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Sustainable Supply Chain Practices on Organizational Performance of Selected Fast-Moving Consumer Goods Companies in Nigeria

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ABSTRACT

Introduction: The rising demand for sustainable business operations has made environmentally responsible supply chain strategies essential in the fast-moving consumer goods (FMCG) sector. In Nigeria, limited empirical studies assess how these practices affect firm performance.

Objectives: This study investigates the influence of sustainable manufacturing, reverse logistics, green packaging, and supplier relationship management on organizational performance, with stakeholder satisfaction as the key measure.

Methods: A cross-sectional survey was conducted with 357 supply chain personnel across seven listed FMCG firms. Data were analyzed using Ordinary Least Squares (OLS) regression to determine the effects of the selected practices.

Results: Sustainable manufacturing ($\beta = 0.192$, $p < 0.001$), reverse logistics ($\beta = 0.164$, $p < 0.001$), supplier relationship management ($\beta = 0.133$, $p = 0.001$), and green packaging ($\beta = 0.117$, $p = 0.001$) all showed significant positive impacts on performance.

Conclusions: Embedding sustainability in supply chain operations enhances stakeholder satisfaction. Firms should invest in cleaner production, structured reverse logistics, collaborative supplier partnerships, and scalable green packaging, supported by consistent policy frameworks.

Keywords: Sustainable supply chain, FMCG, Reverse logistics, Stakeholder satisfaction, Green packaging.

INTRODUCTION

The global trend of the sustainable approach has left the manufacturing companies to reevaluate their supply chain strategies in response to the increasing ecological and social demands. Sustainable supply chain practices (SSCPs) such as sustainable manufacturing, reverse logistics, green packaging, and supplier relationship management have played a central role in the present transforming environment in the balancing of profitability, environmental, and social accountability. The practices are most widely practiced within the domain of the fast-moving consumer goods (FMCG) industry, which is also characterized by vast quantities of production, short life cycles of goods, and high rates of resource consumption. Kazancoglu et al. (2021) emphasize the point that by ensuring that sustainability is a component of the manufacturing process, the efficiency of the resources will be enhanced, yet the environmental sustainability of the supply chains will also be boosted. Abuzawida et al. (2023) also include that waste minimization and product recovery can be achieved with the assistance of reverse logistics, and green packaging has less negative ecological impact on the product lifecycle. The FMCG sector is an important part of the Nigerian economy, but it is currently experiencing sustainability pressures from the regulators, investors, and consumers. As the industry responds to these problems, the utilization of SSCPs is becoming a determining factor in regard to the competitive ability, in addition to survival.

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In addition to financial measures, stakeholder satisfaction has been coming out as a defining organizational performance indicator in sustainability research. Different stakeholders, such as customers, suppliers, employees, communities, and regulatory bodies, all of whom are characterized as stakeholders, have different interests and expectations in relation to how a firm behaves in an environmental and social manner. Okogwu et al. (2023) posit that the level of stakeholder satisfaction is a reflection of how firms keep their promises to create a sustainable environment, which can affect trust, loyalty, and reputational capital. In industries with high publicity, like FMCG, views of the stakeholders are firmly related to the credibility of firms and the market value. As noted by Park et al. (2022), businesses that consider the needs of the stakeholders in their priority list are more likely to enjoy an improved consumer connection and regulatory goodwill. Besides, UNEP (2022) states that companies that are sensitive to stakeholder issues are more resilient, innovative, and socially accepted than their rivals. In this way, the stakeholder satisfaction measurement is a more multidimensional measure of organizational performance that would not only focus on conventional financial indicators but also on the overall effect of the sustainability efforts.

Despite growing awareness of sustainable practices, many FMCG companies in Nigeria face structural and institutional barriers that hinder the effective implementation of SSCPs. The sector suffers from supply chain fragmentation, inadequate waste recovery systems, limited access to environmentally friendly packaging technologies, and weak enforcement of environmental regulations. Ogunleye (2023) also notes that policy-related uncertainty and inconsistency tend to dishearten investing in sustainability, whereas Kalubanga and Mbekeka (2024) observe that the lack of capacity-building efforts and low monitoring of suppliers further discourage such activity. Also, the local companies are often faced with high implementation costs, supply-side inefficiencies, and the absence of consumer pressure, so the process of going sustainable is challenging. Although environmental global standards have been embraced by some multinational FMCG firms, the same is not reflected equally by domestic firms. This gap highlights the necessity of empirical research studies to evaluate the impact of individual SSCP elements, i.e., sustainable manufacturing, reverse logistics, green packaging, and supplier relationship management, on the local Nigerian performance outcomes. The majority of the past studies concentrate on these factors separately or focus on a normative analysis, without sufficiently relating them to actual performance measures in an organization.

The objective of this study was to investigate the influence of sustainable supply chain practices on the organizational performance of listed FMCG companies in Nigeria. The study focuses on four key SSCP dimensions: sustainable manufacturing, reverse logistics, green packaging, and supplier relationship management. Specifically, it aims to determine the impact of sustainable manufacturing on organizational performance, evaluate the extent to which reverse logistics influences performance, assess the effect of green packaging, and examine how supplier relationship management contributes to performance outcomes. By focusing on stakeholder satisfaction as the primary performance metric, the study captures a more socially embedded understanding of organizational success. This approach allows for a comprehensive evaluation of sustainability strategies in the FMCG sector and provides practical insights for firms, policymakers, and supply chain actors seeking to enhance both sustainability outcomes and organizational effectiveness in the Nigerian context.

Study Objectives

i. To determine the impact of sustainable manufacturing on the organizational performance of listed FMCG companies in Nigeria.

ii. To evaluate the extent to which reverse logistics influences organizational performance.

iii. To assess the effect of green packaging on organizational performance.

iv. To examine how supplier relationship management contributes to organizational performance.

Research Hypotheses

i. H_10: Sustainable manufacturing has no significant impact on the organizational performance of listed FMCG companies in Nigeria.

ii. H_20: Reverse logistics has no significant impact on the organizational performance of listed FMCG companies in Nigeria.

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iii. H_{30}: Green packaging has no significant impact on the organizational performance of listed FMCG companies in Nigeria.

iv. H_{40}: Supplier relationship management has no significant impact on the organizational performance of listed FMCG companies in Nigeria.

Literature Review

Conceptual Review

Sustainable Supply Chain Practices (SSCPs) refers to a collection of operational approaches in a manner that reduces the negative environmental and social effects of supply chain operations without losing economic effectiveness. The main areas of SSCPs are covered by sustainable manufacturing, reverse logistics, green packaging, and supplier relationship management (Okogwu et al., 2023). With companies trying to align themselves with international sustainability goals, these practices are increasing within the manufacturing and FMCG sectors. Also, sustainable manufacturing includes the production of products in such a way that they are economically viable, environmentally harmless, and do not threaten the health, safety, and well-being of workers, the general populace, and the ultimate consumers of the products produced, as well as preserving energy and other resources. Kazancoglu et al. (2021) believe that a complex perspective on the life cycle phases of a product, such as design, sourcing of raw materials, manufacturing, and even disposal, is essential to sustainable manufacturing. Such practices have been encouraged in the FMCG industry of Nigerians but are under-implemented, especially because of cost and technological barriers.

Reverse logistics captures value for proper disposal when moving goods from their final destination. This includes product returns, recycling, reuse, and remanufacturing. As noted by Abuzawida et al. (2023), reverse logistics includes material recovery, which lowers operational costs. In Nigeria, however, reverse logistics remains largely informal, driven more by necessity than by structured systems. In addition, green packaging includes the use of design and material strategies that minimize environmental harm, which consist of biodegradable materials, minimal packaging, and designs that promote recycling. Park et al. (2022) state that green packaging improves environmental and market performance. Due to the large amount of packaging in the FMCG sector, the use of green packaging offers the FMCG sector considerable strategy.

Supplier relationship management (SRM) involves strategic collaboration with suppliers to ensure compliance with sustainability standards, information sharing, and joint innovation. Okogwu et al. (2023) highlight that effective SRM leads to improved supplier performance, cost savings, and innovation in green practices. In Nigeria, the practice is challenged by inconsistent enforcement and weak contractual frameworks. Nonetheless, SRM remains crucial for embedding sustainability across the supply chain.

Empirical Review

In the manufacturing sector, the linkage between SSCPs and organisational performance has been the focus of empirical research. Numerous researchers have determined that the “sustainable” practice is positively and substantially correlated to business profitability, efficiency, innovativeness, and stakeholder satisfaction. For instance, Kazancoglu et al. (2021), studying Turkish manufacturers, argued that efficient sustainable manufacturing practices enhance production efficiency, waste reduction, and brand image improvement. Ogunleye (2023), studying the Nigerian context, corroborated this view and reported that firms using energy-efficient technologies and cleaner production processes gained increased operational reliability and stakeholder support. Although sustainable manufacturing practices in Nigerian FMCG companies are less advanced, integrated sustainable practices have the potential to enhance performance during the adoption of the FMCG sector’s core operations.

Reverse logistics has also gained attention as a strategy for enhancing performance. Abuzawida et al. (2023) showed that properly instituted reverse logistics can lead to lower costs, higher customer satisfaction, and lower exposure to regulatory fines. However, in Nigeria, Okogwu et al. (2023) described reverse logistics systems as primarily reactive and insufficiently formalized. In his study of FMCG firms, he noted that, while returns and recycling are acknowledged, their integration into formal performance systems is limited. Even so, systems where only a functional reverse logistics practice is in place are reported to have improvements in the effective use of resources and in cost removal.

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Green packaging has been empirically linked to improved environmental and market performance. Park et al. (2022) conducted a study across South Korean FMCG firms and found that green packaging led to increased customer retention, improved regulatory compliance, and greater brand differentiation. In West Africa, similar trends have been observed, although at a slower pace. Okogwu et al. (2023) highlighted that in Nigeria and Ghana, FMCG firms that adopted biodegradable and recyclable packaging materials saw enhanced consumer trust and reduced packaging waste costs. However, they also noted that implementation remains constrained by supply chain limitations and high material costs.

Supplier relationship management plays a pivotal role in sustainability performance. Kalubanga and Mbekeka (2024) noted that in East Africa, firms that actively engaged suppliers in sustainability goals observed improvements in innovation, compliance, and cost-sharing. In Nigeria, Ogunleye (2023) reported that collaboration with suppliers on environmental and social objectives improved delivery timelines and reduced input variability. However, the study also found that SRM effectiveness is significantly influenced by firm size, procurement capabilities, and regulatory support. Weak SRM structures hinder broader sustainability goals, especially among small and medium-sized enterprises.

Collectively, these empirical studies suggest that SSCPs contribute positively to organizational performance, especially when viewed through the lens of stakeholder satisfaction. UNEP (2022) reinforces this by noting that sustainability practices not only build operational resilience but also improve firms' relationships with key stakeholders. While the degree of adoption and impact varies across firms and countries, the evidence generally supports the notion that SSCPs are both strategic and beneficial. In Nigeria, the potential for impact is particularly significant given the country's resource constraints, environmental challenges, and growing consumer awareness.

There are still some gaps that need attention. Almost all studies concentrate on one aspect of SSCPs, like green packaging or supplier management, and the influence of multiple dimensions of SSCPs on performance is often ignored. In addition, the Nigerian case studies have failed to treat stakeholder satisfaction as a relevant performance indicator. The present study attempts to address these gaps by focusing on SSCPs in all their various dimensions and determining their effect on organizational performance primarily through stakeholder satisfaction. This gives a more comprehensive perspective on the associated positive and negative implications of sustainability in the Nigerian FMCG industry.

Theoretical Framework

The study is supported by two complementary theories, namely the Resource-Based View (RBV) and Circular Economy (CE) theory. The integrated conceptual frameworks will help in building the understanding of the relationship between sustainable supply chain behaviors and the performance of organizations. Resource-Based View (RBV) takes into account the internal resources and capabilities of the firm, in order to maintain competitive advantage. A significant part of the continued competitive advantage of the firm is based on valuable, rare, inimitable, and non-substitutable (VRIN) resources (Barney, 1991). Among the common organizational competencies that can be exploited to improve responsiveness and performance with the SSCP model, there are sustainable manufacturing, supplier cooperation, and reverse logistics. As an example, supplier relationship management could introduce innovation and agility that will allow firms to quickly adapt to environmental and market alterations. Kazancoglu et al. (2021) and other authors maintain that argument by indicating that businesses that incorporate sustainability into their business processes and supply chain strategies will create high intangible resources, including reputation and stakeholder trust. Another resource acquired during such transformations is brand equity which is intangible.

The theory of the Circular Economy (CE) along with the RBV, endeavors to design closed-loop systems approaches to reduce resource use and waste disposal through reuse, remanufacturing, and recycling of materials and products. The principles of the CE coincide with reverse logistics, green packaging, and sustainable manufacturing. Abuzawida et al. (2023) point out that CE practices benefit operational efficiency and cost savings, in addition to improving environmental outcomes. For Nigeria's FMCG sector, the circular economy holds opportunities for waste reduction and circumvention of challenges that arise from the use of virgin materials. The CE model promotes the organizational strategic importance of the conception of sustainability while providing evidence that suggests a strong correlation between ecological stewardship and performance. It can therefore be posited that the RBV and CE

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theories, together with SSCP, provide an organizational pillar and circular framework for the improvement of operations. These theories form the conceptual framework that will allow the current study to leverage various sustainability theories while measuring stakeholder value and resultant performance of the firm.

METHODS

This study adopted a quantitative, cross-sectional survey design to evaluate the impact of sustainable supply chain practices on the organizational performance of listed fast-moving consumer goods (FMCG) companies in Nigeria. The design was appropriate given the study's objective to statistically determine the relationship between selected sustainable practices and performance outcomes using structured data from a single point in time. The target population comprised supply chain, logistics, and sustainability personnel working in FMCG companies listed on the Nigerian Exchange Group. These companies were selected due to their national reach, regulatory visibility, and significance in consumer-driven product distribution, making them ideal for examining sustainable supply chain practices.

A purposive sampling technique was employed to identify knowledgeable respondents within seven listed FMCG firms. A total of 357 respondents participated in the study. The sample size was determined using Cochran's formula, adjusted for a finite population, ensuring adequate representation and statistical power for regression analysis. Primary data were collected using a structured questionnaire developed from validated instruments in related literature. The questionnaire included sections measuring four independent variables: sustainable manufacturing, reverse logistics, green packaging, and supplier relationship management. Organizational performance was measured using stakeholder satisfaction indicators. Responses were recorded on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

The following Ordinary Least Squares (OLS) regression model was used:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon \quad (1)$$

Where:

Y = Organizational performance

X_1 = Sustainable manufacturing

X_2 = Reverse logistics

X_3 = Green packaging

X_4 = Supplier relationship management

β_0 = Intercept

β_1–β_4 = Coefficients of predictors

ε = Error term

The collected data were analyzed using Ordinary Least Squares (OLS) regression with the aid of SPSS. Descriptive statistics were used to summarize respondent demographics, while OLS regression estimated the predictive influence of each sustainability practice on organizational performance. Diagnostic tests were conducted to validate model assumptions, including multicollinearity, normality, and homoscedasticity.

RESULTS

The demographic analysis in Table 1 revealed that the majority of respondents (59.7%) were male, while females represented 40.3% of the sample. The largest age group was 30–39 years (47.3%), followed by 40–49 years (24.1%) and 20–29 years (21.8%), indicating that most respondents are in their early or mid-career stages. Educational qualifications showed a high level of academic attainment, with 51.5% holding a Master's degree and 15.7% holding a Ph.D. This reflects a well-informed respondent base with significant exposure to managerial and supply chain operations, thereby enhancing the reliability of their responses on sustainability practices and performance.

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Table 1: Descriptive Analysis of the Respondents' Demographic Characteristics

Variable	Frequency	Percentage (%)
Gender		
Male	213	59.7
Female	144	40.3
Age		
20–29 years	78	21.8
30–39 years	169	47.3
40–49 years	86	24.1
50 years and above	24	6.7
Educational Qualification		
B.Sc./HND	117	32.8
M.Sc./MBA	184	51.5
Ph.D.	56	15.7

Source: Field Survey, 2024

In Table 2, the descriptive statistics indicate that the average score for sustainable manufacturing was 3.74, with a standard deviation of 0.68, suggesting a relatively strong and consistent implementation across firms. Reverse logistics and green packaging had slightly lower means of 3.52 and 3.41, respectively, indicating moderate implementation levels. Supplier relationship management averaged 3.65, implying firms engage with suppliers on sustainability matters to a significant extent. The dependent variable, organizational performance, recorded a mean of 3.79, reflecting relatively high performance as perceived by respondents, particularly in terms of stakeholder satisfaction. The narrow spread of standard deviations suggests uniformity in responses and a generally positive orientation toward sustainability practices.

Table 2: Descriptive Statistics of the Regression Variables

Variable	Mean	Std. Deviation	Minimum	Maximum
Sustainable Manufacturing	3.74	0.68	2.10	5.00
Reverse Logistics	3.52	0.73	2.00	5.00
Green Packaging	3.41	0.70	2.00	5.00
Supplier Relationship Mgmt	3.65	0.66	2.25	5.00
Organizational Performance	3.79	0.62	2.20	5.00

Source: Field Survey, 2024

As indicated in Table 3, the regression analysis revealed that all four sustainable supply chain practices had statistically significant positive effects on organizational performance. Sustainable manufacturing had the strongest impact ($\beta = 0.192$, $p < 0.001$), followed by reverse logistics ($\beta = 0.164$, $p < 0.001$), supplier relationship management ($\beta = 0.133$, $p = 0.001$), and green packaging ($\beta = 0.117$, $p = 0.001$). The R-squared value of 0.412 indicates that 41.2% of the variation in organizational performance can be explained by the independent variables. The model is statistically significant overall ($F = 62.34$, $p < 0.001$), confirming that the included predictors are jointly relevant in explaining the outcome variable.

Table 3: Regression Result

Variable	Coefficient (β)	Std. Error	t-Statistic	p-Value
Constant	1.021	0.124	8.23	0.000
Sustainable Manufacturing	0.192	0.042	4.57	0.000
Reverse Logistics	0.164	0.038	4.32	0.000
Green Packaging	0.117	0.036	3.25	0.001
Supplier Relationship Mgmt	0.133	0.041	3.24	0.001
R-squared	0.453			

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Adjusted R-squared	0.447			
F-statistic	62.34			0.000

Source: Field Survey, 2024

Regression diagnostics in Table 4 confirm that the assumptions of Ordinary Least Squares (OLS) were not violated. The Variance Inflation Factor (VIF) values were all below 2.0, indicating no evidence of multicollinearity among independent variables. The Durbin-Watson statistic (1.83) suggests the absence of autocorrelation. The Kolmogorov–Smirnov test ($p = 0.066$) supports the normality of residuals, while the Breusch-Pagan test ($p = 0.117$) confirms homoscedasticity. These diagnostic outcomes validate the robustness and reliability of the regression model used in this study.

Table 4: Summary of Regression Diagnostics

Diagnostic Test	Value	Interpretation
Variance Inflation Factor (VIF)	< 2.0	No multicollinearity
Durbin-Watson Statistic	1.83	No autocorrelation
Normality (Kolmogorov–Smirnov)	p = 0.066	Residuals are normally distributed
Breusch-Pagan Test (Homoscedasticity)	p = 0.117	Homoscedasticity confirmed

Source: Field Survey, 2024

The results of the hypothesis tests, as summarized in Table 5, show that all four null hypotheses were rejected, confirming that sustainable supply chain practices significantly influence organizational performance in Nigeria's FMCG sector. Sustainable manufacturing ($\beta = 0.192$, $p < 0.001$) was found to significantly improve efficiency, reduce waste, and strengthen stakeholder trust. Reverse logistics ($\beta = 0.164$, $p < 0.001$) enhanced cost savings, product recovery, and customer satisfaction. Green packaging ($\beta = 0.117$, $p = 0.001$) promoted compliance, reinforced brand credibility, and increased consumer loyalty. Similarly, supplier relationship management ($\beta = 0.133$, $p = 0.001$) improved delivery reliability, ensured compliance, and fostered innovation. Collectively, these findings underscore that embedding sustainable practices across the supply chain contributes meaningfully to organizational performance and long-term competitiveness.

Table 5: Summary of Hypotheses Test and Conclusions

Hypothesis	Null Statement	Result	Conclusion
H_{01}	Sustainable manufacturing has no significant effect on organizational performance in Nigeria's FMCG sector.	Rejected ($\beta = 0.192$, $p < 0.001$)	Sustainable manufacturing significantly improves efficiency, reduces waste, and builds stakeholder trust.
H_{02}	Reverse logistics has no significant effect on organizational performance in Nigeria's FMCG sector.	Rejected ($\beta = 0.164$, $p < 0.001$)	Reverse logistics enhances cost savings, product recovery, and customer satisfaction.
H_{03}	Green packaging has no significant effect on organizational performance in Nigeria's FMCG sector.	Rejected ($\beta = 0.117$, $p = 0.001$)	Green packaging promotes compliance, strengthens brand credibility, and increases consumer loyalty.
H_{04}	Supplier relationship management has no significant effect on organizational performance in Nigeria's FMCG sector.	Rejected ($\beta = 0.133$, $p = 0.001$)	Supplier collaboration improves delivery reliability, ensures compliance, and fosters innovation.

Source: Field Survey, 2024

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DISCUSSION

This research confirms the significant influence of sustainable supply chain practices on organizational performance within Nigeria's fast-moving consumer goods (FMCG) sector. Sustainable manufacturing emerged as the strongest driver of performance, corroborating the findings of Kazancoglu et al. (2021), which noted that companies implementing sustainable manufacturing practices experienced reduced waste, improved operational efficiencies, and enhanced brand equity. Similarly, Ogunleye (2023) reported that the adoption of cleaner production practices empowers operational trust and strength in Nigerian companies. These findings indicate that the performance benefits of sustainable manufacturing exceed the so-called environmental value of manufacturing, as a "green" environmental risk in the FMCG industry is very high relative to the benefits of production.

Another positive correlation was found between reverse logistics and organizational performance, which validates the results of Abuzawida et al. (2023), who demonstrated that organized product recovery and recycling programs can facilitate cost optimization of operations and promote customer satisfaction. Even such small-scale efforts as product reuse and take-backs have been found to have a beneficial impact in the Nigerian context, where reverse logistics infrastructure is underdeveloped. According to Okogwu, Abiola, and Chukwu (2023), Nigerian FMCG companies that adopted simple reverse logistics operations recorded more efficiency and better perceptions by the stakeholders. These results suggest that reverse logistics, which are formalized and scaled, can be a strategic sustainability route that has environmental and economic benefits.

Green packaging was also known to have a positive effect on performance, albeit a little less than manufacturing or logistics practices. Park, Lee, and Kim (2022) noted that green packaging increases consumer loyalty and compliance with regulations, especially in markets that are increasingly environmentally conscious. Similarly, Okogwu et al. (2023) have observed that in Nigeria and Ghana, the FMCG companies that adopted biodegradable or recyclable packaging materials registered reputational benefits and customer goodwill. However, sourcing eco-friendly packaging is expensive, and the limited number of suppliers is a hindrance to its mass adoption. Regardless of these obstacles, the evident relationship suggests that companies can realize compliance and market differentiation with the gradual use of green packaging innovations.

The management of the supplier relationship turned out to be a major organizational performance contributor. This aligns with the results of Kalubanga and Mbekeka (2024), who observed that interest in sustainability discussions with suppliers resulted in better compliance, quality, and collaborative innovation. This observation was also made by Ogunleye (2023), who noted that Nigerian companies that collaborated with their suppliers on environmental affairs achieved better delivery performance and supply chain dependability. Supplier alignment in a highly interconnected supply chain like that of the FMCG industry is paramount to having a consistent performance. Such results show the significance of long-term and trust-based supplier relationships based on common sustainability objectives.

Therefore, sustainable practices within supply chains will become a requisite for success within the FMCG sector in Nigeria, as the findings point out. From the evidence, corporate leaders understand the need to integrate sustainability into the foundational operational frameworks. As firms adopt these practices, policymakers should provide support through purpose incentives, such as tax reductions and technical assistance. Sustainable systems of production and consumption strengthen economies and, as UNEP emphasizes, should be the focus when pursuing inclusivity. Access to new green technologies, as well as education and advocacy to train and support actors within civil society and development, should be facilitators. In the longer term, the Nigerian FMCG sector will appreciate stronger business sustainability along with positive stakeholder engagement as a result of the implementation of sustainable supply chain practices.

Conclusion and Recommendations

In this study, the performance of sustainable supply chain practices on the organizational performance of the listed fast-moving consumer goods (FMCG) companies in Nigeria was gauged using the level of stakeholder satisfaction as the primary performance measure. Specifically, it has examined four primary components of sustainable supply chain practices, i.e., sustainable manufacturing, reverse logistics, green packaging, and supplier relationship management. The findings established that the four practices play a great and positive role in determining the performance of

organizations. It was found that sustainable manufacturing was the most affected, followed by reverse logistics, supplier relationship management, and green packaging in that order. Such results signify that firms integrating sustainability in their supply chain activities enjoy a superior stakeholder satisfaction, operational effectiveness, and performance.

The study concludes that sustainable supply chain practices are no longer optional for firms operating in resource-intensive and consumer-driven sectors such as FMCG. Rather, these practices serve as strategic tools for enhancing competitive advantage, risk management, and long-term business sustainability. In the context of Nigeria's evolving regulatory and market landscape, the adoption of sustainable practices not only contributes to environmental stewardship but also positions firms for greater market credibility and operational resilience.

From a policy perspective, the findings highlight the need for more robust institutional support to facilitate the transition toward sustainable supply chains. This includes the development of clear regulatory frameworks, fiscal incentives for green investments, and improved infrastructure for recycling and waste management. For managers and decision-makers within FMCG firms, the study underscores the importance of embedding sustainability in procurement, production, logistics, and supplier engagement strategies. Building organizational capacity to implement and monitor these practices will be essential for sustained performance gains.

The study therefore recommends that firms institutionalize sustainable manufacturing processes through the adoption of cleaner technologies and energy-efficient systems. Companies should also formalize reverse logistics systems, enabling structured product recovery and waste reduction. Investment in green packaging should be scaled up through collaboration with eco-conscious suppliers and innovations in material science. Additionally, firms must foster long-term partnerships with suppliers to co-develop sustainability goals and improve transparency across the supply chain. Policymakers should provide enabling environments that support these efforts, while development partners and industry regulators can facilitate technical assistance, capacity-building, and access to green finance. Together, these actions can strengthen sustainability adoption and drive improved performance across Nigeria's FMCG sector.

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