSS	GPS	GSD	FP	CP	IP	LG	P
GSS								
GPS	0.9176							
GSD	0.9277	0.9063						
FP	0.9114	0.9370	0.9023					
CP	0.9591	0.9087	0.9106	0.9035				
IP	0.9583	0.9294	0.9071	0.9302	0.9342			
LG	0.7598	0.9268	0.9388	0.9195	0.9214	0.9185		
P	0.933	0.9183	0.9144	0.9131	0.9079	0.9012	0.9161	

Note: GSS = Green Supplier Selection; GPS = Green Product Specifications; GSD = Green Supplier Development; FP = Financial Perspective; CP = Customer Perspective; IP = Internal Perspective; LG = Learning and Growth; P = Performance.

Source: Author (2026)

Demographic Statistics

Table 5 presents the demographic profile of respondents. Gender distribution shows that females are the dominant gender constituting 64.7% (n=163) of respondents compared to 35.3% (n=89) males. The workforce is

predominantly youthful and highly educated, with 60.3% (n = 152) aged 20–30 and nearly 60% holding a degree (50.0% , n = 126) or postgraduate qualification (9.5%, n = 24), suggesting an adaptable, skilled labor pool driven by rising service standards.

Table 5: Demographic statistics by hotel category

Variable	Sub-categories	N	%
Gender	Male	89	35.3
	Female	163	64.7
Age bracket	20-30 years	152	60.3
	31-40 years	64	25.4
	>40 years	36	14.3
Education	Certificate	13	5.2
	Diploma	89	35.3
	Degree	126	50.0
	Post-graduate	24	9.5
Experience	Less than 1 year	40	15.9
	1-2 years	55	21.8
	3-5 years	80	31.7
	More than 5 years	77	30.6
Employees	Less than 50	153	60.7
	50-100	75	29.8
	More than 100	24	9.5
Hotel years	Less than 1 year	25	9.9
	1-2 years	0	0.0
	3-5 years	12	4.8
	More than 5 years	215	85.3
Seating capacity	51-100	63	25.0
	101-200	62	24.6
	Above 200	127	50.4
Ownership structure	Hotel chain	44	17.5
	Independently owned	208	82.5

Source: Author (2026)

Experience is well-balanced, as over 62% have at least three years in the sector, balancing operational consistency with new talent. On the organizational side, the sector is dominated by small, independent operators 60.7% (n = 153) employ under 50 staff and 82.5% (n = 208) are independently owned yet larger establishments drive volume, with 50.4% (n = 127) seating over 200 guests. Despite smaller staff sizes and market

fragmentation, high operational longevity (85.3%, n = 215 operating over 5 years) points to strong overall industry stability

Descriptive Statistics for Green Food Procurement

Table 6 presents the descriptive statistics for Green Food Procurement practices, organized into three key dimensions: Green Supplier Selection, Green Product Specifications, and Green

Supplier Development. The results are based on respondents' levels of agreement measured on a five-point Likert scale ranging from Strongly Disagree (SD) to Strongly Agree (SA).

Green Supplier Development (M = 4.28, SD = 0.563), high institutional standards in Green Product Specifications (M = 4.10, SD = 0.453), and moderate implementation of Green Supplier Selection (M = 3.61, SD = 0.793) all show strong adoption of green food procurement across establishments. The strongest driver is Supplier Development, which is defined by goal-setting (M =

4.43), feedback (M = 4.41), capacity-building training (M = 4.39), and ongoing improvement. High scores for fair trade/ethical labor (M = 4.41), non-genetically modified ingredients (M = 4.18), and water conservation (M = 4.12) demonstrate a consistent focus on resource efficiency, health, and social sustainability in product specifications. On the other hand, supplier selection shows the greatest variation; establishments prioritize eco-friendly raw materials (M = 4.12) and explicit waste reduction policies.

Table 6: Descriptive statistics for Green Food Procurement

Green Food Procurement	Mean	SD
Green Supplier Selection	3.61	.793
Our establishment selects suppliers with Environmental certification & compliance, such as ISO 14001 standards	3.51	1.390
Our establishment purchases products from local suppliers to reduce transportation emissions and support the local community	3.44	1.347
Our establishment selects suppliers that use recyclable or eco-friendly packaging	3.35	1.438
Our establishment selects suppliers who use eco-friendly raw materials in their production	3.71	1.235
Our establishment selects suppliers with clear policies on waste reduction and recycling	4.12	.999
Green Product Specifications	4.10	.453
Our establishment purchases products that carry recognized eco-labels or certifications	3.77	1.247
Our establishment avoids genetically modified ingredients when purchasing our food offerings	4.18	.819
Our establishment purchases food products that are free from harmful additives and chemicals	4.12	.902
Our establishment provides green packaging specifications to our suppliers	4.01	.887
Our establishment sources ingredients that consider fair trade and ethical labor practices	4.41	.730
Our establishment procures products that are designed to conserve water or have water-saving features	4.12	.859
Green Supplier Development	4.28	.563
Our establishment sets environmental performance goals for our suppliers	4.43	.742
Our establishment evaluates suppliers' environmental performance	4.38	.819
Our establishment provides feedback regarding suppliers' environmental performance	4.41	.756
Our establishment cooperates with suppliers to solve environmental problems	4.04	.950
Our establishment encourages suppliers to supply environmentally friendly products/services	4.04	.902
Our establishment provides training to suppliers to enhance their environmental capabilities	4.39	.748

Source: Author (2026)

The Qualitative research findings corroborated the quantitative results. The results indicated that, although direct supplier training is still scarce, 4–5-star hotels primarily implement green food procurement through external environmental certifications and structured product specifications. By incorporating mandatory environmental standards like reduced packaging and regulatory compliance into procurement policies, formal certifications institutionalize the selection of green suppliers and turn sustainability from an optional endeavor into a required standard. Green product specifications are advanced internally by managers and chefs through the establishment of clear environmental guidelines, waste-reduction receiving procedures, early supply chain engagement, and supplier evaluation based on eco-friendly handling, quality, and delivery in addition

Descriptive Statistics for Performance

Table 7 presents the descriptive statistics for Organizational Performance,

to price. Nonetheless, hotels continue to take a strict compliance-focused approach to supplier training, depending instead on vendors to build their own green capabilities rather than making investments in joint development. Although this strategy reduces management oversight and operating expenses, depending only on certification compliance may not be sufficient. Moreover, the findings showed that GFP practices improved internal processes through waste reduction and more consistent food quality, particularly through careful green supplier selection that ensured compliance with quality and environmental standards. These improvements supported standardized service delivery, customer satisfaction, and financial performance, demonstrating the organizational importance of GFP practices.

measured across four balanced scorecard perspectives: Financial, Customer, Internal Process, and Learning and Growth.

Table 7: Descriptive statistics for Performance

Performance	Mean	SD
Financial Perspective	4.06	.646
Our establishment experienced revenue growth compared to previous years	4.04	.927
Our establishment’s food and beverage costs remained within the set budget	4.13	.979
The profit recorded by our establishment this year is higher than the profits reported in the previous years	4.02	.896
Our establishment’s return on investment (ROI) from green initiatives is positive	3.98	.838
Our establishment’s overall sales increased over the past year	4.16	.853
Customer Perspective	4.12	.662
Our establishment received positive feedback regarding customer satisfaction with their dining experience	4.15	.752
Our establishment experiences a significant portion of the customers returning to dine in the establishment again	3.99	.908
Our customers frequently recommend our establishment to others	4.16	.779

Our establishment effectively resolves customer complaints to their satisfaction	4.18	.860
Internal perspective	4.46	.517
Our establishment serves customers quickly from the moment they place an order	4.57	.585
Our food quality is consistently high across all offerings	4.49	.576
Our establishment successfully improved and streamlined its internal processes	4.44	.640
Our establishment demonstrates high efficiency with a favorable average table turnover rate per shift	4.31	.693
Learning and growth	4.23	.689
Our establishment is committed to investing in staff training and development	4.29	.770
Our employees generally express satisfaction with their work environment	4.28	.735
Our establishment actively identifies and develops employee skills through targeted training programs	4.21	.824
In the past year our establishment successfully introduced new menu items and services	4.21	.873

Source: Author (2026)

The evaluation demonstrates robust multi-dimensional performance across all assessed establishments, led by exceptional operational management within Internal Processes ($M = 4.46$), where rapid service speed ($M = 4.57$) and consistent food quality ($M = 4.49$) serve as operational backbones. Organizational Learning and Growth ($M = 4.23$) underpins this success through high employee satisfaction ($M = 4.28$), strong training investments ($M = 4.29$), and continuous menu innovation ($M = 4.21$). These internal strengths translate directly into favorable Customer Outcomes ($M = 4.12$), highlighted by effective complaint resolution ($M = 4.18$), strong recommendations ($M = 4.16$), and high dining satisfaction ($M = 4.15$). Consequently, these combined operational, developmental, and customer-focused efficiencies drive strong overall Financial Outcomes ($M = 4.06$), marked by robust sales growth ($M = 4.16$) and strict cost control ($M =$

4.13), despite a minor lag in immediate returns on green initiative investments ($M = 3.98$).

Correlation analysis for Green Food Procurement Practices and Performance

Table 8 presents the correlation analysis between green food procurement practices and organizational performance. The results demonstrate strong, statistically significant positive relationships ($p < 0.01$) between all green food procurement dimensions and Balanced Scorecard performance outcomes.

Green supplier selection heavily drives financial ($r = 0.832$) and customer ($r = 0.873$) performance, while green product specifications consistently enhance financial, customer, internal process, and learning outcomes ($r > 0.800$). Notably, green supplier development shows the strongest overall impact, particularly in learning and growth ($r = 0.896$) and internal

processes ($r = 0.863$). Ultimately, these findings underscore that sustainable procurement is a key strategic driver of

operational efficiency, customer satisfaction, organizational learning, and financial success.

Table 8: Pearson Correlation analysis of Green Food Procurement and Performance

		GSS	GPS	GSD	FP	CP	IP	LG
GSS	Pearson	--						
	Correlation							
GPS	N	252						
	Pearson	.300**	--					
	Correlation							
	Sig. (2-tailed)	.000						
GSD	N	252	252					
	Pearson	.295**	.590**	--				
	Correlation							
	Sig. (2-tailed)	.000	.000					
FP	N	252	252	252				
	Pearson	.832**	.804**	.806**	--			
	Correlation							
	Sig. (2-tailed)	.000	.000	.000				
CP	N	252	252	252	252			
	Pearson	.873**	.838**	.831**	.839**	--		
	Correlation							
	Sig. (2-tailed)	.000	.000	.000	.000			
IP	N	252	252	252	252	252		
	Pearson	.821**	.840**	.863**	.705**	.842**	--	
	Correlation							
	Sig. (2-tailed)	.000	.000	.000	.000	.000		
LG	N	252	252	252	252	252	252	
	Pearson	.832**	.825**	.896**	.832**	.812**	.648**	--
	Correlation							
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	252	252	252	252	252	252	252

** . Correlation is significant at the 0.01 level (2-tailed).

Note: GSS = Green Supplier Selection; GPS = Green Product Specifications; GSD = Green Supplier Development; FP = Financial Perspective; CP = Customer Perspective; IP = Internal Perspective; LG = Learning and Growth.
Source: Author (2026)

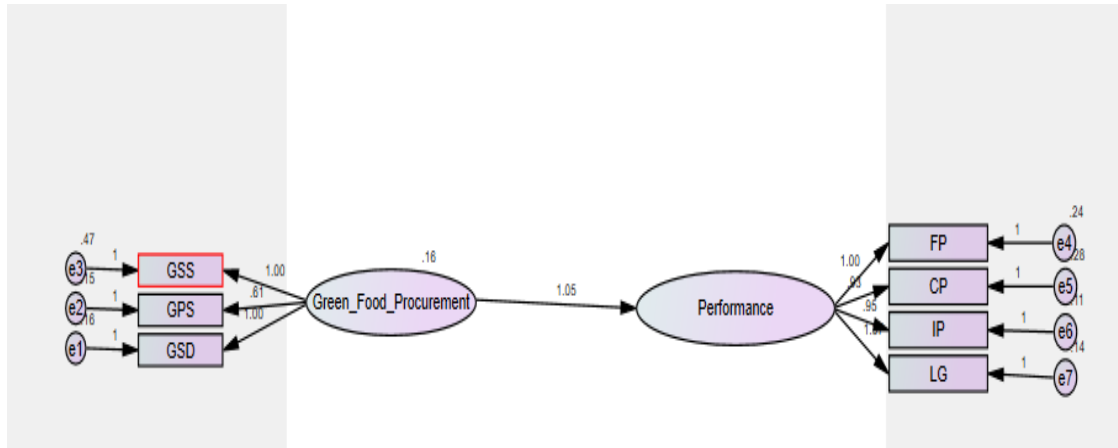
SEM Model

The unstandardized factor loadings are approximately 1.00, 0.61,

and 1.00, respectively, showing that that GSS and GSD are stronger measures of the construct than GPS as shown in figure

1. The structural path revealed a positive significant effect of Green Food Procurement on Performance from the unstandardized estimates ($\beta=1.05$, $p<.001$) suggesting a strong positive

influence. It was notable that an improvement in Green Food Procurement practices enhanced organizational performance.



Note: GSS: Green Supplier Selection, GPS: Green Product Specification and GSD: Green Supplier Development.

Figure 1: SEM Model

Discussions

Green Food Procurement Practices and Performance

The objective of the study was to establish the influence of green food procurement on the performance of 4-5 star-rated hotels in Nairobi County. The SEM results revealed that green food procurement practices showed a strong positive total effect on performance. This suggests that adopting environmentally sustainable purchasing practices such as selecting green suppliers, using green specifications, engaging in supplier development, sourcing eco-friendly, locally produced, or ethically certified food products contributes directly to improved operational, financial, and environmental outcomes. The null hypothesis (H_01) was therefore rejected.

These findings align with recent empirical evidence from the Kenyan context showing that green procurement practices significantly enhance supply chain and organizational performance in

food and beverage contexts, where greener sourcing strategies are associated with improved operational efficiency and sustainability performance (Wambui & Chege, 2024). Similarly, the findings also agreed with Mbeche and Juma, (2025) who established that green procurement practices significantly and positively influence supply chain performance in hotels.

These findings are also similar to Hamza and Rego, (2025) who adopted qualitative multi-case study methodology which involved in-depth interviews with managers at nine hotels to explore the adoption of sustainable supply chain practices (SSCPs) among three hotel categories: international chain hotels, 5-star local chains, and 4-star local chains located in Egypt. The study established that green supplier selection (GSS) is more systematically embedded within the supply chains of international chain hotels (ICHs) than in those of local chain hotels, with important implications for

performance outcomes. This is relevant to the present study because 82.5% of the participating hotels were independently owned. Independent hotels may have less access to centralized procurement systems, standardized corporate environmental policies and dedicated supplier-development resources than international chains. Nevertheless, the positive GFP-performance relationship found in the present study suggests that independent ownership does not prevent hotels from realizing performance benefits from green procurement. Rather, ownership structure may influence the extent and sophistication with which such practices are implemented.

Other global studies also concur with these findings, for example Alreahi et al., (2023) in their systematic review of 57 GSCM studies in the hotel industry, they identified that green supplier selection as a key to greening the supply chains. The study argued that green procurement contributes to financial performance through reduced waste, resource costs as well as environmental gains through lower emissions and resource use, with operational improvements via better supply chain integration.

Moreover, Migdadi, (2023) also found that top-rated 4- and 5-star hotels increasingly rely on green procurement, internal commitment, and sustainable supply chain practices as core drivers of hotel sustainability and operational effectiveness. Similarly, Langgat et al., (2023) established that environmentally sustainable practices in hotel-restaurants improve organizational performance by strengthening efficiency, stakeholder trust, and service competitiveness.

In the same direction, Al-Husain et al., (2024) reported that hotel food supply chain quality management and sustainable sourcing practices

significantly improve sustainable performance, particularly when supported by integration and process discipline. This study reinforces the argument that procurement is no longer merely a purchasing function but a strategic capability that improves cost control, service quality, learning, and customer satisfaction.

Galeazzo et al., (2021) also researched green procurement and financial performance in the tourism industry using the role of tourists' green purchasing behavior as a moderating variable. Their study did not find a positive relationship between green procurement and financial performance. The positive association was evident only when the moderating influence of tourists' green purchasing behavior was incorporated. This contradictory evidence suggests that the financial consequences of green procurement may depend on customer demand and other contextual mechanisms. The present findings similarly show differences across the BSC perspectives. Internal Process recorded the highest mean ($M = 4.46$), whereas Financial Perspective recorded the lowest ($M = 4.06$). This pattern suggests that GFP may initially influence operational processes more strongly than direct financial outcomes. Supplier evaluation, sustainable product specifications, waste reduction and improved procurement coordination are activities that can directly improve internal processes, whereas financial returns may require longer periods to emerge through cost savings, customer loyalty and increased revenue. The relatively lower return-on-investment assessment therefore provides an important qualification to the strong aggregate GFP-performance relationship.

The qualitative findings also provide an important qualification to the quantitative results, particularly

concerning GSD. Although the questionnaire results indicated high levels of supplier-development practices, including a relatively high mean for supplier training, interviews revealed that some managers reported limited or no formal supplier training and instead expected suppliers to comply with environmental requirements independently. This apparent divergence may have several explanations. First, questionnaire respondents may have been influenced by social desirability bias, leading them to report practices more positively because green procurement is increasingly regarded as desirable organizational behavior. Second, respondents may have conflated supplier evaluation with supplier development. A hotel that assesses suppliers against environmental criteria is not necessarily developing those suppliers through training, technical assistance, joint improvement programs or capability building. The qualitative evidence suggests that some hotels emphasized compliance monitoring rather than active development of supplier environmental capabilities.

The findings can also be interpreted through the Natural Resource-Based View, which proposes that environmental capabilities can become organizational resources capable of generating competitive benefits. Green procurement can strengthen such capabilities by integrating environmental considerations into supplier relationships, purchasing decisions and internal processes. However, the benefits depend on the depth of implementation. The qualitative evidence indicates that formal environmental requirements may exist without corresponding investments in supplier capability development. Consequently, the positive quantitative relationship should not be interpreted as

evidence that all components of GFP are implemented equally or intensively.

The findings should not be generalized uncritically beyond Nairobi's 4- and 5-star hotel segment. Nairobi represents a distinctive urban hospitality market with organizational, supplier and customer characteristics that may differ from those of lower-rated hotels and establishments in other Kenyan tourism destinations. Evidence from Nakuru and the Maasai Mara indicates that green procurement is relevant in other Kenyan hospitality contexts, but differences in tourism markets, supplier availability, ownership and organizational resources may influence the strength of the relationship. Therefore, the study provides strong evidence for Nairobi's 4- and 5-star hotels, while further research across other counties, hotel categories and ownership structures is necessary before the findings can be generalized to the wider Kenyan hospitality industry.

Conclusions and Recommendations

The findings suggest that green food procurement practices are closely aligned with improved organizational performance across all Balanced Scorecard perspectives. This underscores the strategic role of sustainable procurement in driving financial success, customer satisfaction, internal efficiency, and organizational learning. The study recommends that hospitality facilities need to promote green procurement practices in order to enhance their performance outcomes.

From the customer perspective, sustainable food sourcing can strengthen hotel reputation, customer satisfaction and competitiveness. For internal processes, GFP provides the strongest performance benefits, particularly through improved procurement efficiency, supplier evaluation, waste

reduction and operational coordination. Regarding learning and growth, green procurement encourages employee awareness, environmental capabilities and organizational commitment to sustainability.

In terms of limitations, it was noted that the ownership structure (82.5% independently owned). This is unusual for 4–5-star hotels globally and may affect generalizability. Chain hotels often have standardized green procurement policies that independents lack. Moreover, interpretation of all means was above the midpoint (3.0). This suggests potential social desirability bias or acquiescence bias, since respondents may over-report green practices, which can be considered as a limitation.

The study contributes to Natural Resource-Based View (NRBV) literature by demonstrating that environmental procurement capabilities can function as strategic organizational resources within hospitality, while extending the BSC by showing how green procurement relates to multidimensional rather than purely financial performance.

Hotels should therefore move beyond general promotion of green procurement by allocating formal budgets for supplier environmental training, strengthening supplier evaluation criteria, and maintaining appropriate sustainability certification such as Green Key where feasible. The Tourism Regulatory Authority (TRA) and Kenyan government should strengthen sustainability standards, provide incentives for certified green hotels, and develop guidance on sustainable food procurement. However, the cross-sectional design, reliance on self-reported data, Nairobi-only focus and absence of archival financial data limit causal inference and generalizability. Future studies should use longitudinal and multi-county designs and examine hotel

ownership or chain affiliation as a moderating factor.

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