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Knowledge and Application of Green Supply Chain Management Practices in Selected Small and Medium Enterprises (SMEs) in Southeast, Nigeria

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Abstract: *Environmental sustainability has become a critical concern for businesses worldwide, yet Small and Medium Enterprises (SMEs) often face challenges in adopting sustainable supply chain practices. This study examined the knowledge, attitude, and application of Green Supply Chain Management (GSCM) practices among selected SMEs in Southeast Nigeria, focusing on Abia, Enugu, and Imo States. A mixed-methods approach was employed, involving 382 purposively selected respondents, using questionnaires and interviews to capture both quantitative and qualitative insights. Quantitative analysis indicated a moderate level of knowledge of GSCM (overall mean = 3.07/5), with respondents demonstrating awareness of environmental integration in supply chain operations but showing gaps in understanding its broader strategic scope. Qualitative findings revealed that SMEs generally associate GSCM with basic environmental responsibility rather than comprehensive supply chain strategies. Implementation of GSCM practices was low, with only 6% of firms actively applying them, while 77.2% reported no implementation. The study concludes that despite moderate awareness, practical adoption of GSCM in SMEs is minimal. It recommends targeted training, sensitization programs, and strengthened regulatory enforcement to enhance GSCM integration.*

Keywords: green supply chain management, SMEs, Southeast Nigeria, resource-based view, stakeholder theory, institutional theory, sustainable practices

INTRODUCTION

Global warming and climate change are the most significant challenges facing humanity (Huang, Wang and Luo, 2012) in recent times. This is mainly due to business activities such as mining natural resources, using fossil fuels for power generation, dumping hazardous waste, massive electricity generation, and

much more (Green, 2020). The industrial sector's greenhouse gas emissions are mostly caused by the combustion of fossil fuels for energy, as well as emissions from certain chemical processes required to convert raw materials into products (U.S. Climate Change Program, 2014).The Industrial sector is the third largest source of direct emissions and is also one of the main drivers of Nigeria's economic expansion (Dan-Awoh, 2024). For instance, information on the financial output of the nation in 2019 indicated that the industrial sector contributed 27.38% to the country's GDP (Emachone, 2020). However, about 10 metric tons of carbon dioxide (CO_2) emanate from Nigeria's industrial sector annually, thus positioning the country as one of the highest CO_2 emission nations in Africa (Efobi, Belmondo, Orkoh, Atata, Akinyemi and Beecroft,2019). Carbon dioxide emissions in the industrial sector arise because of burning of fossil fuels like coal gases and diesel during manufacturing processes or burning of industrial wastes (Nurdiawansyah and Lindrianasari, 2018). These concerns support the importance of adopting (GSCM) practices, particularly in sectors where sourcing, production processes, and disposal methods can directly affect environmental sustainability.

In the United States, industrial sources such as manufacturing, food processing, mining, and building account for nearly a quarter (23%) of total greenhouse gas emissions. These emissions largely stem from the way energy is generated and used within industrial activities, as well as the production process. Over time, the accumulation of these gases in the atmosphere deepens climate change, creating serious environmental and health challenges for human population and other living organisms.

Interestingly, Green Supply Chain Management (GSCM) concept is a top priority in developing an environmentally friendly supply chain (Plambeck, 2007; Roberts, 2009). Green supply chain management (GSCM) is a growing field driven by the need for environmental awareness (Srivastava, 2007). GSCM involves integrating environmental considerations into all stages of the supply chain, including green design, green production, and green distribution. These practices aim to minimize the environmental impact of products throughout their lifecycle, from raw material sourcing to end-of-life disposal (Amadi, 2016). It focuses on minimizing negative environmental impacts by reducing waste and using resources in an efficient and sustainable manner. Green supply chain management leads to higher efficiency as it eliminates waste, driving improvements in processes by reducing energy use, waste and emissions, reducing costs, and increasing profitability (Aslam, Waseem and Khurram, 2019). However, developing and implementing green supply chain management policies is a never-ending challenging feat due to its complexity in process and the numerous stakeholder involvement (Bolaji, Rahim and Omar, 2020). The successful implementation of green supply chain management (GSCM) largely hinges on the level of knowledge and understanding that stakeholders possess regarding the concept. Low levels of knowledge and understanding, alongside concerns about the potential costs associated with GSCM, have been identified as major barriers to its adoption (Mitchell, 2024). This study, therefore, aims to assess the knowledge and application of GSCM practices in selected SMEs in Southeast Nigeria.

LITERATURE REVIEW

Ajayi, Onikoyi, Babalola and Lateef (2021) carried out a study on "Green Distribution and Procurement and Operational Performance within Nigerian SMEs". Four specific objectives and four research questions were posed to guide the study. The researchers adopted a survey research design. The population of the study comprised 4,520 SMEs operating in Oyo State, Nigeria. A sample size of 455 SME operators was

selected using stratified random sampling technique. The instrument used for data collection was a structured questionnaire. Descriptive statistics and inferential statistics involving regression and correlation analysis were used in analyzing the data. The findings revealed that green distribution significantly influences the environmental performance of SMEs, and green procurement has a positive impact on operational and environmental performance, showing a positive relationship between green supply chain practices and SME effectiveness and efficiency.

Odesola and Aderemi (2022) carried out a study on "Green Supply Chain Management and Operational Environmental Performance of Small and Medium Scale Manufacturing Enterprises in Southwestern Nigeria". Four objectives and four research questions were formulated to guide the study. The researchers adopted a cross-sectional survey research design. The population of the study consisted of 1,901 manufacturing SMEs operating in Southwestern Nigeria. A sample size of 330 SME managers was selected using stratified random sampling technique. The instrument used for data collection was a structured questionnaire. Structural and measurement modeling were used in analyzing the data. The findings showed that SMEs with higher levels of knowledge of green supply chain practices demonstrated more favorable attitudes and significantly higher levels of application, leading to improved environmental and operational performance.

Adebisi, Adegbola, Odetoyinbo, Adeyemi and Hassan (2020) conducted a study on "Role of Green Supply Chain Management on the Operation of Small Businesses in Osogbo, Osun State, Nigeria". Four specific objectives and research questions guided the study. The researchers adopted a descriptive survey research design. The population of the study consisted of small business firms operating in Osogbo, Osun State. A sample size of 150 small business owners and managers was selected using convenience sampling technique. The instrument used for data collection was a structured questionnaire, and data were analyzed using frequency distribution, percentages, correlation, and t-tests. The findings revealed that the level of awareness and knowledge of green supply chain practices among small business operators was moderate, while positive attitude towards environmental sustainability significantly influenced the adoption and application of green supply chain management practices.

Soyege, Makinde and Akinlabi (2023) investigated "Green Supply Chain Management and Organizational Performance of Fast-Moving Consumer Goods Firms in Lagos State, Nigeria". Four specific objectives and four research questions were posed to guide the study. The researchers adopted a survey research design. The population of the study consisted of management staff of selected fast-moving consumer goods firms operating in Lagos State. A sample size of 418 respondents was selected using total enumeration technique. The instrument used for data collection was a structured questionnaire with validated reliability measures. Descriptive and inferential statistics including multiple regression analysis were used in analyzing the data. The findings revealed that managerial knowledge and positive attitude towards green supply chain management significantly influenced the level of implementation of green procurement, reverse logistics, and waste reduction practices, which in turn enhanced organizational performance.

Babalola, Rahim and Omar (2024) carried out a study on "Environmental Factors and Adoption of Green Supply Chain Management among Small and Medium Enterprises in Nigeria". Three specific objectives and three research questions were posed to guide the study. The researchers adopted a descriptive survey research design. The population of the study consisted of SMEs across multiple sectors in Nigeria, from which 412 managers/owners of SMEs were selected after pilot-testing and validation of the survey instrument. The instrument used for data collection was a structured questionnaire. Descriptive statistics and moderation analysis were used in analyzing the data. The findings showed that environmental factors such as regulatory pressure, customer demand, and supplier relationships significantly influence the adoption of GSCM, and environmental uncertainty moderated this relationship, highlighting how external conditions affect GSCM adoption among Nigerian SMEs.

Concept of Green Supply Chain Management

Green supply chain management (GSCM) encompasses the integration of ecologically conscious practices across the entirety of the supply chain, with the objective of mitigating environmental harm, promoting sustainability, and establishing a competitive edge (Seuring and Müller, 2018).GSCM is therefore, the practice of incorporating environmental consciousness into supply chain management with the aim of minimizing environmental impacts while enhancing overall sustainability (Al-Ghwayeen and Abdallah, 2018). It is a holistic approach to managing the environmental impact of a company's supply chain processes, from the sourcing of raw materials to the delivery of the finished product (Ahmad et al., 2022).

Concept of Green Supply Chain Management Practices

The implementation of GSCM practices has been associated with various advantages for organizations, such as cost reduction, enhanced environmental sustainability, improved corporate image, and heightened customer allegiance (Nair et al., 2021). The green supply chain management practices include green purchasing, green manufacturing, green marketing, green logistics and reverse logistics.
This is depicted in figure 1 below:

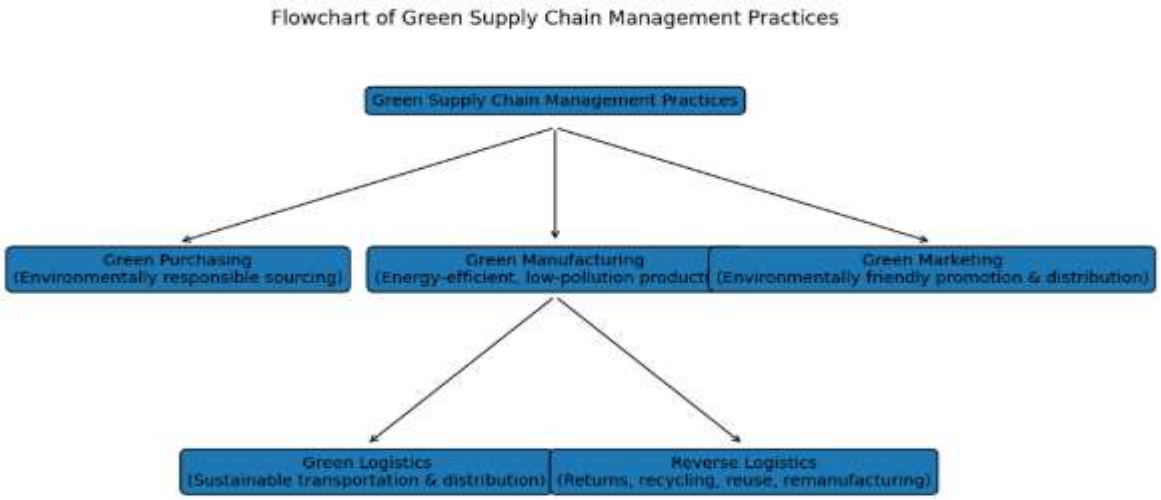

Figure 1: Flowchart of Green Supply Chain Management Practices
Source: Nair et. al., 2021

Green Purchasing: Green purchasing is the practice of purchasing products which have reduced negative impact on human health and the environment in comparison with competitors' products serving the same purpose (Agarwal et al., 2018). According to Abu Seman et al. (2019), Green purchasing is defined as the purchasing pattern of an organization influenced by environmental consideration of the materials or products to be purchased such that they conform to environmental safety standards implemented by the buying company, which includes decreasing waste sources, encouraging recycling, resources reduction and replacement of materials.

Green Manufacturing: Green manufacturing is the use of environmentally and socially acceptable practices to mitigate the negative impacts of manufacturing activities alongside achieving economic benefits (Luthra et al., 2016). Yildiz and Sezen (2019) describe green manufacturing as the planning and implementation of energy efficient activities that use fewer resources in the production system and generate the least possible environmental pollution.

Green Marketing: Green Marketing comprises all activities planned to build and support any exchanges intended to satisfy human needs or wants with a reduced negative impact on the environment (Singh and Pandey, 2012). Yildiz and Sezen (2019) considered green marketing as efforts to design, promote, price and distribute products with no significant negative impact on the environment.

Green Logistics: Green logistics practices are the integration of activities required for moving products throughout the supply chain in order that production and distribution of goods are done in a more sustainable way by considering ecological and societal issues (Luthra et al., 2016). According to Karaman et al. (2020), logistics activities largely depend upon transportation movement between a source and a destination, and the activities involved are largely responsible for greenhouse gas emissions. As a result of this major negative contribution in a form of air pollution, achieving economies of scale in transportation will contribute to environment-friendly logistics (Mitra and Datta, 2014). Thus, in green logistics, economies of scale are achieved through as the number of transport times are reduced by optimizing vehicle routing and scheduling or increasing vehicle utilization and this activity helps achieve a reduced negative impact on the environment

Reverse Logistics: Reverse logistics practices are the set of logistics and rehabilitation activities (recycling, reusing and remanufacturing) to products that are once again usable by customers (Shaharudin et al., 2015). Reverse logistic processes help to generate profit and innovation (de Paula et al., 2019). The overall process can be done through the five Rs of the logistics and these are returns, recalls, repairs, repacking, and recycling. Return is the primary step of the reverse logistic flow.

Small and Medium-sized Enterprises (SMEs) in Nigeria

Small and Medium-sized Enterprises (SMEs) play a crucial role in driving economic growth and development in Nigeria. SMEs contribute to employment generation, poverty reduction, and innovation in the country (Akpoyomare and Ikporhie, 2019). SMEs account for a substantial portion of Nigeria's industrial sector, representing a diverse range of industries such as manufacturing, services, and

agriculture (Oladapo et al., 2020). SMEs serve as a catalyst for job creation in Nigeria, employing a significant portion of the workforce. According to the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN, 2021), SMEs employ over 80% of the Nigerian labor force and contribute approximately 50% to the country's Gross Domestic Product (GDP). The growth and development of SMEs have the potential to reduce unemployment rates and enhance livelihoods, particularly in urban and rural areas.

Theoretical Foundations

For this study, three commonly used theories that explain why organizations adopt and apply Green Supply Chain Management (GSCM) are Resource-Based View (RBV), Stakeholder Theory, and Institutional Theory. These theories explain the internal capabilities, external pressures, and stakeholder expectations influencing GSCM practices.

Resource-Based View (RBV) Theory: The Resource-Based View theory was propounded by Birger Wernerfelt (1984) and further developed by Jay Barney (1991), and it explains that organizations achieve competitive advantage through the effective utilization of valuable, rare, and inimitable internal resources. In the context of Green Supply Chain Management, SMEs that possess environmental knowledge, technological capability, and managerial competence are more likely to successfully implement and apply green supply chain practices.

Stakeholder Theory: Stakeholder Theory was proposed by R. Edward Freeman (1984) and emphasizes that organizations must consider the interests and expectations of stakeholders such as customers, suppliers, regulators, employees, and the community when making decisions. Consequently, SMEs adopt Green Supply Chain Management practices in response to stakeholder pressures for environmentally responsible and sustainable business operations.

Institutional Theory: Institutional Theory was advanced by John W. Meyer and Brian Rowan (1977), and later expanded by Paul J. DiMaggio and Walter W. Powell (1983), explaining that organizational practices are often shaped by external pressures such as regulations, industry norms, and societal expectations. These pressures encourage SMEs to adopt Green Supply Chain Management practices in order to comply with environmental regulations and maintain legitimacy within their business environment.

METHODOLOGY

Research Design: The study adopted a mixed methods design to assess the knowledge, attitude, and application of green supply chain management among selected SMEs in Southeast Nigeria. The study was carried out from August to November 2025. Data collection was conducted in two distinct phases. In the quantitative phase, self-administered questionnaires were distributed to individuals occupying various positions in SMEs such as supervisors, production supervisors, warehouse officers, packers, and sorters, selected using a purposive sampling technique.

Research Area: This study covered Abia, Imo, and Enugu States in southeastern Nigeria.

Quantitative Phase of the Sampling: The population of the study was estimated at 3,561 respondents for the selected states and SMEs. To derive the sample size, Crochran's formular was employed. Using Cochran's sample size determination approach and assuming a 95% confidence level with a ±5% margin of error, a sample size of 347 respondents was considered appropriate for the study. The sample was proportionately allocated across the three states based on their respective SME populations, resulting in 187 respondents in Abia State, 90 in Enugu State, and 70 in Imo State. To accommodate potential non-response and improperly completed questionnaires, an additional 10% of the calculated sample size was included and proportionately distributed, resulting in a final sample size of 382 respondents. Accordingly, 206 questionnaires were distributed in Abia State, 99 in Enugu State, and 77 in Imo State. A purposive sampling technique was employed in selecting eligible respondents within the enterprises.

Qualitative phase of the Sampling: A total of 15 key informants (KIIs) were randomly selected using the purposive sampling technique. The participants were grouped into three functional categories to establish balanced representation of operational, compliance, and environmental management perspectives relevant to GSCM practices within SMEs.

Quantitative Phase of Data Collection Instrument: The study employed a semi-structured questionnaire, developed after reviewing previously published works. Quantitative data were collected using a self-administered semi-structured questionnaire as developed and validated and distributed directly to respondents in selected small and medium-sized enterprises (SMEs) across Abia, Imo, and Enugu States. A purposive sampling technique was employed.

Qualitative Phase of Data Collection Instrument: A key informant interview guide was developed from the insights drawn from the quantitative findings of the study. Qualitative data was collected through key informant interviews with supply chain managers, quality assurance officers, and environmental agency officials from professional bodies and regulatory institutions in Abia, Imo, and Enugu States.

Quantitative Method of Data Analysis: Data collected from the respondents were coded and analyzed using the Statistical Package for Social Sciences (SPSS) version 23.0. The level of statistical significance was set at $p < 0.05$.
Descriptive statistics were conducted for the socio-demographic characteristics of the respondents and presented infrequencies and percentages.
Mean scores and standard deviations were computed for Likert-scale items to determine the overall pattern and strength of responses. Mean scores were interpreted using predefined decision rules to classify responses into low, moderate, and high levels, where applicable.

Qualitative Method of Data Analysis: Data obtained from the interviews were analyzed using thematic analysis to capture stakeholders' views on the knowledge, attitudes, and application of green supply chain management practices in selected SMEs in Southeast Nigeria.

Ethical Consideration: Participants were informed of their right to decline participation or withdraw at any point. Ethical approval for the study was obtained from Center for Bioethics, Research and Good clinical Practice (CERBIG), Gregory University, Uturu, Abia State, with approval number of HRA08-06-25-MHS and dated 6thAugust 2025. A signed informed consent was also obtained from the key informants before the interview. Also a verbal informed consent was obtained for interviews conducted via telephone.

RESULTS AND DISCUSSION

Result for Knowledge of Green Supply Chain Management Practices

Table 1 shows respondents' knowledge of GSCM. With an overall mean knowledge score of 3.07 out of 5, respondents demonstrated a moderate level of knowledge of GSCM concepts. A large proportion of respondents correctly identified that GSCM integrates environmental management practices into supply chain operations (78.3%; M = 4.25 ± 0.66) and incorporates product design, sourcing, and end-of-life management (75.4%; M = 4.18 ± 0.71), indicating strong awareness of the core principles of GSCM.

Table 1: Knowledge of GSCM **(N = 382)**

Item	Yes (%)	No (%)	Don't know (%)	Mean	SD
GSCM integrates environmental management practices into supply chain operations	78.3	12.6	9.1	4.25	0.66
GSCM incorporates product design, sourcing, and end-of-life management	75.4	14.1	10.5	4.18	0.71
GSCM seeks to minimize waste during manufacturing	72.5	17.0	10.5	4.02	0.73
GSCM reduces energy use in transportation	70.4	18.8	10.8	3.94	0.75
GSCM pays less attention to recycling	28.2	54.5	17.3	2.73	0.80
GSCM involves using non-renewable resources	22.8	60.3	16.9	2.60	0.81
GSCM maximizes profits by cost cutting	19.1	63.0	17.9	2.42	0.87
GSCM focuses only on efficient delivery	16.8	65.5	17.7	2.34	0.79
GSCM involves outsourcing logistics	14.9	66.7	18.4	2.18	0.85
GSCM is simply cost reduction	12.5	68.9	18.6	2.05	0.82

Source: Author's Computation from SPSS Analysis using data from field, 2025

This is further illustrated in Figure 2 below

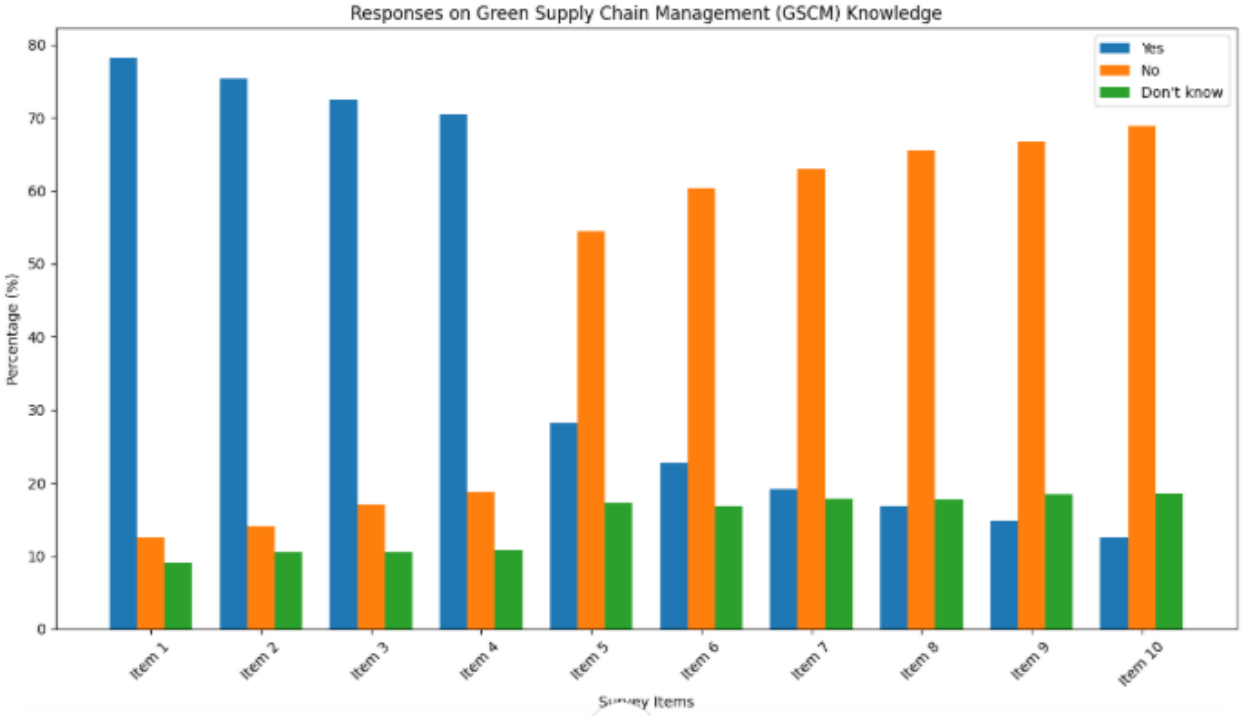

Figure 2: Responses on Green Supply Chain Management Practices Knowledge, 2025
Source: Author's Computation from SPSS Analysis using data from field, 2025

From the bar chart result, "Items 1–4" show very high Yes responses (70–78%), indicating strong knowledge of core Green Supply Chain Management (GSCM) concepts. "Items 5–10" show higher No responses (54–69%), suggesting respondents correctly rejected incorrect statements about GSCM. "Don't know responses" remain relatively low (around 9–18%), implying moderate familiarity with the topic.

However, notable gaps in understanding were observed in specific areas. Less than one-third of respondents correctly disagreed with statements suggesting that GSCM is simply cost reduction (12.5%; M = 2.05 ± 0.82) or that it focuses only on efficient delivery (16.8%; M = 2.34 ± 0.79), suggesting the persistence of misconceptions about the broader strategic scope of GSCM.
While fundamental aspects of GSCM are well recognized, the findings reveal incomplete understanding of its holistic and strategic dimensions.
The qualitative result reveals that insights across the three categories of stakeholders indicate that there is a limited knowledge of GSCM among SMEs in Abia, Enugu, and Imo States. According to the stakeholders, SMEs generally associate GSCM with basic environmental responsibility, rather than a comprehensive supply chain strategy.

Result for Application of Green Supply Chain Management Practices
Table 2 shows the current implementation of GSCM. The findings reveal that only a very small proportion of respondents reported that their organizations currently implement GSCM practices (6.0%). Whereas majority (77.2%) indicated that their firms do not implement any form of GSCM, about one-sixth of the

respondents (16.8%) were unsure whether GSCM practices were implemented in their organizations, suggesting limited awareness or unclear communication regarding environmental practices within firms.

Table 2: Current Application of GSCM (N = 382)

Response	Frequency	Percentage (%)
Yes	23	6.0
No	295	77.2
Unsure	64	16.8

Source: Author's Computation from SPSS Analysis using data from field, 2025

The results indicate that the level of GSCM practice among the firms is very low, despite the relatively positive attitudes observed earlier.

This is further illustrated in a bar chart in figure 3

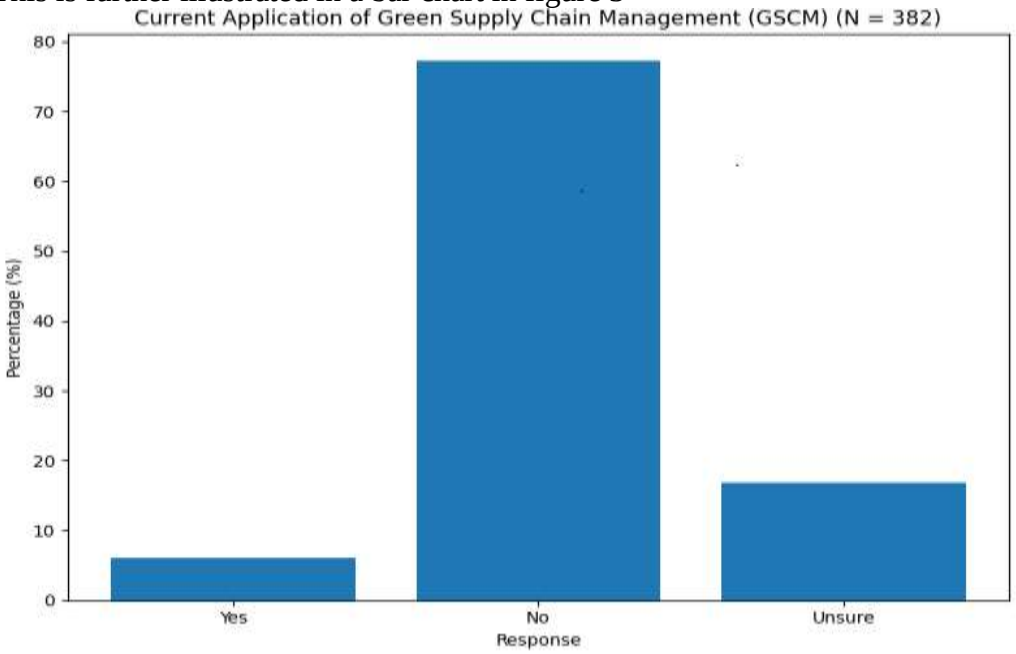

Figure 3: Application of Green Supply Chain Management Knowledge, 2025
Source: Author's Computation from SPSS Analysis using data from field, 2025

From figure 3, only 6.0% of respondents indicated that GSCM is currently applied in their organizations. A large majority (77.2%) stated No, suggesting that GSCM practices are largely not implemented.16.8% were unsure, indicating limited awareness of whether such practices exist in their organizations. This implies that although earlier results may show knowledge of GSCM concepts, the actual adoption among SMEs is still very low.

The qualitative data suggested that the application of GSCM among SMEs in Abia, Enugu, and Imo States was described as limited and fragmented. The stakeholders consistently indicated that SMEs tend to

implement isolated environmental actions rather than integrated green supply chain systems. The low level of application observed therefore suggests that basic knowledge alone is insufficient without adequate enabling conditions for actual implementation.

DISCUSSION OF FINDINGS

Discussion of Findings for Knowledge of Green Supply Chain Management

The quantitative findings reveal that SMEs in the southeast demonstrate a moderate level of knowledge of basic GSCM practices, particularly in areas such as waste minimization, reduction of material usage, and basic environmental compliance. However, knowledge of more structured and advanced GSCM practices such as green procurement, supplier environmental assessment, eco-design, and reverse logistics was relatively low. This finding was consistently reinforced by qualitative insights from the experts' interview, where they noted that most SMEs demonstrate surface-level knowledge of environmental issues but lack structured and comprehensive knowledge and understanding of supply chain sustainability practices. These observations are consistent with the findings of Testa and Iraldo (2010), which reported that SMEs in developing economies often lack the technical and procedural knowledge required for comprehensive GSCM adoption. Geng et al. (2012) also observed that insufficient environmental knowledge constrains the adoption of green supply chain practices in developing regions. According to the Organization for Economic Co-operation and Development (OECD, 2018), limited access to environmental training and professional advisory services significantly constrains SMEs' sustainability performance.

Furthermore, the moderate level of knowledge observed among respondents shows that although many participants are familiar with the general concept of GSCM, their understanding may not go beyond basic awareness to cover the detailed strategic and operational aspects. In many developing economy contexts, including South-East Nigeria, sustainability knowledge is often acquired through informal exposure, policy discussions, or general awareness rather than through structured professional training. These findings align with Salinas-Navarro and Montesinos (2022), who noted that awareness alone does not guarantee deep understanding, as detailed knowledge in supply chain management typically develops through experiential learning and structured capacity-building initiatives. Without continuous training and practical engagement, knowledge tends to remain at the surface level.

Despite this moderate level of knowledge, the study found that SMEs in the three states exhibited a positive attitude toward GSCM practices. Quantitative data showed high levels of agreement with statements suggesting that green practices enhance corporate reputation, improve environmental protection, and contribute to long-term business sustainability. These findings were corroborated by KII experts, who noted that SMEs increasingly express concern about environmental responsibility due to rising regulatory pressure and public awareness.

Discussion of Findings for Application of Green Supply Chain Management Practices

The findings from Figure 3 show a very low level of GSCM application among SMEs in the southeast. Only 6.0% of respondents reported that GSCM practices are implemented in their organizations, while

77.2% indicated that such practices are not implemented, and 16.8% were unsure. These results suggest that, despite growing attention to environmental sustainability, most SMEs in the study area have not yet integrated green practices into their supply chain operations in a structured way.

This finding can be explained through the theoretical framework. From the RBV perspective, the low level of application suggests that many SMEs may lack the financial resources, technical expertise, managerial commitment, and organizational capacity required to implement GSCM effectively. Stakeholder Theory also helps explain the result, as the weak adoption of GSCM may reflect limited pressure from customers, suppliers, regulators, and other relevant actors who could otherwise encourage environmentally responsible practices. In addition, the uncertainty expressed by 16.8% of respondents points to weak internal communication and limited organizational clarity regarding environmental initiatives. Institutional theory further supports the finding by suggesting that weak regulatory enforcement, inadequate policy incentives, and the absence of strong sustainability practices may have reduced the motivation for SMEs to adopt GSCM in a formal and integrated way.

All put together, these theories suggest that the low application of GSCM among SMEs is not simply a matter of poor awareness but the outcome of internal resource limitations, weak stakeholder influence, and insufficient institutional support. This implies that improving GSCM adoption will require more than awareness creation; it will also depend on strengthening firm capabilities, increasing stakeholder pressure, and providing a more supportive regulatory and policy environment.

CONCLUSION

The study concludes that while SMEs in the southeast demonstrate reasonable knowledge of Green Supply Chain Management (GSCM) concepts, the actual implementation of GSCM practices is very low. Only a small proportion of respondents reported applying GSCM, the majority indicated non-implementation, and some were unsure, reflecting limited organizational awareness. Qualitative insights showed that environmental practices are often isolated and fragmented, rather than integrated across procurement, manufacturing, logistics, and reverse logistics. These findings suggest that knowledge alone is insufficient for adoption, highlighting the need for enabling conditions such as managerial commitment, supportive policies, capacity building, and access to green technologies to promote the effective uptake of GSCM among SMEs in Southeast Nigeria.

Recommendation

The study recommends that Government agencies and development partners should organize regular training and sensitization programs for SMEs on Green Supply Chain Management practices. Also, Regulatory bodies should strengthen enforcement of environmental and supply chain sustainability regulations to encourage compliance of Green Supply Chain Management Practices in Southeast Nigeria.

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