International Journal of Trend in Scientific Research and Development (IJTSRD)
Volume 9 Issue 5, Sep-Oct 2025 Available Online: www.ijtsrd.com e-ISSN: 2456 – 6470

# Green Procurement and the Performance of Organizations in Nigeria

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## ABSTRACT

This study examines the effect of green procurement practices on the performance of organizations listed on the Nigerian Exchange as of 2024. Employing a descriptive survey design, primary data were collected via structured questionnaires from a stratified random sample of 110 companies across manufacturing, construction, oil and gas, and service sectors. Secondary data were sourced from the Nigerian Exchange Group Annual Listing Report (2024), National Bureau of Statistics (2024), Corporate Sustainability Reports (2022–2024), the Environmental Performance Index (2024), and the Federal Ministry of Environment's Green Economy Policy Report (2023). Data analysis integrating descriptive statistics, Pearson correlation, and multiple regression (SPSS v26.0) revealed significant positive relationships between green procurement and operational efficiency ($r = 0.642$, $p < 0.05$), cost efficiency ($R^2 = 0.356$, $p = 0.000$), and environmental compliance ($R^2 = 0.466$, $p = 0.000$). Ethical considerations were observed, and limitations acknowledged. The findings underscore the dual economic and ecological benefits of embedding sustainability in procurement processes, informing policy and managerial practice. It was one of the recommendations of this study that Organizations should pursue ISO 14001, FSC, and ENERGY STAR certifications to strengthen procurement credibility and performance.

***KEYWORDS:*** *Green Procurement, Organizational Performance, Operational efficiency, environmental Compliance*

***How to cite this paper:*** Usman Abdulwahab | Adama Attah "Green Procurement and the Performance of Organizations in Nigeria" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-9 | Issue-5, October 2025, pp.562-569, URL: www.ijtsrd.com/papers/ijtsrd97563.pdf

IJTSRD97563



## INTRODUCTION

Organizations in emerging economies increasingly recognize sustainable procurement as a strategic lever for performance enhancement. Green procurement, defined as the integration of environmental criteria into procurement decisions (Kazemzadeh & Olorunniwo, 2023), has gained momentum in Nigeria amid regulatory pressures and global sustainability agendas. However, despite regulatory frameworks such as the Federal Ministry of Environment's Green Economy Policy (2023), a gap persists in understanding how green procurement translates into operational and financial performance within Nigerian firms. The problem addressed by this study is the paucity of empirical evidence linking green procurement initiatives to organizational outcomes in Nigeria, leading to inconsistent adoption and unclear business case justification.

The broad objective of this study is to investigate the effect of green procurement on organizational performance of firms in Nigeria. The specific objectives are:

1. To examine the relationship between green procurement and operational efficiency.
2. Assess the impact of green procurement on cost reduction.
3. To evaluate the influence of green procurement on environmental compliance performance.

This paper tests three hypotheses which are:

H1: Green procurement practices have no significant relationship with operational efficiency.

H2: Green procurement practices have no significant effect on cost reduction.

H3: Green procurement practices have no significant impact on environmental compliance performance.

**Conceptual Review**

Green procurement is the strategic process through which organizations consider environmental factors in purchasing decisions, ensuring that goods, services, and works acquired have minimal adverse impacts on the environment and human health throughout their life cycles (United Nations Environment Programme [UNEP], 2023). It integrates environmental sustainability into procurement policy and practice, aligning organizational goals with global climate change initiatives and sustainable development objectives. As sustainability becomes a competitive differentiator, the role of green procurement in influencing organizational performance has received significant scholarly and practical attention.

The concept of green procurement is grounded in sustainable supply chain management (SSCM), which seeks to harmonize economic, environmental, and social performance. According to Omotayo and Adebayo (2023), green procurement encompasses actions such as sourcing environmentally friendly products, using suppliers with green certifications, conducting life-cycle assessments, and considering carbon footprint during vendor evaluation. It promotes cost savings through energy efficiency, reduced waste, and compliance with environmental regulations. Organizations implementing green procurement practices often benefit from enhanced reputation, improved compliance with global environmental standards (e.g., ISO 14001), and improved long-term financial performance (Okoro & Hassan, 2024).

Green procurement encompasses the selection of suppliers and materials that minimize environmental impact, encompass life-cycle thinking, and adhere to sustainability criteria (World Bank, 2023). Key certifications influencing procurement choices include ISO 14001 Environmental Management Systems, FSC (Forest Stewardship Council) Chain of Custody, and ENERGY STAR (2023–2025 updates). Nigerian listed firms have adopted ISO 14001 standards, with 45% of manufacturing firms certified by 2024 (Nigerian Exchange Group, 2024). The Forest Stewardship Council certification has seen uptake in forestry-linked sectors (e.g., Okomu Oil Palm PLC) and energy-efficient technologies are guided by ENERGY STAR labeling adapted for Nigerian contexts (Federal Ministry of Environment, 2023). Green procurement also incorporates criteria from the Global Reporting Initiative (GRI) and the United Nations Environment Programme (UNEP) guidelines (2024).

These frameworks offer mechanisms for firms to assess environmental performance and benchmark progress. Secondary data from Corporate Sustainability Reports (2022–2024) indicate an average annual procurement spend of ₦15.2 billion on green-certified products across NGX-listed firms, with a 12% year-on-year increase in eco-friendly sourcing initiatives.

Organizational performance, in this context, transcends profitability and includes environmental performance, customer satisfaction, operational efficiency, and innovation capabilities. Green procurement can help organizations reduce waste disposal costs, improve resource utilization, and minimize legal risks from environmental violations (Onyema & Musa, 2024). Several organizations now use environmental key performance indicators (e-KPIs) to measure procurement-related sustainability efforts. These indicators include supplier sustainability ratings, carbon emissions, waste reduction rates, and green sourcing percentages (Daramola & Igwe, 2022).

From a practical standpoint, numerous certifications and global initiatives now reinforce green procurement. These include ISO 20400 (Sustainable Procurement Guidelines), ISO 14001 (Environmental Management Systems), LEED certification for green buildings, and the Global Reporting Initiative (GRI) for sustainability disclosures. These standards are not only shaping procurement practices in developed economies but also gaining traction in Africa and other emerging markets (Oladele & Kwame, 2023). Nigerian firms, for instance, are increasingly adopting green procurement due to pressure from regulatory agencies such as the National Environmental Standards and Regulations Enforcement Agency (NESREA) and international market requirements (Eze & Nwankwo, 2024).

Moreover, technological innovation has played a critical role in enhancing the implementation of green procurement. The use of artificial intelligence, blockchain, and digital procurement platforms helps organizations track environmental compliance across their supply chains, conduct eco-friendly vendor assessments, and automate sustainability reporting (Akintola & Dike, 2025). These advancements are making it easier for organizations to embed green procurement into daily operations, ensuring measurable impacts on overall performance.

Despite the benefits, the implementation of green procurement in developing countries such as Nigeria faces several challenges. These include inadequate awareness, limited access to certified green products, lack of supplier transparency, and cost-related concerns (Ahmed & Bello, 2023). However, organizations that prioritize training, collaborate with

eco-conscious suppliers, and engage in green innovation often report superior performance outcomes, demonstrating that sustainability is not a trade-off but a driver of efficiency and value (Chidiebere & Abubakar, 2025).

In conclusion, the conceptual framework connecting green procurement to organizational performance emphasizes environmental stewardship, stakeholder value, and strategic competitiveness. As global trends continue to push for greener economies, green procurement is no longer a luxury but a necessity for long-term organizational sustainability.

**Theoretical Review**

This study is anchored on Stakeholder Theory (Freeman, 1984) and the Resource-Based View (RBV) of the firm (Barney, 1991). Stakeholder Theory posits that organizations must consider the interests of all stakeholders, including regulators, communities, customers, and environmental groups. Green procurement serves as a mechanism for firms to align with stakeholder environmental expectations, thereby enhancing legitimacy and reputation (Donaldson & Preston, 1995). The Resource-Based View suggests that green procurement capabilities—such as supplier evaluation processes, eco-design expertise, and sustainable supply chain networks—constitute valuable, rare, and inimitable resources that drive competitive advantage and superior performance (Hart, 1995). Together, these theories explain why investments in sustainable procurement can yield both relational and resource-based benefits.

**Empirical Review**

Empirical studies on the effect of green procurement on organizational performance have expanded significantly in recent years, reflecting a global shift toward sustainability and environmental accountability.

Obi and Adewale (2023) conducted a study on Nigerian manufacturing firms and found a statistically significant relationship between green procurement adoption and improvement in operational efficiency. The researchers used a survey of 200 firms and observed that firms that integrated eco-friendly criteria in supplier selection saw a 23% reduction in waste and energy costs.

In a study by Yusuf and Bala (2023), green procurement was examined in relation to organizational reputation in the telecommunications sector in Nigeria. The authors concluded that green procurement policies such as environmentally conscious sourcing, green logistics, and compliance with environmental regulations significantly boosted stakeholder trust and consumer loyalty, with a positive correlation coefficient of 0.68.

Similarly, Olatunji and Ebube (2024) evaluated the influence of green purchasing on organizational competitiveness in the Nigerian construction industry. Their findings indicated that firms that sourced sustainable raw materials experienced increased market share and higher client retention rates, reinforcing the idea that environmental responsibility is a competitive advantage.

In Ghana, Kwabena and Okoro (2024) studied 150 SMEs and found that the adoption of green procurement practices such as supplier audits and eco-labelling positively impacted productivity and waste minimization. The researchers recommended cross-national regulatory collaboration to support sustainable procurement frameworks in West Africa.

Eze and Ojo (2025) explored green procurement in public institutions in Nigeria, showing that procurement officers' awareness and institutional commitment played vital roles in actual implementation. Their regression analysis showed a 31% variance in performance accounted for by green procurement variables, particularly in energy consumption and cost-efficiency.

A pan-African study by Chukwuemeka et al. (2024) involving firms in Kenya, Nigeria, and South Africa found that green procurement contributed to long-term financial sustainability. Firms that implemented lifecycle costing and green vendor selection strategies saw notable improvements in their ROI over a 3-year period.

In the oil and gas sector, Hassan and Musa (2023) demonstrated that green procurement reduced environmental risks and litigation costs. Using structured interviews and a panel data analysis of 10 firms between 2020 and 2023, the study confirmed that proactive green sourcing reduced community resistance and regulatory sanctions.

Ngozi and Ibrahim (2024) analyzed green procurement in Nigeria's beverage manufacturing industry. The study revealed a direct correlation between green packaging materials and organizational performance indicators such as sales growth and consumer brand perception. Their findings suggested that customers were 47% more likely to buy from brands with green credentials.

A multi-sector study by Oghenetega and Sule (2023) across finance, agriculture, and healthcare sectors found that organizations with formal green procurement policies experienced stronger compliance rates with ISO 14001 standards and

scored higher in environmental performance audits. This translated to better access to funding and enhanced creditworthiness.

Lastly, Abiola and Chika (2025) examined the moderating role of digital technologies on green procurement outcomes. Their study highlighted that the use of artificial intelligence (AI) and blockchain enhanced transparency and traceability in procurement, resulting in improved efficiency and stakeholder confidence across 170 organizations.

These empirical studies collectively affirm that green procurement positively affects organizational performance across multiple dimensions—financial, environmental, operational, and reputational. They also highlight contextual factors such as sectoral differences, regulatory support, technological enablers, and organizational culture that moderate this relationship.

**Methods**

The research design adopted for this study on 'Green Procurement and the Performance of Organizations in Nigeria' was descriptive survey research design. This design is appropriate because it enables the collection and analysis of primary data from a defined population, thereby allowing the researcher to observe and describe the existing relationship between green procurement practices and organizational performance without manipulating the variables involved.

The population of the study comprises all 151 companies listed on the Nigerian Exchange (NGX) as of 2024. These companies were selected because they span across multiple sectors of the Nigerian economy and operate under formal procurement frameworks, making them ideal for evaluating the implementation and outcomes of green procurement practices. Secondary data from the Nigerian Exchange Group (2024 Annual Listing Report), National Bureau of Statistics (NBS, 2024), and the Corporate Sustainability Reports of selected listed companies (2022–2024) were utilized to understand industry-level performance trends, environmental initiatives, and procurement spending patterns. These secondary data sources provided benchmarks for organizational performance, levels of compliance with green procurement policies, and industry sustainability ratings, and will be further analyzed in the results and discussion sections to complement the primary data findings.

To ensure adequate representation and generalizability of results, a sample size of 110 companies was drawn from the population using a stratified random sampling technique. The stratification was based on industry sectors such as manufacturing, construction, oil and gas, and services. Within each stratum, random sampling was applied to reduce bias and ensure that the selected companies reflect the diversity inherent in the NGX.

Data for the study were gathered through a structured questionnaire designed to collect relevant information from procurement and supply chain personnel within the selected companies. The questionnaire consisted of three sections: the first section captured demographic and organizational profile data; the second examined the scope and application of green procurement practices, including eco-friendly sourcing, supplier environmental certification, and waste reduction initiatives; while the third assessed organizational performance metrics such as cost efficiency, operational effectiveness, customer satisfaction, and environmental compliance. Responses were recorded on a five-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." The questionnaire was pre-tested on a sample of 15 procurement professionals from non-listed companies to ensure its clarity, reliability, and relevance.

The data collection process involved electronic distribution of the questionnaires via email, using company contact details sourced from the Nigerian Exchange directory and official company websites. Follow-up emails and phone calls were made to encourage timely responses and improve the response rate. To enhance the reliability of the instrument, a Cronbach's Alpha test was conducted, yielding a coefficient of 0.86, which indicates high internal consistency. Content validity was ensured through expert reviews from professionals in procurement, sustainability, and environmental policy.

The analysis of collected data was carried out using both descriptive and inferential statistical tools. Descriptive statistics such as frequencies, means, and standard deviations were used to summarize the characteristics of the data. Inferential statistics, particularly Pearson correlation and multiple regression analysis, were employed to examine the relationships and impacts of green procurement practices on organizational performance. All analyses were performed using the Statistical Package for the Social Sciences (SPSS) version 26.0.

Additionally, insights from the 2024 Environmental Performance Index (EPI) and the Federal Ministry of Environment's 2023 Green Economy Policy Report were referenced to contextualize green performance targets and procurement expectations within Nigeria's regulatory and policy environment.

Three hypotheses were formulated and tested to guide the analysis. These include the hypothesis that there is no significant relationship between green procurement practices and operational efficiency; that green procurement does not significantly affect cost reduction in organizations; and that green procurement has no significant impact on environmental compliance performance. The decision rule applied was based on the p-value approach, where any p-value less than or equal to 0.05 led to the rejection of the null hypothesis, indicating a statistically significant effect or relationship. Conversely, a p-value greater than 0.05 resulted in the acceptance of the null hypothesis.

**Data Presentation and Analysis**

The data collected from 110 validly returned questionnaires were systematically analyzed using descriptive and inferential statistics. The analysis was conducted using SPSS version 26.0. The results are presented in tables for clarity and discussed subsequently.

**Table 1: Respondents' Demographic Profile**

| Variables | Frequency | Percentage (%) |
|---|---|---|
| **Gender** | | |
| Male | 67 | 60.9 |
| Female | 43 | 39.9 |
| **Position in Organization** | | |
| Procurement Officer | 45 | 40.9 |
| Supply Chain Manager | 32 | 29.1 |
| Operations\Finance Chain Manager | 21 | 19.1 |
| Others | 12 | 10.9 |
| **Years of Experience** | | |
| Less than 5 years | 28 | 25.5 |
| 5-10 years | 54 | 49.0 |
| Above 10 years | 28 | 25.5 |

Interpretation: The demographic profile indicates that majority of respondents were male and held core roles in procurement and supply chain management. Over 70% of the respondents had at least 5 years of professional experience, indicating high reliability of the responses.

**Table 2: Adoption of Green Procurement Practices**

| Green Procurement Indicator | Mean Score | Standard Deviation |
|---|---|---|
| Use of eco-friendly Materials in sourcing | 4.02 | 0.87 |
| Supplier environment certificate requirements | 3.84 | 1.02 |
| Waste reduction and recycling programs | 3.95 | 0.91 |
| Compliance with environmental regulations | 4.8 | 0.79 |
| Use of energy-efficient and low-emission resources | 3.77 | 1.05 |

Interpretation: The mean scores, all above 3.5, suggest a moderate to high level of green procurement adoption across organizations. Compliance with environmental regulations had the highest mean (4.08), reflecting pressure from regulatory and stakeholder demands.

**Table 3: Organizational Performance Indicators**

| Performance Indicator | Mean Score | Standard Deviation |
|---|---|---|
| Cost efficiency from procurement activities | 3.92 | 0.88 |
| Operational efficiency and process streamlining | 4.06 | 0.81 |
| Customer satisfaction improvement | 3.79 | 0.90 |
| Corporate environmental reputation | 4.15 | 0.76 |

Interpretation: Organizations that adopted green procurement practices reported improved operational efficiency (4.06) and enhanced corporate reputation (4.15), suggesting that sustainable practices contribute positively to performance metrics.

**Hypothesis Testing**

Hypothesis 1: There is no significant relationship between green procurement and operational efficiency.

**Table 4: Pearson Correlation Analysis**

| Variable | Correlation (r) | P-Value |
|---|---|---|
| Green Procurement Practices | 0.642 | 0.000 |

Interpretation**:** Since $p < 0.05$, the null hypothesis is rejected. Green procurement has a significant positive relationship with operational efficiency.

Hypothesis 2: Green procurement does not significantly affect cost reduction.

**Table 5: Regression Analysis**

| Model Summary | R | R2 | F | P-Value |
|---|---|---|---|---|
| Green Procurement in Cost Reduction | 0.597 | 0.356 | 54.932 | 0.000 |

Interpretation: The null hypothesis is rejected. Green procurement significantly affects cost reduction, accounting for 35.6% of the variance in cost efficiency.

Hypothesis 3: Green procurement has no significant impact on environmental compliance performance.

**Table 6: Regression Analysis**

| Model Summary | R | R2 | F | P-Value |
|---|---|---|---|---|
| Green Procurement in Environmental Compliance | 0.683 | 0.466 | 72.114 | 0.000 |

Interpretation: The null hypothesis is rejected. Green procurement practices significantly impact environmental compliance, explaining 46.6% of the observed variation.

## Results and Discussion

The Pearson correlation analysis shows a significant and strong positive relationship between green procurement and operational efficiency ($r = 0.642$, $p < 0.05$), corroborating Adebanjo et al. (2024) who found similar improvements in manufacturing cycle times. Regression results indicate that green procurement explains 35.6% of variance in cost reduction ($p = 0.000$), consistent with Onuoha and Musa (2024) on material cost savings. The strongest effect was observed for environmental compliance ($R^2 = 0.466$), aligning with the Environmental Performance Index (2024) and Corporate Sustainability Reports (2022–2024). These findings validate that sustainable procurement practices yield significant performance gains and regulatory alignment.

## Findings

1. Green procurement practices significantly enhance operational efficiency among Nigerian listed companies.
2. Green procurement initiatives contribute to significant cost reductions in procurement activities.
3. Adoption of green procurement strongly improves environmental compliance performance.
4. Secondary data benchmarks confirm increasing industry trends towards sustainability certifications and eco-friendly sourcing.

## Conclusion

This study confirms that green procurement practices positively influence key performance dimensions—operational efficiency, cost efficiency, and environmental compliance—among organizations listed on the Nigerian Exchange. By integrating both primary survey data and secondary performance metrics, the research provides robust evidence for the business case of sustainability-focused procurement. Managers should therefore prioritize environmental criteria in supplier selection and process design to achieve strategic performance outcomes.

## Recommendations

Based on findings in this study, the following recommendations are proffered:

1. Organizations should pursue ISO 14001, FSC, and ENERGY STAR certifications to strengthen procurement credibility and performance.
2. Policymakers must enforce green procurement mandates and provide incentives for certification adoption.
3. Procurement professionals require ongoing training in sustainability assessment and life-cycle costing.
4. Future research should explore longitudinal impacts of green procurement and its effect on long-term financial performance.

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