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Performance of Beverage Manufacturing Firms in Nairobi City County,
Kenya**



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Sustainable Supply Chain Management Practices and Organizational Performance of Beverage Manufacturing Firms in Nairobi City County, Kenya



¹*Ronoh Solomon, ²Dr. Richard K. Sigei

¹Masters Student, Jomo Kenyatta University of Agriculture and Technology

²Lecturer, Jomo Kenyatta University of Agriculture and Technology

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ABSTRACT

Purpose: The general objective of the study is to establish the effect of sustainable supply chain management practices on the performance of beverage manufacturing firms in Nairobi City County, Kenya. Specifically, the study sought to establish the influence of ethical sourcing and green purchasing on the performance of beverage manufacturing firms in Nairobi City County, Kenya.

Methodology: This study was guided by Stakeholder Theory and Resource-Based View (RBV) Theory. According to KAM report (2023), there are 321 beverage manufacturing firms in Nairobi City County, Kenya. The unit of analysis in this study was therefore 321 beverage manufacturing firms in Nairobi City County, Kenya while the unit of observation was procurement managers and supply chain managers. In each company, the study targeted 1 procurement manager and 1 supply chain managers. The total target population was therefore 642 management employees. The study used Yamane (1967) formula to determine the size of the sample. From the formula, the sample size was 246 respondents. This research used a questionnaire to collect primary data. This research used a questionnaire to collect primary data. The pilot study was carried out on 24 respondents. SPSS was used to analyze the data collected from the field. Quantitative data collected was analyzed using descriptive statistics techniques. Pearson R correlation was used to measure strength and the direction of linear relationship between variables. The study results were presented through use of tables and figures.

Findings: The study found that ethical sourcing has a positive and significant influence on performance of beverage manufacturing firms in Nairobi City County, Kenya. In addition, the study found that green purchasing has a positive and significant influence on performance of beverage manufacturing firms in Nairobi City County, Kenya.

Unique Contribution to Theory, Practice and Policy: Based on the findings, the study recommends that beverage manufacturing firms in Kenya should adopt green purchasing practices by prioritizing suppliers who provide environmentally friendly raw materials, recyclable packaging, and energy-efficient inputs, while also integrating environmental criteria into supplier selection and evaluation processes.

Key Words: *Sustainable Supply Chain Management Practices, Ethical Sourcing, Green Purchasing*

Background of the Study

Manufacturing firms play a critical role in driving economic growth by creating value-added products that stimulate industrial development and enhance national productivity. They contribute significantly to a country's Gross Domestic Product (GDP) by transforming raw materials into finished goods that meet domestic and international market demands (Wang & Dai, 2021). Through this value addition, manufacturing firms help diversify the economy, reduce overreliance on primary commodities, and promote economic resilience (Sharma & Singla, 2021). Their operations also support the development of related sectors such as agriculture, mining, and services, creating strong linkages that expand economic opportunities and strengthen supply chains. In addition to economic growth, manufacturing firms are essential for employment creation and skills development (Magreth, Ismail & Goodluck, 2025). They provide a wide range of job opportunities, thereby improving household incomes and reducing unemployment rates. By investing in technology, innovation, and industrial processes, manufacturing firms promote knowledge transfer, research advancement, and technological upgrading within the economy (Mamdouh, Kadry & El Ahmady, 2020). Furthermore, their production activities contribute to increased exports, improved trade balances, and enhanced global competitiveness, positioning the country as an attractive destination for investment and industrial expansion (Nwadiogo, *et al*, 2025).

Sustainable supply chain management practices refer to the integration of environmental, social, and economic considerations into the planning, sourcing, production, distribution, and disposal activities of a supply chain (Asante-Darko & Osei, 2024). These practices aim to optimize efficiency and profitability while minimizing negative impacts on the environment and society. They encompass strategies such as ethical sourcing, green purchasing, energy-efficient operations, waste reduction, low-emission transportation, and reverse logistics to ensure long-term sustainability (Nambela & Kasongo, 2024). By embedding these practices, firms enhance resource conservation, regulatory compliance, stakeholder trust, and overall supply chain resilience, promoting both business success and environmental stewardship (Njoki & Achuora, 2023). Ethical sourcing is a key practice within this framework, focusing on obtaining materials and services from suppliers who adhere to fair labor practices, human rights, and responsible business conduct. It ensures that procurement decisions are guided by integrity, fairness, and accountability, promoting trust and long-term relationships with stakeholders (Kariuki, 2024).

Green purchasing emphasizes the procurement of products and materials that have minimal environmental impact, considering factors such as energy use, recyclability, and toxicity. By prioritizing eco-friendly materials and sustainable production methods, green purchasing supports resource conservation and reduces the ecological footprint of supply chain operations (Mohammed, Lagat & Ngeno, 2024). Green distribution involves optimizing transportation, storage, and delivery processes to minimize fuel consumption, emissions, and environmental

impact, through strategies such as energy-efficient transport, route optimization, and low-emission technologies (Chepchumba & Awour, 2023). Reverse logistics ensures the responsible handling of returned goods, packaging, and end-of-life products through recycling, waste recovery, or remanufacturing. By integrating reverse logistics, firms reduce waste, recover valuable resources, and promote circular economy principles (Mulwa, Onserio & Mutisya, 2022). This study aims to establish the effect of sustainable supply chain management practices on the performance of manufacturing firms in Nairobi City County, Kenya.

Beverage manufacturing firms in Nairobi City County, Kenya, play a significant role in the county's industrial development and the broader food and beverage processing sector. Nairobi, as the capital city and a major commercial hub, hosts a number of beverage processing companies involved in the production of soft drinks, bottled water, fruit juices, energy drinks, dairy beverages, and alcoholic beverages (Njoki & Achuora, 2023). These firms range from small and medium-sized enterprises (SMEs) producing localized beverage brands to large-scale manufacturers with extensive distribution networks across Kenya and the East African region. The concentration of beverage manufacturing firms in Nairobi is largely influenced by the availability of a skilled labor force, access to raw materials from surrounding agricultural regions, proximity to key transport networks, and the presence of supportive business services and infrastructure (Kariuki, 2024).

The beverage manufacturing sector in Nairobi City County contributes significantly to employment creation, income generation, and industrial growth. Beverage firms employ a considerable number of workers in areas such as production, packaging, distribution, marketing, and quality control, thereby supporting livelihoods and improving household incomes (Mohammed, Lagat & Ngeno, 2024). In addition, the sector stimulates related industries including agriculture, packaging, transport, and retail distribution, creating strong value chain linkages within the economy. By producing beverages for both local consumption and regional export markets, these firms help reduce reliance on imported beverage products and support Kenya's trade balance (Chepchumba & Awour, 2023). Despite their economic importance, beverage manufacturing firms in Nairobi face several operational challenges such as high production costs, fluctuating raw material prices, intense competition from imported beverages, and regulatory compliance requirements (Mulwa, Onserio & Mutisya, 2022). Other challenges include unreliable power supply, water shortages, and infrastructure constraints that can disrupt production processes. Nevertheless, with supportive government policies, technological innovation, and strategic investments, beverage manufacturing firms in Nairobi City County continue to expand and contribute to Kenya's industrialization and economic development agenda (Njoki & Achuora, 2023).

Statement of the Problem

The beverage manufacturing sector is an important component of Kenya's manufacturing industry and plays a significant role in economic development through employment creation, value addition, and contribution to national output. The manufacturing sector contributes approximately 7–8% to Kenya's Gross Domestic Product (GDP) and employs more than 350,000 people directly and over 1.8 million indirectly through related industries such as agriculture, logistics, packaging, and distribution (Kariuki, 2024). Beverage manufacturing firms form a significant part of the food and beverage processing subsector, producing products such as bottled water, soft drinks, fruit juices, and alcoholic beverages for both domestic consumption and regional markets. In Nairobi City County, which hosts a large proportion of Kenya's manufacturing firms, beverage manufacturers play a critical role in stimulating economic activities through supply chain linkages with farmers, packaging industries, and retail distribution networks (Mohammed, Lagat & Ngeno, 2024). These firms therefore contribute significantly to income generation, employment opportunities, and the growth of Kenya's industrial sector (Chepchumba & Awour, 2023).

Despite their economic importance, beverage manufacturing firms in Nairobi City County continue to face numerous operational and competitive challenges that hinder their performance. According to the Kenya Association of Manufacturers (KAM) Manufacturing Barometer, more than 83% of manufacturers identify high taxation and low demand as major constraints to growth, while operational costs for manufacturers have increased by approximately 15% annually due to rising energy and utility costs (Kariuki, 2024). Energy costs in Kenya account for nearly 30% of total production costs for many manufacturing firms, which significantly reduces profit margins. Additionally, competition from imported beverage products and regional manufacturers has intensified, making it difficult for local beverage firms to maintain market share. Inefficiencies in logistics and distribution networks further increase transportation costs and delay product delivery, which negatively affects customer satisfaction and overall firm performance (Njoki & Achuora, 2023).

Profitability within the beverage manufacturing sector has also been under pressure due to rising production costs and supply chain inefficiencies. Studies indicate that many food and beverage manufacturing firms in Kenya operate on relatively low profit margins ranging between 3% and 5%, mainly due to high costs of raw materials such as sugar, packaging materials, and energy (Mohammed, Lagat & Ngeno, 2024). Additionally, increased regulatory requirements related to environmental sustainability, waste management, and packaging have raised operational compliance costs for beverage manufacturers. At the same time, consumers are increasingly demanding environmentally responsible products and sustainable production practices, forcing firms to rethink traditional supply chain operations that often involve excessive waste, inefficient resource utilization, and environmental degradation.

To address these challenges, organizations are increasingly adopting sustainable supply chain management (SSCM) practices aimed at improving operational efficiency and environmental sustainability. Practices such as ethical sourcing, green purchasing, green distribution, and reverse logistics enable firms to reduce waste, improve resource utilization, minimize environmental impact, and enhance corporate reputation. These practices can ultimately improve organizational performance by lowering operational costs, strengthening supply chain efficiency, and enhancing customer satisfaction. While several studies have examined the relationship between sustainable supply chain management and organizational performance, most of them have focused on different sectors and contexts. For example, Njoki and Achuora (2023) examined sustainable supply chain management practices in state corporations, while Mohammed, Lagat and Ngeno (2024) focused on manufacturing firms generally, and Chepchumba and Awour (2023) studied parastatals. However, these studies did not specifically examine the influence of ethical sourcing, green purchasing, green distribution, and reverse logistics on the performance of beverage manufacturing firms in Nairobi City County, Kenya. Therefore, this study seeks to fill this research gap by examining the effect of sustainable supply chain management practices on the performance of beverage manufacturing firms in Nairobi City County, Kenya.

General Objective

The general objective of the study is to establish the effect of sustainable supply chain management practices on the performance of beverage manufacturing firms in Nairobi City County, Kenya

Specific Objectives

- i. To establish the influence of ethical sourcing on the performance of beverage manufacturing firms in Nairobi City County, Kenya
- ii. To determine the effect of green purchasing on the performance of beverage manufacturing firms in Nairobi City County, Kenya

Theoretical Literature

A theory is a group of concepts and ideas used in the explanation of events and other things, particularly the ones based on general principles independent of the event to be explained. The theoretical review gives an introduction of the theories that are used to express the reason for the existence of the research. In addition, a theoretical review provides the main variables that affect the phenomenon under study and points out the need to consider the effect of these variables under different circumstances. This study was guided by Stakeholder Theory and Resource-Based View (RBV) Theory.

Stakeholder Theory

Stakeholder Theory is a framework in management and ethics that emphasizes the importance of considering all parties affected by a company's actions, not just its shareholders. Developed by Edward Freeman (1984), the theory posits that businesses operate within a network of relationships that includes various stakeholders such as employees, customers, suppliers, communities, and investors (Mutsoli & Ndolo, 2020). By acknowledging these stakeholders and their interests, organizations can create more sustainable and ethically sound business practices. The central idea is that businesses should strive to create value for all stakeholders rather than focusing solely on maximizing shareholder profit (Al Shraah, *et al*, 2022). A key aspect of Stakeholder Theory is the identification and prioritization of stakeholders based on their influence and the significance of their interests (Onoriode, Olatunji & Ibegbulem, 2025). Stakeholders can be categorized into primary and secondary groups. Primary stakeholders are those whose direct involvement is essential for the company's survival, such as employees and customers. Secondary stakeholders may include groups like the media, advocacy organizations, and government entities, which can influence or be affected by the organization's activities (Nyakundi & Wanjala, 2023). Understanding the dynamics among these different stakeholders helps organizations make informed decisions that consider a wider array of perspectives and potential impacts. Stakeholder Theory also highlights the ethical responsibility of businesses to engage with their stakeholders transparently and fairly (Kitheka, 2021). This engagement fosters trust and collaboration, which can lead to better outcomes for all parties involved (Mutsoli & Ndolo, 2020). The theory suggests that businesses should actively seek feedback from stakeholders and incorporate their views into decision-making processes. By doing so, companies not only enhance their social license to operate but also strengthen their long-term viability and reputation (Al Shraah, *et al*, 2022). This theory is relevant in establishing the influence of ethical sourcing on the performance of beverage manufacturing firms in Nairobi City County, Kenya.

Resource-Based View (RBV) Theory

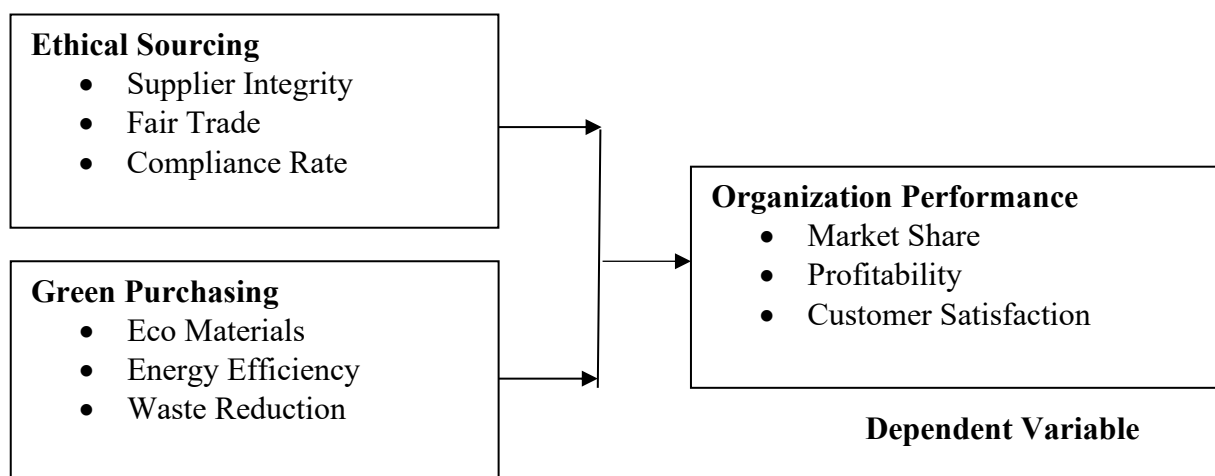
The Resource-Based View (RBV) Theory is a strategic management framework that emphasizes the importance of an organization's internal resources as the foundation for achieving sustainable competitive advantage (Chikezie, *et al*, 2023). Unlike external or market-based perspectives, RBV argues that firms can outperform competitors when they possess unique, valuable, and hard-to-imitate resources that allow them to implement effective strategies (Didier & Kamuhanda, 2025). These resources may include physical assets, intellectual property, human skills, organizational culture, brand reputation, and technological capabilities. A key principle of RBV is that not all resources contribute equally to competitive advantage (Gachuru, 2022). For a resource to be strategically significant, it must meet the VRIN criteria—being Valuable, Rare, Inimitable, and Non-substitutable (Osuga & Okello, 2021). Valuable resources enable firms to

exploit opportunities or neutralize threats; rare resources are possessed by few or no competitors; inimitable resources are difficult or costly to replicate; and non-substitutable resources cannot be replaced by alternatives offering the same benefits. When these conditions are met, resources provide the foundation for long-term performance (Ochieng, 2020).

RBV also stresses the role of capabilities, which are the firm's ability to effectively deploy and integrate resources to create value. For instance, two firms may have similar resources, but the one that has superior managerial skills, coordination, and organizational processes will likely outperform the other (Chikezie, *et al*, 2023). This highlights that sustainable advantage is not only about owning resources but also about how effectively they are utilized. In practice, RBV helps managers focus on identifying, protecting, and enhancing their firm's key strengths instead of merely reacting to external market changes (Didier & Kamuhanda, 2025). By building distinctive capabilities around their unique resource base, firms can achieve a position that competitors find difficult to challenge (Gachuru, 2022). This theory will be used to determine the effect of green purchasing on the performance of beverage manufacturing firms in Nairobi City County, Kenya.

Conceptual Framework

A conceptual framework is a structured, visual, or written representation that outlines the key concepts, variables, and their relationships within a study or project (Sekaran, & Bougie, 2019). The figure below shows the independent variables and the dependent variable (Kinyungu & Ogollah, 2020). In this study, the independent variables are ethical sourcing and green purchasing, while the dependent variable is performance of manufacturing firms in Nairobi City County, Kenya.



Independent Variables

Figure 1: Conceptual Framework

Ethical Sourcing

Ethical sourcing refers to the process through which a firm obtains raw materials, components, or services from suppliers who adhere to acceptable standards of fairness, integrity, and responsible conduct throughout their operations (Al Shraah, *et al*, 2022). It involves assessing and selecting suppliers based on criteria such as lawful labor practices, respect for human rights, safe working conditions, fairness in wages, environmental stewardship, and transparent business conduct (Onoriode, Olatunji &Ibegbulem, 2025). Ethical sourcing also requires continuous monitoring and evaluation of supplier behavior to ensure compliance with established codes of conduct and to mitigate risks associated with exploitation, corruption, and environmental harm. By embedding these principles in procurement decisions, ethical sourcing promotes accountability, sustainability, and long-term stakeholder trust within the supply chain (Nyakundi & Wanjala, 2023). Supplier Integrity refers to the commitment and reliability of suppliers in upholding honest, transparent, and ethically sound business practices throughout their operations. It encompasses adherence to truthful communication, consistency between stated and actual practices, and the maintenance of high ethical standards in areas such as labor conditions, environmental responsibility, and financial dealings (Kitheka, 2021). Supplier integrity ensures that suppliers act in good faith, avoid fraudulent behavior, and respect contractual agreements, thereby strengthening trust, reducing operational risks, and promoting sustainable relationships within the supply chain. When supplier integrity is strong, firms can be confident that procurement decisions align with ethical expectations and long-term organizational values (Mutsoli & Ndolo, 2020).

Fair Trade involves the adoption of procurement and sourcing principles that ensure equitable, just, and responsible treatment of workers and producers within the supply chain. It emphasizes fairness in compensation, respect for workers' rights, ethical working conditions, and sustainable production processes that protect both people and the environment (Al Shraah, *et al*, 2022). Fair trade promotes balanced power relations between buyers and suppliers, ensuring that producers receive reasonable returns and that vulnerable groups are not exploited. By incorporating fair trade principles into supply chain management, organizations contribute to social welfare, economic empowerment, and environmentally sound production systems that support sustainable development (Onoriode, Olatunji &Ibegbulem, 2025). Compliance Rate refers to the degree to which suppliers, production processes, or operational practices meet established standards, regulatory requirements, and internal organizational policies within the supply chain. It measures the proportion of activities, procedures, or units that conform to defined rules in areas such as labor laws, quality standards, environmental regulations, and ethical codes of conduct (Nyakundi & Wanjala, 2023). A high compliance rate indicates effective adherence to expected norms, reduced risk exposure, and efficient governance within the supply chain. Monitoring compliance rates enables firms to track performance, identify gaps or violations, and implement corrective

measures to ensure that supply chain operations remain lawful, ethical, and aligned with sustainability objectives (Kitheka, 2021).

Green Purchasing

Green purchasing refers to the procurement of goods, materials, and services that have minimal negative impact on the environment throughout their lifecycle, from production and distribution to use and disposal (Chikezie, *et al*, 2023). It emphasizes selecting products that conserve resources, reduce waste, contain non-toxic or recyclable materials, and support environmentally responsible manufacturing processes. Green purchasing also involves integrating environmental criteria into supplier evaluations and decision-making to ensure that procurement choices align with sustainability objectives (Didier & Kamuhanda, 2025). By prioritizing environmentally sound alternatives, green purchasing promotes resource efficiency, pollution reduction, and long-term ecological stewardship within the supply chain. Eco Materials refer to environmentally responsible raw materials or inputs that minimize ecological harm throughout their lifecycle (Gachuru, 2022). These materials are typically characterized by attributes such as renewability, recyclability, biodegradability, low toxicity, and reduced carbon footprint. Eco materials are selected based on their ability to conserve natural resources, limit pollution, and support sustainable production processes (Osuga & Okello, 2021). Incorporating eco materials into manufacturing and supply chain practices promotes long-term environmental stewardship, reduces dependency on scarce resources, and strengthens the sustainability profile of the products being produced. Their use reflects a commitment to integrating environmental considerations into material selection and procurement decisions (Ochieng, 2020).

Energy Efficiency involves the strategic use of energy resources in a way that maximizes output while minimizing energy consumption, loss, or waste throughout supply chain and manufacturing processes (Chikezie, *et al*, 2023). It focuses on optimizing production systems, equipment, and operational activities to reduce overall energy requirements without compromising performance or quality. Energy efficiency contributes to cost savings, lower greenhouse gas emissions, and enhanced operational sustainability by ensuring that energy-dependent activities are carried out in the most efficient manner possible (Didier & Kamuhanda, 2025). Embedding energy efficiency in supply chain practices supports improved environmental performance, enhances competitiveness, and reflects a proactive approach to managing resource constraints and ecological impact (Gachuru, 2022). Waste Reduction refers to the systematic efforts undertaken to minimize the generation of waste throughout the supply chain and manufacturing processes. It involves adopting techniques that reduce excess material use, optimize production planning, extend product lifecycles, and enhance the recovery or reuse of by-products (Osuga & Okello, 2021). Waste reduction is centered on preventing waste at the source, lowering disposal needs, and improving resource utilization efficiency. By reducing the volume of waste produced, firms can decrease environmental pollution, minimize operational

costs, and advance overall sustainability. Effective waste reduction demonstrates responsible resource management and strengthens the environmental performance of supply chain operations (Ochieng, 2020).

Empirical Review

Ethical Sourcing and Organization Performance

Al Shraah, *et al* (2022) assessed on the impact of ethical sourcing on organizational performance during the COVID-19 pandemic: Evidence from Jordanian pharmaceutical industries. This study adopted a quantitative, cross-sectional, and surveyed based approach. A convenience sampling approach was taken targeting managers and assistant managers working within Jordanian pharmaceutical firms using social media platforms. The study found that ethical sourcing has a significant positive impact on organizational performance in pharmaceutical companies. The study concluded that ethical sourcing of pharmaceutical firms is perceived as impacting positively on firm performance.

Onoriode, Olatunji and Ibegbulem (2025) investigated on ethical sourcing and corporate reputation in manufacturing firms of Delta State, Nigeria. This study adopts a descriptive survey research design. The population of this study consists of employees and management staff of selected manufacturing firms in Delta State, Nigeria. A sample size of 300 respondents was used. The study found that ethical sourcing practices, particularly fair labour practices and community engagement, play a significant role in shaping the corporate reputation of manufacturing firms in Delta State, Nigeria. The study concluded that both fair labour practices and community engagement have a significant positive effect on corporate reputation.

Nyakundi and Wanjala (2023) conducted a study on the influence of ethical sourcing practices on procurement performance: a case of Nairobi City County. The study employed descriptive research design, and the study population was the procurement department in Nairobi County government. The target population of the study is 187 staffs, and the sample size is 65 staffs. The study found that supplier selection ethics, ethical policies and codes, procedural justice ethics and supplier diversity ethics have a positive and significant effect on procurement performance. The study concluded that ethical sourcing practices influence procurement performance.

Kitheka (2021) researched on the influence of ethical sourcing on procurement performance of state corporations in Kenya. The study employed a mixed research design and the study population was the procurement managers in the state corporations' procurement departments. A census study of all state corporations in Kenya was carried out. The study found that supplier selection ethics, ethical policies and codes, procedural justice and supplier diversity had significant and positive effect on procurement performance of the Kenyan state corporations. The study concluded that procurement performance was significantly influenced by ethical sourcing.

Mutsoli and Ndolo (2020) examined on influence of ethical sourcing practices on performance of teacher's service commission of Kenya. The target population comprised of 1351 TSC secretariat staff from among seven TSC directorates. Stratified proportionate sampling was used to select a sample of 239 employees. A descriptive research design was adopted in the study. The study found a significant relationship between ethical sourcing practices and performance. The study concluded that ethical sourcing practices are key components of cost reduction and quality improvement in the procurement process.

Green Purchasing and Organization Performance

Chikezie, *et al* (2023) conducted a study on waste reduction and operational performance of hotels in Lagos State, Nigeria. The sample frame for this study consisted of 50 hotels. A cross-sectional primary data was collected at the hotels in Lagos State using the structured questionnaire. The study found that waste reduction significantly influenced the operational performance of hotels in the study area. The study concluded that waste reduction is an important contributor in determining the operational performance of hotels.

Didier and Kamuhanda (2025) assessed on the impacts of waste reduction on environmental and social well-being in secondary schools of Musanze District, Rwanda. This study employed a mixed-methods approach. The total target population for this study was 1480. The study concluded that waste reduction in secondary schools are inadequate and contribute significantly to environmental degradation and social challenges. The study concluded that while awareness is high and foundational structures exist in many schools, significant opportunities remain to enhance waste reduction through better infrastructure, education, community involvement, and external support.

Gachuru (2022) examined on green purchasing and its effect on employee performance in Nakuru Water and Sanitation Company (NAWASCO), Kenya. A cross-sectional research design was adopted alongside quantitative methods. The 81 employees attached to the technical and operations or production departments of the company constituted the study population. A census design was adopted due to the relatively small study population. The study found that there existed a positive, strong and statistically significant relationship between green purchasing and employee performance. The study concluded that green purchasing played a crucial role with regard to performance of employees working NAWASCO.

Osuga and Okello (2021) investigated on waste reduction and its effects on environmental performance of Comply Timber Processing Firm in Nakuru County, Kenya. The study adopted correlational research design. Data was collected from all employees in production, procurement, accounting and finance and marketing departments of Comply Company using structured questionnaires. The study found that waste reduction has positive effect on environmental performance. The study concluded that proper waste reduction leads to improved environmental

responsibility, reduced complaints on environmental conservation and reduced costs of operations.

Ochieng (2020) researched on the effect of green purchasing practices on performance of large chemical manufacturing firms in Nairobi County Kenya. This study adopted a descriptive survey design. The target population consisted of 63 large chemical manufacturing firms licensed by the Kenya Association of manufacturers. The unit of observation was supply chain managers at different manufacturing sectors of the industry. The sample size was 63 licensed large chemical manufacturing selected using stratified sampling method. The study found that green purchasing practices significantly influence the performance of large chemical manufacturing firms in Kenya. The study concluded that the adoption of green procurement practices improves the supply chain performance.

RESEARCH METHODOLOGY

Research Design

This study used descriptive research design which involved gathering of data that describes events then organizing, tabulating depicting and describing the data. The choice of this research design will be influenced by the fact that it enables the researcher to assess the situation in the study area at the time of study. This design is pertinent in “developing the profile of a situation and a community of people by getting complete and accurate information through an interaction between the researcher and the respondent via data collection tools” (Kothari & Garg, 2019).

Van Manen (2019) states that a descriptive research design as a data collection method from which a sample of individuals being investigated using research instruments by use of data collection instrument which has both the closed-ended and open-ended questions, interviews and observations. It is one of the most widely used non-experimental research designs across disciplines to collect large amounts of survey data from a representative sample of individuals sampled from the targeted population.

Target Population

This study targeted manufacturing firms in Nairobi City County. According to KAM report (2023), there are 321 beverage manufacturing firms in Nairobi City County, Kenya.

The unit of analysis in this study was therefore 321 beverage manufacturing firms in Nairobi City County, Kenya while the unit of observation was procurement managers and supply chain managers. In each company, the study targeted 1 procurement manager and 1 supply chain managers. The total target population was therefore 642 management employees.

Table 1: Target Population

Category	Target Population
Procurement Managers	321
Supply Chain Managers	321
Total	642

Sample Size and Sampling Technique

The sample frame for this study was compiled from list of managerial employees who are currently working at the 321 beverage manufacturing firms. Therefore, the sampling frame was 642 employees. A sample is a representative of certain known percentage, frequency distributions of elements' characteristics similar to the corresponding distributions within the whole population (Kasomo, 2019).

Kothari (2019) explains that a sample size refers to the number of items to be selected from the universe to constitute a sample while sampling procedures refers to the technique used in selecting the items of the sample. The study used Yamane (1967) formula to determine the size of the sample. The selection formula is as follows:

$$n = \frac{N}{1 + (N-1)e^2}$$

Where n= the required sample size

N = is the Target Population (642 respondents)

e = accuracy level required. Standard error = 5%

Sample calculation

$$n = \frac{N}{1 + (N-1)e^2}$$

$$n = \frac{642}{1 + (642)0.05^2}$$

$$n = \frac{642}{2.605} = 246$$

From the formula, the sample size was 246 respondents

Data Collection Instruments

This research used a questionnaire to collect primary data. According to Patton *et. al* (2019), a questionnaire is appropriate in gathering data and measuring it against a particular point of view. It provides a standardized tool for data collection. The researcher obtained research permit from relevant authorities required for data collection. Structured and open questions were used to

collect primary data from the field. The questionnaires were pilot tested to ascertain the extent to which the instrument is correct and to eliminate ambiguous questions, and improve on validity and reliability

Pilot Study

According to Bashir, (2019), validity refers to the extent to which a test measures what it is supposed to measure and the extent to its truthfulness, accuracy, authenticity, genuineness, or soundness, whether the means of measurement are accurate and whether they are actually measuring what they are intended to measure. The pilot study was carried out on 24 respondents who are sufficient based on Glesne (2019) who stated that 10% of the population is adequate to constitute the pilot test size.

Data Analysis and Presentation

SPSS was used to analyze the data collected from the field. To allow data to be entered into the software, the questionnaires will be referenced, and the data coded. Quantitative data collected was analyzed using descriptive statistics techniques. Through descriptive analyses, correlational as well as experimental studies emerge; and they provide clues on the issues that require more attention which leads to further research (Mugenda & Mugenda, 2019).

Pearson R correlation was used to measure strength and the direction of linear relationship between variables. Multiple regression models will be fitted to the data to determine how the predictor/independent variables affect the response/dependent variable. Multiple regression analysis was used in this study because it uses the predictor variables in predicting the response variable. It is a statistical tool attempting to establish whether some variables can be used together in predicting a particular variable (Mugenda & Mugenda, 2018).

The model will be;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

Where;

Y = dependent variable (the performance of beverage manufacturing firms in Nairobi City County, Kenya)

X₁ = Ethical sourcing

X₂ = Green purchasing

β₀ = the constant term

β₁₋₄ = the Beta coefficient

ε = the error term

RESEARCH FINDINGS AND DISCUSSIONS

Descriptive Statistics

Ethical Sourcing and Organization Performance

The first specific objective of the study was to establish the influence of ethical sourcing on the performance of beverage manufacturing firms in Nairobi City County, Kenya. The respondents were requested to indicate their level of agreement on various statements related to ethical sourcing and performance of beverage manufacturing firms in Nairobi City County, Kenya. The results were as shown Table 2.

From the results, the respondents agreed that their suppliers consistently adhere to ethical business practices ($M=3.866$, $SD= 0.574$). In addition, the respondents agreed that they trust their suppliers to provide accurate and truthful information regarding their operations ($M=3.849$, $SD= 0.818$). Further, the respondents agreed that suppliers provide equitable pricing and support to small-scale producers ($M=3.768$, $SD= 0.674$).

From the results, the respondents agreed that fair trade principles are a key consideration in selecting suppliers ($M=3.727$, $SD= 0.876$). In addition, the respondents agreed that their suppliers comply with all relevant legal and ethical standards ($M=3.665$, $SD= 0.827$). Further, the respondents agreed that regular audits show a high level of supplier adherence to ethical sourcing policies ($M=3.641$, $SD= 0.755$).

Table 2: Ethical Sourcing and Organization Performance

	Mean	Std. Deviation
Our suppliers consistently adhere to ethical business practices.	3.866	0.574
We trust our suppliers to provide accurate and truthful information regarding their operations.	3.849	0.818
Suppliers provide equitable pricing and support to small-scale producers.	3.768	0.674
Fair trade principles are a key consideration in selecting suppliers.	3.727	0.876
Our suppliers comply with all relevant legal and ethical standards.	3.665	0.827
Regular audits show a high level of supplier adherence to ethical sourcing policies.	3.641	0.755
Aggregate	3.756	0.754

Green Purchasing and Organization Performance

The second specific objective of the study was to determine the effect of green purchasing on the performance of beverage manufacturing firms in Nairobi City County, Kenya. The respondents

were requested to indicate their level of agreement on various statements related to green purchasing and performance of beverage manufacturing firms in Nairobi City County, Kenya. The results were as shown Table 3.

From the results, the respondents agreed that their firm prioritizes the purchase of environmentally friendly and sustainable materials ($M=3.887$, $SD= 0.820$). In addition, the respondents agreed that suppliers provide materials that have minimal negative impact on the environment ($M=3.841$, $SD= 0.687$). Further, the respondents agreed that their procurement decisions favor suppliers that use energy-efficient production processes ($M=3.826$, $SD=0.509$).

From the results, the respondents agreed that they consider the energy consumption of materials and products when making purchasing decisions ($M=3.755$, $SD= 0.687$). In addition, the respondents agreed that their firm selects suppliers that minimize packaging and material waste ($M=3.739$, $SD= 0.681$). Further, the respondents agreed that efforts are made to purchase products that generate less waste during production and use ($M=3.712$, $SD=0.876$).

Table 3: Green Purchasing and Organization Performance

	Mean	Std. Deviation
Our firm prioritizes the purchase of environmentally friendly and sustainable materials.	3.887	0.820
Suppliers provide materials that have minimal negative impact on the environment.	3.841	0.687
Our procurement decisions favor suppliers that use energy-efficient production processes.	3.826	0.509
We consider the energy consumption of materials and products when making purchasing decisions.	3.755	0.687
Our firm selects suppliers that minimize packaging and material waste.	3.739	0.681
Efforts are made to purchase products that generate less waste during production and use.	3.712	0.876
Aggregate	3.793	0.710

Organization Performance

The respondents were requested to indicate their level of agreement on various statements related to performance of beverage manufacturing firms in Nairobi City County, Kenya. The results were as shown Table 4.

From the results, the respondents agreed that they are able to effectively compete with other firms in the industry ($M=3.821$, $SD= 0.888$). In addition, the respondents agreed that their

products are well recognized and preferred by customers in the market ($M=3.812$, $SD= 0.617$). Further, the respondents agreed that the firm's revenue growth positively impacts overall profitability ($M=3.803$, $SD= 0.578$).

From the results, the respondents agreed that cost management strategies in their firm contribute to higher profit margins ($M=3.778$, $SD= 0.627$). In addition, the respondents agreed that customers are generally satisfied with the quality of their products ($M=3.724$, $SD=0.565$). Further, the respondents agreed that their firm responds promptly to customer complaints and feedback ($M=3.702$, $SD=0.779$).

Table 4: Organization Performance

	Mean	Std. Deviation
We are able to effectively compete with other firms in the industry.	3.821	0.888
Our products are well recognized and preferred by customers in the market.	3.812	0.617
The firm's revenue growth positively impacts overall profitability.	3.803	0.578
Cost management strategies in our firm contribute to higher profit margins.	3.778	0.627
Customers are generally satisfied with the quality of our products.	3.724	0.565
Our firm responds promptly to customer complaints and feedback.	3.702	0.779
Aggregate	3.773	0.676

Correlation Analysis

This research adopted Pearson correlation analysis determine how the dependent variable (performance of beverage manufacturing firms in Nairobi City County, Kenya) relates with the independent variables (ethical sourcing and green purchasing).

Table 5: Correlation Coefficients

		Organization Performance	Ethical Sourcing	Green Purchasing
Organization Performance	Pearson	1		
	Correlation			
	Sig. (2-tailed)			
Ethical Sourcing	N	219		
	Pearson	.866**	1	
	Correlation			
Green Purchasing	Sig. (2-tailed)	.001		
	N	219	219	
	Pearson	.887**	.212	1
	Correlation			
	Sig. (2-tailed)	.000	.090	
	N	219	219	219

From the results, there was a very strong relationship between ethical sourcing and performance of beverage manufacturing firms in Nairobi City County, Kenya ($r = 0.866$, p value $=0.001$). The relationship was significant since the p value 0.001 was less than 0.05 (significant level). The findings are in line with the findings of Al Shraah, *et al* (2022) who indicated that there is a very strong relationship between ethical sourcing and organization performance.

Moreover, there was a very strong relationship between green purchasing and performance of beverage manufacturing firms in Nairobi City County, Kenya ($r = 0.887$, p value $=0.000$). The relationship was significant since the p value 0.000 was less than 0.05 (significant level). The findings are in line with the findings of Didier and Kamuhanda (2025) who indicated that there is a very strong relationship between green purchasing and organization performance.

Regression Analysis

Multivariate regression analysis was used to assess the relationship between independent variables (ethical sourcing, green purchasing, green distribution and reverse logistics) and the dependent variable (performance of beverage manufacturing firms in Nairobi City County, Kenya).

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.799	.639	.638	.10482

a. Predictors: (Constant), ethical sourcing and green purchasing

The model summary was used to explain the variation in the dependent variable that could be explained by the independent variables. The r -squared for the relationship between the

independent variables and the dependent variable was 0.639. This implied that 63.9% of the variation in the dependent variable (performance of beverage manufacturing firms in Nairobi City County, Kenya) could be explained by independent variables (ethical sourcing and green purchasing).

Table 7: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	24.382	2	12.191	190.48	.002 ^b
Residual	13.785	216	.064		
Total	38.167	218			

a. Dependent Variable: performance of beverage manufacturing firms in Nairobi City County, Kenya

b. Predictors: (Constant), ethical sourcing and green purchasing

The ANOVA was used to determine whether the model was a good fit for the data. F calculated was 190.48 while the F critical was 2.414. The p value was 0.002. Since the F-calculated was greater than the F-critical and the p value 0.002 was less than 0.05, the model was considered as a good fit for the data. Therefore, the model can be used to predict the influence of ethical sourcing and green purchasing on performance of beverage manufacturing firms in Nairobi City County, Kenya.

Table 8: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.291	0.075		3.880	0.000
ethical sourcing	0.363	0.095	0.364	3.821	0.001
green purchasing	0.384	0.099	0.383	3.879	0.000

a. Dependent Variable: performance of beverage manufacturing firms in Nairobi City County, Kenya

The regression model was as follows:

$$Y = 0.291 + 0.363X_1 + 0.384X_2 + \varepsilon$$

According to the results, ethical sourcing has a significant effect on performance of beverage manufacturing firms in Nairobi City County, Kenya ($\beta_1=0.363$, p value= 0.001). The relationship was considered significant since the p value 0.001 was less than the significant level of 0.05. The

findings are in line with the findings of Al Shraah, *et al* (2022) who indicated that there is a very strong relationship between ethical sourcing and organization performance

The results also revealed that green purchasing has a significant effect on performance of beverage manufacturing firms in Nairobi City County, Kenya ($\beta_1=0.384$, p value= 0.000). The relationship was considered significant since the p value 0.000 was less than the significant level of 0.05. The findings are in line with the findings of Didier and Kamuhanda (2025) who indicated that there is a very strong relationship between green purchasing and organization performance

CONCLUSION AND RECOMMENDATIONS

Conclusions

The study concludes that ethical sourcing has a positive and significant influence on performance of beverage manufacturing firms in Nairobi City County, Kenya. Findings revealed that supplier integrity, fair trade and compliance rate influence performance of beverage manufacturing firms in Nairobi City County, Kenya. In addition, the study concludes that green purchasing has a positive and significant influence on performance of beverage manufacturing firms in Nairobi City County, Kenya. Findings revealed that eco materials, energy efficiency and waste reduction influence performance of beverage manufacturing firms in Nairobi City County, Kenya

Recommendations

The study recommends that beverage manufacturing firms in Kenya should institutionalize ethical sourcing by establishing long-term, transparent partnerships with certified local suppliers who adhere to fair labor practices, environmental sustainability standards, and traceability requirements. In addition, the study recommends that beverage manufacturing firms in Kenya should adopt green purchasing practices by prioritizing suppliers who provide environmentally friendly raw materials, recyclable packaging, and energy-efficient inputs, while also integrating environmental criteria into supplier selection and evaluation processes.

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