

Green Procurement and Performance of Food and Beverage Firms in Port Harcourt

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Abstract: *This study examines the relationship between green procurement and performance of food and beverage firms in Port Harcourt. Correlational survey design was adopted for this study. The population of this study was twelve (12) food and beverages firms domiciled in Rivers State, with 60 respondents. The study adopted the census population. Structured questionnaire instrument title “Green Procurement and performance (GPPQ)”. Cronbach’s alpha reliability coefficient of 0.75 was used ascertained. PPMC (person product moment correlation) was used to test hypotheses on SPSS version 25. There is a significant relationship between green Design and productivity of manufacturing firms in Port Harcourt. There is a significant relationship between green Production and productivity of manufacturing firms in Port Harcourt. There is a significant relationship between green procurement and performance. The study recommended Management should proactively sensitise the general employees on benefits of sustainable practices and specifically in regard to procurement function in order to create green culture with consequential performance benefits.*

Keywords: green procurement and performance of food and beverage firms in Port Harcourt

INTRODUCTION

In the world over, citizens’ awareness of the effects of climate change have increased tremendously (Hunja, 2013). This has affected the way customers interact with businesses and products. As a result, firms have become a live to the value of inputs in meeting the needs of the ever growing eco-centric customers (Hunja, 2013). This has introduced procurement function to the centre stage of performance planning and firms are appreciating the

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consequential influence of procurement performance on the attainment of the overall goals of the firms (Grandia, 2015). To provide acceptable level of customers' service through quality supply, acceptable pricing and environmental compliance, firms must attain significant procurement performance level (Grandia, 2015).

Green procurement (GP) according to Grandia, (2015), is when an institution is able to meet its goods and services' need in a manner that is conducive to the environment, cost effective for the organization and in a manner that adds value to the society at large. Cabras, (2011) defines green procurement as the process of meeting organizational needs in terms of goods and services required as well as utilities and works, in a cost effective way while at the same time being conscious of the society and doing it with minimal damage to the environment. Amaratunga and Baldry (2012) posits that procurement performance is a paramount requirement for any organization intending to progress and improve competitively through quality of their service to customers. According to Van Weele, (2012), the absence of procurement performance hinders the progression of the purchasing function and inhibits the organization's endeavour to perform. Consequently, it is imperative that firms achieve significant level in procurement performance in terms of quality of profitability, efficiency and environmental compliance (Van Weele, 2012).

Statement of the Problem

The integration of green procurement practices among food and beverage firms in Port Harcourt presents both opportunities and challenges. While global trends increasingly emphasize sustainability and environmental responsibility, the adoption of green procurement practices in this sector in Rivers State, Nigeria, remains underexplored. Many food and beverage firms in Port Harcourt may have limited awareness of green procurement practices and their potential benefits. This lack of understanding could hinder the adoption of sustainable sourcing, eco-friendly packaging, and waste reduction initiatives.

The regulatory landscape in Nigeria, including Rivers State, may not provide sufficient incentives or enforcement mechanisms to encourage businesses to adopt green procurement practices. Ambiguity in environmental regulations and inconsistent enforcement could deter firms from making sustainability a priority.

Also, changes in consumer preferences towards eco-friendly products and transparency in sourcing practices are driving global market trends. However, aligning with these expectations while maintaining affordability and product quality poses a dilemma for firms in Port Harcourt. It is against this pitfall that the study examined green procurement and performance of food and beverage firms in Rivers state.

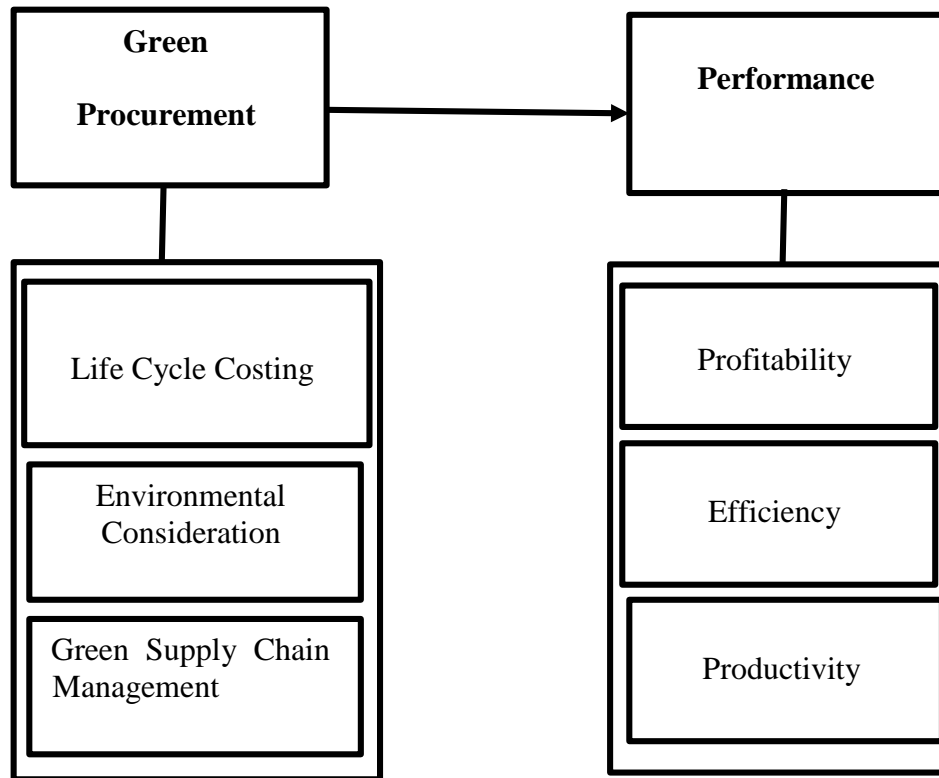


Figure 1: Conceptual framework on Green Procurement Practices and Performance of Food and Beverage Firms in Rivers State.

Source: Adapted from Hunja and Grandia (2013).

Aims & Objectives

The aim of this study is to determine the relationship between Green Procurement Practices and Performance of Food and Beverage Firms in Rivers State. The specific objectives are:

1. To determine the relationship between life cycle costing and performance of Food and Beverage Firms in Rivers State.
2. To determine the relationship between environmental consideration and performance of Food and Beverage Firms in Rivers State.
3. To determine the relationship between green supply chain management and performance of Food and Beverage Firms in Rivers State.

Research Questions

The following research questions were raised to guide the study.

- 1) What is the relationship between life cycle costing and performance of Food and Beverage Firms in Rivers State?
- 2) What is the relationship between environmental consideration and performance of Food and Beverage Firms in Rivers State?
- 3) What is the relationship between green supply chain management and performance of Food and Beverage Firms in Rivers State?

Hypothesis

The following null hypotheses were formulated and was tested at a significant level of 0.05.

H₀₁: There is no significant relationship between life cycle costing and performance of Food and Beverage Firms in Rivers State.

H₀₂: There is no significant relationship between environmental consideration and performance of Food and Beverage Firms in Rivers State.

H₀₃: There is no significant relationship between green supply chain management and performance of Food and Beverage Firms in Rivers State.

REVIEW OF RELATED LITERATURE

This section reviews extant literatures under the headings of conceptual review, theoretical review and empirical review.

Conceptual Review

Green Procurement

Large and Thomsen, (2011) define green procurement as an integration of environmental considerations into purchasing policies, programmes, and actions. Green procurement is the involvement of the purchasing function in supply chain management activities such as life-cycle analysis (LCA) and environment design that facilitates recycling, reuse and resource reduction (Carter and Carter, 2010). Green procurement can be defined as a decision-making process in which purchasers seek to acquire items, services, and projects that have a scaled-down negative environmental effect throughout their life-cycle in comparison to similar commodities, services, and projects that would otherwise be bought (Dinu, 2020). Green procurement, often referred to as sustainable procurement, is a practice that integrates environmental considerations into purchasing decisions. This approach not only aims to minimize negative environmental impacts but also enhances the efficiency and sustainability of supply chain operations. Green procurement encompasses a range of activities aimed at fostering sustainability throughout the supply chain. These practices include sourcing from suppliers with strong environmental credentials, selecting products that have a minimal environmental impact, and ensuring that procurement processes are energy and resource-efficient.

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Green procurement is a comprehensive and strategic approach that helps organizations achieve their sustainability goals while ensuring economic efficiency and regulatory compliance. In the context of food and beverage firms, green procurement is particularly critical due to the significant environmental footprint associated with food production, processing, and distribution. The adoption of green procurement practices in this sector can lead to substantial environmental benefits, including reduced waste, lower greenhouse gas emissions, and more efficient use of resources.

Dimensions of Green Procurement

Life cycle costing

Life Cycle Costing (LCC) is a method used to assess the total cost of ownership of a product, system, or service. It encompasses all costs associated with the acquisition, operation, maintenance, and disposal of the product over its entire life span (Woodward, 2007). In the context of green procurement, LCC is essential for evaluating the long-term economic and environmental impacts of purchasing decisions. This holistic approach ensures that procurement choices contribute to sustainability by accounting for costs beyond the initial purchase price. By integrating LCC into green procurement strategies, organizations can make more informed, sustainable decisions that consider both economic and environmental impacts over the product's entire life cycle.

Environmental Consideration

Environmental consideration in green procurement refers to the inclusion of environmental factors in the procurement decision-making process. This involves evaluating the environmental impacts of products and services throughout their life cycle, from raw material extraction to disposal (Testa, Iraldo, Frey, & Daddi, 2011). By prioritizing environmental considerations, organizations aim to minimize negative environmental impacts, promote sustainability, and support the transition to a circular economy. By incorporating environmental considerations into procurement practices, organizations can make more sustainable choices that benefit both the environment and their long-term business success.

Green Supply Chain Management

Green Supply Chain Management (GSCM) refers to the integration of environmental thinking into supply chain management. This involves considering the environmental impact of every stage in the supply chain, from product design, raw material sourcing, manufacturing processes, delivery, and even the end-of-life management of products (Carter & Rogers 2008). The aim of GSCM is to minimize the environmental footprint of supply chain activities while maintaining efficiency and competitiveness. By integrating GSCM into green procurement strategies, organizations can ensure that their entire supply chain is aligned with sustainability goals, leading to significant environmental and economic benefits.

Concept of Performance

Performance refers to how well an organization achieves its objectives and goals. It encompasses a range of indicators including financial results, operational efficiency, market share, customer satisfaction, and innovation (Slack, Chambers, & Johnston, 2010). Organizational performance is a multidimensional concept that involves assessing how effectively an organization is able to meet its strategic goals and objectives. This assessment can be viewed through various lenses, including financial health, operational efficiency, market position, employee well-being, and social responsibility. Organizational performance is often measured through both quantitative metrics (e.g., revenue, profit margins) and qualitative assessments (e.g., employee engagement, brand reputation).

Understanding and effectively managing organizational performance is crucial for achieving long-term success and sustainability. By adopting a comprehensive approach that considers multiple dimensions, organizations can ensure they meet their strategic goals and adapt to changing market conditions.

Measures of Performance

Profitability

Profitability is a measure of the financial gain an organization achieves relative to its revenue, costs, and expenses over a specific period (Huselid, 2015). It indicates the efficiency with which a company can generate profit from its operations. Profitability is a critical indicator of a company's financial health and operational efficiency. It provides insights into the company's ability to generate earnings, manage expenses, and create value for shareholders. High profitability often indicates a strong competitive position, effective management, and the ability to invest in future growth. Common metrics used to assess profitability include net profit margin, return on assets (ROA), return on equity (ROE), and gross profit margin. Profitability is a vital measure of organizational performance. It influences various aspects of a company's operations, strategic decisions, and long-term viability, making it a critical focus for managers, investors, and other stakeholders.

Efficiency

Efficiency refers to the ability of an organization to maximize outputs while minimizing inputs. It measures how well an organization uses its resources such as time, money, materials, and labor to achieve its objectives with the least waste. Efficiency is crucial for ensuring that an organization can sustain its operations and achieve its goals with optimal resource use (Tangen, 2005). It involves streamlining processes, reducing waste, and improving the quality of output. Efficient organizations are better positioned to achieve their strategic goals, enhance customer satisfaction, and maintain a competitive edge. Efficiency is a cornerstone of organizational performance. By maximizing output and minimizing input, efficient organizations can achieve their goals more effectively, ensure financial stability, maintain a competitive advantage, foster innovation, and enhance employee satisfaction.

Productivity

Drucker (1993) describes productivity as "the measure of how well an organization turns its resource inputs into goods and services. This definition highlights the managerial focus on efficiency and effectiveness in achieving organizational goals. Productivity is crucial for understanding how efficiently an organization operates. It reflects the effectiveness of resource utilization and is a key determinant of organizational performance and competitiveness.

Theoretical Review

Strategic Choice Theory

The study was guided by Strategic Choice Theory which was developed by Jemison in 1981. The theory assumes that relationships and interactions occur between firms' operations and certain occurrence, Strategic choice theory depicts the effect of decisions made by top management on the performance of a firm along with the interaction between the internal and external organization. Strategic choice theory is a framework used in strategic management that explores how organizations make decisions regarding their strategy in competitive environments. It seeks to understand how organizations assess their external environment, identify strategic options, and choose among alternative courses of action to achieve their goals and objectives.

Strategic choice theory is highly relevant to understanding the adoption of green procurement practices and its impact on the performance of food and beverage firms in Rivers State. By applying strategic choice theory, these firms can systematically analyze their external environment, such as regulatory pressures, consumer preferences for sustainability, and competitive dynamics in the region. This analysis enables firms to identify strategic options related to green procurement, such as sourcing sustainable ingredients, reducing environmental impacts in production processes, and implementing eco-friendly packaging solutions. Strategic choice theory guides decision making by evaluating the costs, benefits, and risks associated with these green procurement strategies, ultimately aiming to enhance operational efficiency, mitigate environmental risks, improve brand reputation, and meet regulatory requirements in Rivers State's business landscape. Thus, strategic choice theory provides a structured approach for food and beverage firms to align their procurement practices with sustainability goals, contributing to both environmental stewardship and business performance in the region.

Empirical Review

Jones, Patrick and Romanus (2019) examined the effect of green purchasing on performance of food and beverage processing firms in Kenya. The paper was informed by theory of reasoned action. The study used an explanatory research design whereas the target population for study was the key staff in supply chain, production and safety and environment or equivalent managers working for 187 food and beverage processing firms

Publication of the European Centre for Research Training and Development-UK in Kenya. Purposive sampling technique was used since a census of all the 187 food and beverage processing firms was carried out, the data collection instrument was a structured questionnaire and to accomplish the objective, alternative hypothesis was developed and tested. Data analysis was conducted using descriptive and inferential statistics further other statistical tests were done in the study. Presentation of data in form of charts and tables was deemed appropriate for this study. From the results of the study, green purchasing was found to have a positive significant effect on performance. The study concluded that green purchasing leads to higher performance in the food and beverage processing sector in Kenya. It recommended that green purchasing should be embraced so as to improve the performance of the food and beverage processing sector.

Nyaga and Achuora (2020) carried out a study on influence of sustainable procurement practices on the performance of procurement in food and beverages manufacturing firms in Nairobi County, Kenya. Four specific objectives guided this study, namely: to establish the influence of reverse logistics, green specification, green inventory management and green tendering on the performance of procurement in food and beverages manufacturing firms in Nairobi County. The study was grounded on organization theory, system theory, legitimacy theory and stakeholder theory. The study used descriptive cross-sectional survey research design to survey one hundred and eight firms sampled strategically from two hundred and seventeen food and beverage manufacturing firms registered members of Kenya Association of Manufacturers under Nairobi County. Procurement managers were used as the unit of observation. A structured questionnaire was used to collect primary data. The questionnaires were self-administered with assistance from the research assistants. The study used descriptive statistics such as standard deviation, median and mean to describe data while multiple regression model was used to test the hypothesized model. The data analysis was facilitated by Statistical Packages for Social Science (SPSS) version 20. The findings were presented on tables and figures. The study revealed that reverse logistics, green specification, green inventory management and green tendering are practiced across the manufacturing firms across Nairobi County. Importantly, the study established that the four sustainable procurement practices (reverse logistics, green specification, green inventory management and green tendering) significantly positively affect procurement performance through reduction of cost, clean environment and increased quality of supplies. Therefore, the study concludes that sustainable procurement significantly increase procurement performance with the ultimate positive impact on firm performance. The study therefore recommends that manufacturing firms should institutionalise sustainable procurement practices through formulation and implementing of green procurement policies and procedures in order to manage their operational costs, comply with environmental regulatory authority requirements and increase quality of supplies.

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Obafemi and Ihunwo, (2022) examined the relationship between green procurement practices and business wellness, in the Nigerian food and beverages firms. Green procurement is considered to be an effective method for the promotion of products, services, and business ideas, as it is deeply linked with the preservation of the natural environment. The target population for this study was twelve (12) food and beverages firms domiciled in Rivers State, with 60 respondents drawn from the management of the sampled firms. A self-administered structured questionnaire was used to collect primary data and the data obtained were accordingly analyzed using Spearman Rank Order Correlation Coefficient Statistical Tool to test the hypotheses with the aid of Special Packages for Social Sciences (SPSS) version 20.0. The result revealed that there is significant and positive relationship between green procurement practices and business wellness of Nigerian food and beverages firms; while innovativeness moderates the impact on green marketing practices and business wellness. Based on the findings of this study, the paper concludes that a positive and significant relationship exists between green marketing practices and business wellness. It therefore, recommends that Nigerian food and beverages firms should adopt green procurement practices since it is expected to create new products or even improve their current product, improve the relationships with its customers and enhance firm's competitive advantage.

Henry, Dennis and Wycliffe (2023) carried out a study on relationship between green procurement and the performance of food and beverage manufacturing firms in Kenya. The study used an explanatory research design. The census method was used where all the 172 registered food and manufacturing firms in Kenya were considered. Primary data was collected using questionnaires. A total of 172 questionnaires were used in this study. The data was analyzed using SPSS statistical package Version 25. The primary data was analyzed using descriptive and inferential statistical analysis techniques. Inferential statistics were used to test and validate the hypothesized relationships between Green procurement and performance. The study found that there is a correlation of 0.701 between green procurement and the success of Kenyan food and beverage manufacturing companies. Green procurement accounted for 48.7% of the variation in the performance of food and beverage manufacturing firms in Kenya. The study recommended that food and beverage manufacturing firms in Kenya should enact stringent policies in place to guide the procurement and development of environmentally friendly goods.

Jones (2021) carried out a study on green supply chain management practices and performance of food and beverage processing sector in Kenya. The study adopted explanatory research design. The target population for this study were the 187 food and beverage processing firms in Kenya. Data was collected from one key respondent per organization working for the 187 food and beverage processing firms that were registered with the Kenya Association of Manufacturers. A census survey was carried out using a

Publication of the European Centre for Research Training and Development-UK structured questionnaire. The study's response rate was 86.1 percent. Data analysis was conducted using descriptive statistics and inferential statistics by use of hierarchical moderated multiple regression analysis. The study found a coefficient of determination value of 0.633 signifying that all the green supply chain management practices contribute 63.3 % to the performance of food and beverage processing firms in Kenya. It was concluded that proper implementation of green supply chain management practices leads to better performance in food and beverage processing firms. The study recommends that manufacturing firms should implement environmentally sound practices in all phases of the supply chain, beginning with procurement of raw materials to manufacturing, packaging, distribution and end of life disposal of their produce.

METHODOLOGY

Correlational survey design was adopted for this study. The target population for this study was twelve (12) food and beverages firms domiciled in Rivers State, with 60 respondents drawn from the management of the sampled firms. The study adopted the census population. A self-administered structured questionnaire titled "Green Procurement and performance (GPPQ) was independently subjected to content and construct validity by three Lecturers in the Department of Management, Faculty of Management Sciences, Ignatius Ajuru University of Education, Port Harcourt. The corrections and suggestions of the validators were affected on the finale copy of the instrument which was used to collect primary data and the data obtained were accordingly analyzed. Cronbach's alpha reliability coefficient below the 0.75 was used ascertained.

Table 1: Reliability Statistics

Cronbach's Alpha	N of Items
.770	3

Source: Researcher Computation via SPSS Version 25

The result of the Cronbach's Alpha reliability test indicates .770 which is above .70 which implies that the items are reliable. PPMC (person product moment correlation) was used to test hypotheses on SPSS version 25.

Analysis of Data

H₀₁: There is no significant relationship between life cycle costing and performance of Food and Beverage Firms in Rivers State.

Table 2: Correlations on Life cycle costing and performance

		life cycle costing	Performance
Life cycle costing	Pearson Correlation	1	.732**
	Sig. (2-tailed)		.000
	N	60	60
Performance	Pearson Correlation	.732**	1
	Sig. (2-tailed)	.000	
	N	60	60

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

Table 2: Correlations on life cycle costing and performance of Food and Beverage Firms in Rivers State revealed that there is a significant relationship between life cycle costing and performance of Food and Beverage Firms in Rivers State (where P. 732 = sig, .000) thus leading to acceptance of alternate hypothesis: There is a significant relationship between life cycle costing and performance of Food and Beverage Firms in Rivers State.

H₀₂: There is no significant relationship between environmental consideration and performance of Food and Beverage Firms in Rivers State.

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Table 3: Correlations on Environmental consideration and performance

		Environmental consideration	performance
Environmental consideration	Pearson Correlation	1	.859**
	Sig. (2-tailed)		.000
	N	60	60
Performance	Pearson Correlation	.859**	1
	Sig. (2-tailed)	.000	
	N	60	60

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

Table 3: Correlations on environmental consideration and performance revealed that there is a significant relationship between environmental consideration and performance of Food and Beverage Firms in Rivers State (where $P .859 = \text{sig}, .000$) thus leading to acceptance of alternate hypothesis: There is a significant relationship between environmental consideration and performance of Food and Beverage Firms in Rivers State.

HO₃: There is no significant relationship between green supply chain management and performance of Food and Beverage Firms in Rivers State.

Table 4: Correlations on Green Supply Chain Management and Performance

		green supply chain management	performance
green supply chain management	Pearson Correlation	1	.825**
	Sig. (2-tailed)		.000
	N	60	60
Performance	Pearson Correlation	.825**	1
	Sig. (2-tailed)	.000	
	N	60	60

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

Table 4: Correlations on green supply chain management and performance revealed that there is a significant relationship between green supply chain management and performance of Food and Beverage Firms in Rivers State (where $P .825 = \text{sig}, .000$) thus leading to acceptance of alternate hypothesis: There is a significant relationship between green supply chain management and performance of Food and Beverage Firms in Rivers State.

DISCUSSION OF FINDINGS

Table 2: Correlations on life cycle costing and performance revealed that there is a significant relationship between life cycle costing and performance of Food and Beverage Firms in Rivers State (where $P = .732 = \text{sig}, .000$) thus leading to acceptance of alternate hypothesis: There is a significant relationship between life cycle costing and performance of Food and Beverage Firms in Rivers State. This result is in line with the findings of Martínez-Conesa, Choi, and Feng, (2014) which opined that life cycle costing allows organizations to assess the total costs associated with a product or service over its entire life cycle, including acquisition, use, maintenance, and disposal. By considering all these costs upfront, organizations can make informed decisions that optimize resource use and reduce overall costs.

Table 3: Correlations on environmental consideration and performance revealed that there is a significant relationship between environmental consideration and performance of Food and Beverage Firms in Rivers State (where $P = .859 = \text{sig}, .000$) thus leading to acceptance of alternate hypothesis. There is a significant relationship between environmental consideration and performance of Food and Beverage Firms in Rivers State. This result is supported by the study of Carter and Rogers (2008) which asserted that environmental considerations often lead to cost savings and improved operational efficiency. Strategies such as energy-efficient technologies, waste reduction initiatives, and sustainable packaging solutions not only lower operating costs but also enhance resource efficiency. Organizations can achieve financial benefits through reduced energy consumption, lower waste disposal costs, and improved supply chain resilience, thereby contributing to overall business profitability

Table 4: Correlations on green distribution and productivity revealed that there is a significant relationship between green distribution and productivity of manufacturing firms in Port Harcourt (where $P = .825 = \text{sig}, .000$) thus leading to acceptance of alternate hypothesis: There is a significant relationship between green distribution and productivity of manufacturing firms in Port Harcourt. This finding is in line with Srivastava (2007) which posited that GSCM initiatives often lead to cost savings and operational efficiency improvements. Sustainable procurement practices, such as sourcing from local suppliers to reduce transportation costs or investing in energy-efficient technologies, can lower operational expenses.

CONCLUSION

Green Procurement was measured using life cycle costing, environmental consideration and green chain supply management. It was established that most of the food and Beverage firms in Rivers state have policies that they follow when procuring and producing goods. Based on

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the study findings, it is concluded that green procurement enhances organisational performance

Recommendations

1. Food and Beverage firms should institutionalise sustainable procurement practices through formulation and implementing of green procurement policies and procedures in order to manage their operational costs, comply with environmental regulatory authority requirements and increase quality of supplies.
2. Management should proactively sensitise the general employees on benefits of sustainable practices and specifically in regard to procurement function in order to create green culture with consequential performance benefits.
3. Government should take a deliberate step through policy interventions to encourage firms to green their operations as a way of preserving the environment and sustainably manage the natural resources to support future needs of her populace.

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