GREEN SUPPLY CHAIN MANAGEMENT PRACTICES AND PERFORMANCE OF FOOD AND BEVERAGE MANUFACTURING FIRMS IN KENYA

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Green Supply Chain Management Practices and Performance of Food and Beverage Manufacturing Firms in Kenya

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

Signature…….……..Date……..……

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This thesis has been submitted for examination with our approval as the University Supervisor

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DEDICATION

I wish to dedicate this thesis to my parents Robert Thiga and Lydia Wanjiku. This achievement is as a consequence of the seed for thirst of knowledge that you planted in me since I was young. I cannot forget my lovely wife Mary and my children (Laureen and Heinrich) for understanding me during the entire period and providing moral support during the study period.

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ACRONYMS AND ABBREVIATIONS

CGGCC	Centre for Green Growth and Climate Change
CIPS	Chartered Institute of Purchasing and Supply
CSR	Corporate Social Responsibility
ERP	Enterprise Resource Planning
GDP	Gross National Product
GPP	Green Public Procurement
GRI	Global Reporting Initiative
GSCM	Green Supply Chain Management
ISEA	Institute for Social and Ethical Accountability
KAM	Kenya Association of Manufacturers
PLS	Partial Least Squares
RL	Reverse Logistics
SCT	Strategic Choice Theory
SP	Sustainable Procurement
UAE	United Arab Emirates
WBCSD	World Business Council for sustainable Development

DEFINITION OF OPERATIONAL TERMS

Corporate Social Responsibility Corporate Social Responsibility (CSR) refers to the concept where businesses integrate social and environmental concerns into their operations and interactions with stakeholders. It's the practice of companies taking responsibility for the broader impact of their actions, beyond mere profit generation, to include the welfare of society and the environment (Zadek & Raynard, 2004).

Green Packaging This refers to sustainable packaging that make use of eco-friendly materials to meet the objective of packaging functions while always taking care that the packaged product remains effective and safe for human health and the environment (Pauer E., Wohner, B., Heinrich, V., & Tacker, M. 2019).

Green Procurement Green procurement can be defined as a decision-making process in which purchasers seek to acquire items, services, and projects that have a scaled-down negative environmental effect throughout their life-cycle in comparison to similar commodities, services, and projects that would otherwise be bought. (Dinu, 2020)

Organizational culture Organizational culture can be defined as shared beliefs, values, norms, symbols and social stereotype about organizational management that shapes the standard behaviors expected from the individuals (Chang, 2015).

Reverse Logistics Reverse logistics involves management of the recovery of products once they are no longer desired or can no longer be used by consumers, in order to obtain an economic return through reuse, remanufacturing or recycling (Rubio, 2017).

Green Supply Chain Management (GSCM) Green Supply Chain Management (GSCM) refers to the integration of environmental considerations into the entire supply chain process. This approach aims to minimize the environmental impact of supply chain activities while promoting sustainable practices throughout. GSCM encompasses several key variables, including reverse logistics, green procurement, green packaging, and Corporate Social Responsibility (Zhu & Geng, 2013)

ABSTRACT

This research study was to determine the relationship between the Green Supply Chain Management Practices and performance of food and Beverage manufacturing firms in Kenya. The study used explanatory research design. Census method was used where all the 172 registered food and beverage manufacturing firms in Kenya were considered. Primary data was collected using questionnaires. The data was analyzed using SPSS statistical package Version 25. From the analysis, it was noted that Green procurement, Corporate Social Responsibility, Reverse logistics and Green packaging have a significant and positive effect on Performance of food and beverage manufacturing firms in Kenya. It was concluded that Organizational Culture has a positive moderating effect on the relationship between Green procurement and performance of food and beverage manufacturing firms in Kenya. Organizational Culture has a positive moderating effect on the relationship between Corporate Social Responsibility and performance of food and beverage manufacturing firms in Kenya. Organizational Culture has a positive moderating effect on the relationship between Reverse logistics and performance of food and beverage manufacturing firms in Kenya. Organizational Culture has a positive moderating effect on the relationship between Green packaging and performance of food and beverage manufacturing firms in Kenya. Lastly, it was concluded that Organizational Culture has a positive moderating effect on the relationship between Green Supply Chain Management Practices and performance of food and beverage manufacturing firms in Kenya. The study concluded that not all firms visits the supplier's premises to confirm compliance. It was noted that not all firm's staff who attends seminars/workshops. The study also concluded that not all firms that uses the reusable and durable packaging. The study recommends that firms should implement use of returnable packaging materials such as pallets or crates, to reduce packaging waste and associated costs. This practice not only reduces costs associated with packaging but also contributes to environmental conservation by reducing landfill waste and resource consumption. The food and beverage manufacturing firms are encouraged to regularly review strategies to effectively respond to environmental changes. The study also recommended that food and beverage manufacturing firms in Kenya should conduct regular visits to suppliers, so that they align with sustainable production practices. This helps promote transparency, accountability and encourages suppliers to adopt environmentally friendly processes. Staff members should be encouraged to attend seminars and workshops focused on green procurement to allow them to stay updated on the latest trends and practices in sustainability.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Grandia (2015) defines Green Supply Chain Management Practices (GSCMP) as a strategy used by a company to make purchases that are favorable to the environment, low-cost for the business, and advantageous to the general public. According to Cabras (2011), Green Supply Chain Management Practices is the process of achieving organizational goals and objectives in terms of required goods and services, utilities, and works in a cost-effective manner while simultaneously taking care of society as a whole and minimizing environmental damage. According to Amaratunga and Baldry (2012), procurement performance is very important for any business that wants to grow and become more competitive through the quality of their customer service. The absence of procurement performance, according to Van Weele (2012), hinders the organization's efforts to perform and affects the progression of the purchasing function. Therefore, it is essential for businesses to achieve significant procurement performance levels in terms of efficiency, environmental compliance, and supply quality (Van Weele, 2012).

Service delivery in Kenya's food and beverage manufacturing businesses, as well as in the private and public sectors, may be impacted by green supply chain Management practices methods. According to CIPS (2012), "sustainability" is essentially the ability of an activity to be maintained at a similar level in the future. Green supply chain practices, as commonly understood today, refers to making decisions that won't obstruct or threaten our future plans or quality of life. It also entails making sure that the transactions we do now won't impede or threaten our future ambitions or standard of living. According to the Green Supply Chain Management Practices guide (BIP2203) published by the British Standard institution, Green Supply Chain Management Practices is defined as adopting a long-term perspective when making decisions to ensure that satisfaction of the organization's needs for tangible goods, services, works, and utilities in a way that realizes

value for money on a whole-life basis in terms of generating benefits not only to the environment but also to the organization's bottom line.

1.1.1 Global Perspective of Green Supply Chain Practices

Over the years, there has been an increased concern regarding the environmental effects caused by industrial operations around the world. There exists also a pressure increase in the economic and social fields to adopt principles and practices that guarantee continuous improvement in the area of business performance. The integration of social, economic and environmental responsibilities has been defined as sustainability, and now considered part of day-to-day businesses practices in the search for better ways to operate the industry (Kumar & Rahman, 2016).

Various countries, such as the United Arab Emirates (UAE), are making use of diverse policies to drive Green Supply Chain Management Practices although in the public sector, which can range from single-aspect guidelines or policies to more comprehensive action plans. The UAE has consistently embarked on enhancing the sustainability of its economy over the past few years (Vcantugakkas & Yapin, 2017).

The UAE established the Ministry of Climate Change and Environment to tackle climate change issues in a way that is both economically logical and protective of natural resources (Gulf News, 2016). Pursuant to this goal, it has focused on green procurement in the public sector in collaboration with the relevant agencies (Aamir, 2017) which has resulted in drastic reduction in total government spending. This has resulted in the expectation that government purchases of sustainable products and services will drive the market toward sustainable development.

Grandia et al. (2015) claim that there are records of successful outcomes as a result of the use of green supply chain management practices by numerous businesses throughout the world. For instance, IBM Global Business in the United States reported improved performance as a result of Green Supply Chain Management Practices (Amtzen, Brown,

Harrison & Trafton, 2015). According to Agarwal & Vijayvargy (2012), green procurement improved the procurement performance of Coca-Cola Company in the United States. Furthermore, according to Hervani, Helms, and Sarkis (2015), South Korean companies' procurement significantly improved after applying Green Supply Chain Management Practices.

In 2003, the European Commission (EC) took up a communication on Integrated Product Policy (IPP). This described their plan for reducing the harm that products do to the environment. In this statement, the commission has chosen a number of initiatives to encourage ongoing development of products' environmental performance throughout the course of their whole lifecycles. On the Green public procurement (GPP), the commission inspired member states to come up publicly with available National Actions Plans (NAPs) for greening their public procurement (Zuzana, 2012).

The Sustainable Supply Chain (SSC), which deals with business processes like procurement, assembly and production of materials, storage and distribution of products, customer service, and three-dimensional methods (economy, society, and environment), has been developed in response to the organization's need for performance improvement and sustainable achievement. As a result, firms have developed strategies and tools to include and put into practice sustainable practices all throughout the supply chain (ChardineBaumann & BottaGenoulaz, 2014). This has been termed as sustainable supply chain management (SSCM). These practices have generated a growing need to understand how an organization should manage their supply chain processes and participate with its suppliers to increase the focus on sustainability and enhance performance.

According to this viewpoint, procurement is essential to the supply chain because it offers the tools necessary for the chain to function (Kaur, Singh, Garza-Reyes, & Mishra, 2018). Additionally, Green Supply Chain Management Practices supports the overall strategy and prompts the adoption of standards that will create social, environmental, and economic benefits when the firm promotes its operations in line with sustainable policies. Over the past two decades, private organizations have increasingly adopted green

procurement practices for specific products. Concurrently, they are scrutinizing the materials, substances, and chemicals used in the goods and services they provide. This supply chain approach extends beyond the company's immediate operations, focusing on reducing costs and mitigating risks. Leading firms are employing life-cycle assessment and material tracking tools to identify and manage materials, substances, and chemicals in their products that pose significant environmental, health, and safety risks, and redesigning their products to minimize or eliminate these harmful components. In the private sector, green procurement is recognized as a strategy to enhance products and operations from an environmental perspective, aiming to reduce risk, lower total cost of ownership, and improve supply chain performance (Chopra, 2012).

Green procurement activities typically have confidence established product standards, labels and certifications that declare the environmental attributes or performance of the merchandise. Driven by bottom-line performance, leading personal sector corporations see green procurement as a logical part of effective purchasing and supply chain management practices. Private corporations usually use in-house and third-party evaluations to form well-read green procurement decisions. Private corporations however are reluctant to determine green procurement activities unless there are clearly demonstrated business advantages for themselves and/or their customers (Sarkis, 2015).

1.1.2 Regional Perspective of Green Supply Chain Practices

The regional perspective of Green Supply Chain Management (GSCM) practices in Africa reflects a growing awareness of sustainability challenges amid significant economic and environmental pressures. Various studies indicate that African countries are increasingly adopting GSCM practices to address issues such as resource scarcity, pollution, and the need for sustainable development (Ahi & Searcy, 2015). For instance, the adoption of environmentally friendly practices in the agricultural sector has been noted as a critical area where GSCM can lead to improved efficiency and reduced environmental impact (Mannan et al., 2019).

In East Africa, particularly, countries like Kenya and Uganda have begun to integrate GSCM into their policies and practices, driven by both regulatory frameworks and market demand for sustainable products (Kibera et al., 2022). However, the implementation of GSCM is often hampered by challenges such as inadequate infrastructure, limited access to financing, and a lack of awareness regarding sustainable practices among local businesses (Ojo et al., 2021).

Moreover, the regional perspective reveals a disparity in GSCM adoption across the continent. While some nations, such as South Africa, have made significant strides in developing comprehensive GSCM frameworks, others lag behind due to economic and institutional barriers (Seuring & Müller, 2008). Collaborative initiatives, such as the African Union's Agenda 2063, emphasize the importance of sustainable practices and call for enhanced regional cooperation to facilitate knowledge sharing and resource mobilization (African Union, 2015).

Unilever Plc East and West Africa reported that it has obtained a competitive advantage as a result of the discovering of procurement performance as a result of Green Supply Chain Management Practices techniques, according to Brammer & Walker (2011). Some African nations, including South Africa, have had success with procurement as a result of imposing sustainability requirements inside their supply chain management policy, which enables staff to take environmental considerations into account when making buying decisions. Other African businesses that have benefited from green procurement include: Pepsi, Nestlé, Philips, and others (Kim & Chai, 2017).

The manufacturing sector in Kenya constitutes 65% of the industrial sectors contribution to GDP, with building, construction, mining and quarrying contributing the remaining 30% (Kennedy & Brian, 2009). Kenya’s manufacturing sector is among the major productive sectors of the economy identified under vision 2030 which can prompt growth (Kirungu, 2012). Kenya recognized the importance of the manufacturing sector for long-term economic development.

Indeed, the growth targeted for manufacturing stated by the government in its Vision 2030 document were ambitious and required rapidly increasing investment levels, eventually reaching levels above 30% of GDP (GoK, 2013). The improved levels of poverty coupled with the general slowdown of the economy had continued to reduce growth in the demand of locally manufactured goods, as effective demand continued to shift more in favor of slightly cheaper imported manufactured items. According to World Bank (2013), the manufacturing sector contributes directly to 10% of the Kenya's GDP.

The sector comprises of 3,500 manufacturing units and recruits 300,000 persons and nearly 500,000 indirectly which accounts for 13% of the labor force in the formal sector in Kenya. The manufacturing industry has huge but untapped potential in promoting employment and GDP growth. Witjaksono (2012) notes that since the sector is not restricted to land size. It has high growth prospects compared to the agriculture sector. It is noted that its contribution to GDP has continued to stagnate at about 10% with its contribution to wage employment on a declining trend (Smith, 2011). Kenya's share of manufacturing exports to the global market is dismal and stands at 0.02% compared to South Africa which is at 0.3 %.

1.1.3 Local Perspective of Green Supply Chain Practices

In Kenya, while the adoption of green supply chain practices in Kenya's food and beverage sector is still evolving, there is a notable shift towards more sustainable practices. This transition reflects a growing commitment to environmental stewardship and aligns with broader global trends towards sustainability. As the country grapples with issues such as waste management, resource efficiency, and environmental degradation, food and beverage manufacturers are increasingly adopting green supply chain practices to align with both regulatory requirements and consumer expectations. Green supply chain practices in Kenya's food and beverage industry often involve initiatives such as green procurement, which focuses on sourcing raw materials from suppliers that adhere to sustainable practices. This includes selecting suppliers who use eco-friendly packaging

and materials, thereby reducing the overall environmental footprint of products (Ngugi & Gachanja, 2015).

In addition, manufacturers are implementing waste management strategies that involve recycling and the use of biodegradable packaging to mitigate the environmental impact of their operations. For instance, companies like Kenya Breweries Limited have been recognized for their efforts in recycling waste and reducing water usage in their production processes (Wanjiru, 2018). Reverse logistics is another critical aspect of GSCM in Kenya, where companies are establishing systems to handle the return and disposal of used packaging materials and expired products in an environmentally responsible manner. This not only helps in managing waste but also in recovering valuable resources, thus supporting a circular economy model (Kariuki, 2020). The integration of these green practices is driven by a combination of regulatory pressures, such as Kenya's Environmental Management and Co-ordination Act, and the increasing demand from consumers for environmentally responsible products. Food and beverage firms are recognizing that adopting green supply chain practices can enhance their brand image, reduce operational costs, and improve compliance with environmental regulations (Mwangi, 2019).

1.2 Statement of the Problem

Food and beverage manufacturing firms in Kenya are increasingly adopting green supply chain management (GSCM) practices, such as green procurement, waste reduction, and reverse logistics, in response to both regulatory pressures and consumer demand for sustainability. However, there is limited empirical evidence on how these green practices impact the performance of these firms. Specifically, the effectiveness of GSCM practices in enhancing operational efficiency, reducing costs, and improving market competitiveness within the Kenyan food and beverage sector remains under-researched (Kariuki, 2020). This study seeks to address this gap by examining the relationship between the implementation of GSCM practices and the performance outcomes of food and beverage manufacturing firms in Kenya, with the aim of identifying the specific

benefits and challenges faced by these firms in their pursuit of sustainability. In addition, food and beverage manufacturing firms in Kenya have been experiencing diminishing profitability in their production and operations management (KAM, 2019). According to the World Bank (2018), the food and beverage manufacturing sector recorded a significant drop in growth from 2.7% to 0.2%. This reduction in growth has necessitated an increase in imports which has led to a reduction in market share for Kenyan food and beverage manufacturing firms (Apurva & Conte, 2016). Customer satisfaction has decreased in the food and beverage production industry as a result of supply chain disruptions brought on by worries about food safety, a lack of supply, and rising pricing (Muthoni & Mose, 2020).

Similar studies have been done but largely focus on Asia, America and Europe with a limitation in the regional perspective. In Kenya, Nyaga & Achuora, (2020) did the same study but only narrowed on manufacturing firms in Nairobi County. Telewa (2014) did a study on sustainable procurement but focused on public water sector. Muthoni (2020) did a study on influence of supply chain management methods on the performance of Kenyan food and beverage manufacturing companies. Lee & Yu (2004) investigated the relationship between organization culture and organizational performance using a sample of companies from three sectors: high-tech firms, hospitals and insurance companies. Their results confirmed the positive impact of organization culture on organizational performance. Given this background, the study used organizational culture as a moderating variable in research examining the impact of green supply chain management (GSCM) practices on performance in the food and beverage manufacturing in Kenya.

1.3 Objectives of the Study

1.3.1 General Objectives

The general objective of the study was to establish the relationship between Green Supply Chain Management Practices and performance of food and beverage manufacturing firms in Kenya.

1.3.2 Specific Objectives

1 To determine the relationship between Green procurement and performance of food and beverage manufacturing firms in Kenya.
2 To assess the relationship between Corporate Social Responsibility and performance of food and beverage manufacturing firms in Kenya.
3 To examine the relationship between green packaging and performance of food and beverage manufacturing firms in Kenya.
4 To analyze the relationship between reverse logistics and performance of food and beverage manufacturing firms in Kenya.
5 To establish the moderating effect of Organizational culture on the relationship between Green Supply Chain Management Practices and performance of food and beverage manufacturing firms in Kenya.

1.4 Research Hypotheses

H_{01}: Green procurement has no significant relationship with performance of food and beverage manufacturing firms in Kenya.

H_{02}: Corporate Social Responsibility has no significant relationship with performance of food and beverage manufacturing firms in Kenya.

H_{03}: Green packaging has no significant relationship with performance of food and beverage manufacturing firms in Kenya.

H_{04}: Reverse logistics has no significant relationship with performance of food and beverage manufacturing firms in Kenya.

H_{05}: Organizational culture has no moderating effect with the relationship between Green Supply Chain Management Practices and performance of food and beverage manufacturing firms in Kenya.

1.5 Justification of the Study

1.5.1 Policy Makers and Regulators

Research in the area of Green Supply Chain Management (GSCM) practices and their impact on the performance of food and beverage manufacturing firms in Kenya offers significant benefits to policymakers and regulators. By understanding the current adoption levels and effectiveness of GSCM practices, policymakers can design targeted regulations and incentives that encourage sustainable practices across the industry. For instance, insights from research can help identify specific barriers such as financial constraints or lack of awareness that hinder the adoption of green practices, enabling regulators to implement supportive measures such as subsidies, training programs, or improved access to technology.

Furthermore, the evidence generated from such studies can inform the development of frameworks that align with international sustainability standards, promoting competitiveness in global markets. Overall, leveraging research findings allows policymakers to create a conducive environment for sustainable development, ultimately enhancing the overall resilience and sustainability of the food and beverage sector in Kenya.

1.5.2 Consumers

Consumers will benefit significantly from research on Green Supply Chain Management (GSCM) practices within the food and beverage sector in Kenya, as it can lead to greater transparency and higher quality products. As firms adopt sustainable practices informed by research findings, consumers are likely to see improvements in the environmental impact of the products they purchase, including reduced packaging waste, lower carbon footprints, and more ethical sourcing of ingredients. This alignment with sustainability can enhance consumer trust and brand loyalty, as increasingly eco-conscious shoppers prefer products from companies committed to environmental stewardship.

The research insights can inform consumers about the benefits of choosing sustainably produced goods, potentially leading to healthier options and better food safety standards. Ultimately, as firms improve their GSCM practices, consumers can enjoy not only improved product quality but also the satisfaction of supporting businesses that contribute to a more sustainable future.

1.5.3 Food and Beverage Manufacturing Firms

Food and beverage manufacturing firms in Kenya stand to gain significantly from research on Green Supply Chain Management (GSCM) practices and their performance outcomes. By analyzing the effectiveness of various GSCM strategies, firms can identify best practices that lead to improved operational efficiency, reduced waste, and cost savings. Research findings can provide valuable insights into how adopting sustainable practices not only enhances environmental performance but also boosts competitiveness in an increasingly eco-conscious market.

Understanding the correlation between GSCM and improved financial performance can motivate firms to invest in sustainable technologies and processes, ultimately leading to better product quality and consumer loyalty. Moreover, such research can inform firms about regulatory compliance and potential incentives, helping them navigate the complex landscape of environmental policies. Overall, engaging with this research empowers food and beverage manufacturers to align their operations with sustainability goals, enhancing their resilience and long-term viability in a dynamic industry.

1.5.4 Researchers and Scholars

Researchers and scholars stand to gain significantly from investigations into Green Supply Chain Management (GSCM) practices and their performance implications for food and beverage manufacturing firms in Kenya. Such research provides a rich context for exploring theoretical frameworks and empirical models that address sustainability challenges in developing economies. By examining the unique socio-economic and

regulatory landscapes of Kenya, scholars can contribute to a deeper understanding of how GSCM practices are adopted, implemented, and measured in varied contexts.

In addition, the findings can fill existing gaps in the literature regarding the relationship between environmental sustainability and operational performance, fostering new avenues for academic inquiry. This research also offers opportunities for comparative studies across different regions or industries, enriching the global discourse on sustainable supply chains. Ultimately, it aids in building a robust body of knowledge that can inform future studies, enhance academic curricula, and inspire innovative solutions to pressing environmental issues in supply chain management.

1.5.5 Investors and Financial Institutions

Investors and financial institutions can derive substantial benefits from research on Green Supply Chain Management (GSCM) practices and their impact on the performance of food and beverage manufacturing firms in Kenya. Understanding the financial implications of adopting GSCM practices allows investors to make informed decisions about funding and investment opportunities. Research findings can highlight the potential for cost savings, increased efficiency, and enhanced brand reputation associated with sustainable practices, making firms more attractive to investors who prioritize environmental, social, and governance (ESG) criteria.

Insights into the performance metrics linked to GSCM can help financial institutions develop tailored financing products, such as green bonds or loans with favorable terms for companies implementing sustainable practices. This alignment not only mitigates risks associated with environmental liabilities but also opens avenues for investors seeking to support sustainable development goals in emerging markets. Ultimately, this research fosters a clearer understanding of the value proposition of sustainability in the supply chain, encouraging capital flows toward more responsible and resilient business practices.

1.6 The Scope of the Study

Although Kenya's manufacturing section is diverse, involving various sub-sectors such as automotive, metal works and plastics, Agro-processing, energy, electrical and electronics, among others, Food and beverage takes the biggest share in the manufacturing subsector (KAM, 2021). Manufacturing companies that produce food and beverages include those that make chocolate and confections from beans, margarine, and milk, as well as distilleries and breweries that produce alcoholic and non-alcoholic beverages. With $280 million in annual sales, Kenyan beer industry is a strong economic driver.

The manufacturing of food and beverages is the largest manufacturing sector and a substantial contributor to the economy, which makes it a topic of interest. The focus of the research study is on Kenyan food and beverage manufacturing companies' performance and green supply chain practices. All 172 registered food and beverage manufacturing companies in Kenya were included in the research study, and the following independent variables were used: green procurement, corporate social responsibility, green packing, and reverse logistics. The study also looked closely at the organizational culture's moderating impact on the relationship between green supply chain management practices and the performance of Kenyan food and beverage manufacturing companies.

1.8 Limitations of the Study

Fear of being victimized led some respondents not to cooperate with the study's request for information. It was difficult for the research assistants to convince respondents of the significance of completing the questionnaire and participating in the study. Providing respondents with an explanation of the study's benefits solved this problem.

Some respondents took more time to give the feedback. This is due to the nature of their work. This was resolved by encouraging the research assistants to revisit them and in their respective firms and remind them to secure some time to fill the questionnaire. This improved the responsive rate.

Since Census method was used in this study where all the 172 Kenyan Food and Beverage Manufacturing firms were to be considered and the firms are situated in different parts of the Country, it was a challenge to reach out to some firms in remote areas physically. This was resolved by engaging the respondents online through an online questionnaire. Follow up was done to ensure that the online questionnaires were filled.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The literature review covers theories related to the research. The study looked at empirical studies that demonstrated pertinent scholarly work on a range of study-related topics of interest and gaps. The conceptual framework that was employed in the investigation is summarized in the chapter. The explanation of the study's independent variables is also discussed and review of the relevant literature. Research gaps were discussed and the chapter was concluded with a summary.

2.2 Theoretical Framework

A theoretical framework can be defined as the 'blueprint' or guide for a research (Grant & Osanloo, 2014). It is a framework that is based on an existing theory in an area of inquiry that is related and shows the hypothesis of the study. It is a blueprint that is often adopted by the researcher to build his/her own house or research inquiry. It is the inspiration upon which a research is made. Sinclair (2007), Fulton and Krainovich-Miller (2010) compare the role of the theoretical framework to that of a map or itinerary. Thus, when travelling to a particular location, the map guides one's path. Likewise, the theoretical framework guides the researcher so that s/he would not deviate from the boundaries of the accepted theories to make his/her last contribution scholarly and academic. Thus, Brondizio, Leemans, and Solecki (2014) concur that the theoretical framework is that the specific theory about aspects of human endeavor which will be useful to the study of events. The theoretical framework consists of theoretical principles, constructs, concepts, and tenants of a theory (Grant & Osanloo *et al*, 2014).

2.2.1 Strategic Choice Theory

Theory of strategic choice was invented by Jemison, 1981. The theory assumes that relationship and interaction occur between firms' operations and certain occurrence (Kegoro & Anyango, 2020). Strategic choice theory depicts the effect of decisions made by top management on the performance of a firm along with the interaction between the internal and external organization (Addae, Nana, Boohene & Mavis, 2019). A strategic choice model by Campling and Micheson (2015) shows the connection between an organization, its actions and the resulting performance. A decision by the top management to adopt green procurement practices may position the organization at a certain level with good reputation and hence enable the organization gain a competitive edge.

Strategic Choice Theory (SCT) views a firm with managers as the staff who makes decisions and makes changes in organizations (Alshundreh, Alsharari & Al Kurdi, 2019). These decisions include sources of raw materials with no negative impact on the environment, quantities to be purchased based on demand, transportation, production scheduling and planning all which affect the achievement of organizational performance. Further, strategic choice theory indicates that a firm deploys practices such as green procurement that will foster success even in complex and vibrant environments (Ensafiari & Yaghoubi, 2017). Changes in the environment can also lead to managers making decisions at the corporate level and garnering support from other business units. Implementing green procurement practices such as acquiring and producing goods that have no negative impact to the environment enables the organization to evade unnecessary costs such as Waste management costs, energy costs, regulatory compliance costs, health and safety costs and brand damage costs hence improving performance. Strategic choice theory is relevant in this study through understanding the procurement practices and processes which may be suggested by the top management with less or no negative impact to the environment and hence sustainability.

Strategic Choice Theory (SCT) posits that organizations make decisions based on a combination of environmental factors and internal preferences, emphasizing the role of

agency and rationality in strategic planning (Child, 1997). In the context of green procurement, SCT serves as an independent variable that influences an organization's sustainability practices and purchasing decisions. Organizations that adopt green procurement practices are often guided by strategic choices that align with their overall environmental goals, regulatory pressures, and market demands (Zhu & Geng, 2013).

By leveraging SCT, firms can analyze how their strategic decisions regarding procurement not only contribute to sustainability but also affect their competitive positioning. For instance, organizations may opt for sustainable suppliers to enhance their corporate social responsibility image, thereby influencing customer preferences and potentially increasing market share (Walker et al., 2012). Ultimately, the integration of Strategic Choice Theory into green procurement underscores the importance of deliberate decision-making processes that reflect both internal capabilities and external environmental pressures, guiding organizations toward sustainable practices.

2.2.2 Resource Based View

The theory of Resource based view assumes that firm achieves competitive advantage and intended performance by deploying firm unique resources and capabilities as indicated by Barney (1991). The theory also assumes that resources in a firm are different within the industry and that their capabilities are not transferable as they are firm-specific hence ensuring that the firm’s source of competitive advantage in the delivery of value to customers remains sustainable over time (Addae, Nana, Boohene & Mavis, 2019).

The Resource Based View theory concentrates on the internal strengths and weaknesses of a firm rather than external risks and opportunities that exist that are much more difficult to control. (Boopathi & Krishnamoorthi, 2016) provides attempts to explain and forecast how organizations gain competitive advantage through acquisition, monitoring and evaluation of available resources. The theory is grounded on the tenet that attributes of a firm that are capital intensive to imitate, provide a means for the firm to acquire competitive advantage that yields sustained high ranking performance (Daniel, 2016).

The theory suggests that for an organization to achieve expected performance results, it needs to foster unique competencies that will aid in their sustained competitive advantage. The Resource-Based View (RBV) theory supports the use of green packaging by highlighting how such practices can be leveraged as strategic resources that contribute to a firm's competitive advantage. This theory posits that resources that are valuable, rare, inimitable, and non-substitutable (Barney, 1991) can help firms achieve and sustain competitive advantage.

Green packaging is valuable because it helps firms meet regulatory requirements and respond to consumer preferences for sustainability. This can enhance a firm's reputation, reduce costs associated with waste and energy, and open up new market opportunities. Recent studies highlight that adopting green packaging can lead to better financial performance and competitive positioning by aligning with growing consumer demand for environmentally friendly products (Murray, 2020). This supports the use of green packaging as an initiative which can be utilized by organizations in achieving increased performance.

The Resource-Based View (RBV) of the firm emphasizes the importance of internal resources and capabilities in achieving competitive advantage (Barney, 1991). When applied to green packaging, RBV positions it as an independent variable that significantly influences a company's sustainability efforts and market performance. Organizations that invest in sustainable packaging solutions leverage their unique resources, such as innovative technologies, skilled personnel, and strong supplier relationships, to create environmentally friendly products (Dangelico & Vocalelli, 2017). This strategic use of resources not only enhances the firm's reputation but also aligns with consumer preferences for eco-friendly practices, ultimately driving customer loyalty and market differentiation (Kumar & Singh, 2019).

In addition, firms that effectively integrate green packaging into their operations can reduce waste and optimize resource usage, leading to cost savings and operational efficiency (Mishra & Sharma, 2018). By focusing on the unique capabilities associated

with green packaging, organizations can better navigate the challenges of sustainability while positioning themselves competitively in an increasingly environmentally conscious market.

2.2.3 The Stakeholder Theory

According to Harrison and Freeman (2009), they defined the concept of a stakeholder approach in relation to reverse logistics management to include any individual or group who can influence the organization's performance or who is affected by the achievement of the organizations' goals and objectives. The stakeholder theory is grouped into two: strategic stakeholder who emphasizes the active management of stakeholder interests and moral stakeholder interested in balancing stakeholder interests (Frooman, 2009).

Stakeholder Theory, which emphasizes the importance of considering the interests and well-being of all parties affected by a firm's operations, is particularly relevant in the context of reverse logistics. Reverse logistics is the process of managing the return, recycling, and disposal of products, directly impacts various stakeholders including customers, employees, suppliers, and the broader community. A recent study by Hu and Zhao (2022) illustrates how integrating stakeholder interests into reverse logistics can enhance both environmental and operational outcomes. According to their research, firms that effectively address the environmental concerns of customers by implementing robust reverse logistics practices can achieve greater customer satisfaction and loyalty. This alignment not only responds to consumer demands for sustainable practices but also helps companies comply with regulatory pressures and improve their environmental performance.

López and Pardo (2023) highlights that involving employees and suppliers in reverse logistics processes is crucial for ensuring effective implementation and maintaining fair labor practices. By engaging these stakeholders, firms can improve the efficiency and effectiveness of their reverse logistics operations, which in turn can lead to better resource recovery and cost savings. Additionally, reverse logistics initiatives that prioritize

community interests, such as reducing landfill waste and promoting recycling, align with broader societal goals and enhance corporate reputation.

This stakeholder-centric approach in reverse logistics not only addresses the direct concerns of individual stakeholders but also supports broader sustainability objectives, demonstrating how Stakeholder Theory can guide the development of more responsible and effective reverse logistics strategies. By considering the diverse interests of all affected parties, companies can create value across the supply chain and contribute to environmental and social sustainability.

Stakeholder Theory posits that organizations must consider the interests and impacts of all stakeholders, including customers, suppliers, employees, and the broader community, in their decision-making processes (Freeman, 1984). When applied to reverse logistics, this theory serves as an independent variable that shapes how companies manage the return and recycling of products. Organizations adopting reverse logistics practices are increasingly motivated by the need to address stakeholder concerns regarding environmental sustainability and resource efficiency (Rogers & Tibben-Lembke, 1998).

Customers are becoming more aware of the environmental impacts of their purchases and often prefer companies that demonstrate responsibility through effective reverse logistics strategies (Lamberti & Noci, 2012). Moreover, regulatory bodies and non-governmental organizations exert pressure on firms to establish robust reverse logistics systems that facilitate recycling and waste reduction, reflecting a growing emphasis on corporate accountability (Govindan et al., 2015). By aligning their reverse logistics operations with stakeholder interests, companies can enhance their reputation, foster customer loyalty, and gain a competitive edge in an increasingly sustainability-focused market.

2.2.4 Institutional Theory

Institutional Theory, a significant framework in organizational studies, was primarily developed by scholars such as John W. Meyer and Brian Rowan in their foundational

work during the early 1970s. The purchase, make use of and discarding of goods and services have an effect on the normal situation and the social fabric of the public. Whereas individual consumers buy, organizations across all sectors acquire goods and services on a far greater extent, exerting an 'increasingly authoritative pressure on the economy and society' (Green, 2000:207). Collectively and individually, organizations are in an authoritative position to contribute towards the sustainable use of resources through their procurement alternatives. The magnitude of spending allocated to organizational procurement, especially in huge organizations including multinational corporations and governments, is substantial (Callender & Matthews 2003).

This theory justifies the implementation of Green Supply Chain Practices. It was derived from the field of management studies as recommended by Sarkis et al. 2011; Seuring & Muller 2008, exploring the leading theories on why business organizations perform as they do in matters relating to stakeholders. Institutional theory is a highly dominant framework in terms of elucidating shifts to corporate sustainability. On this view, firms take up positions on sustainability due to normative or other external pressures (Matten & Moon 2008; Yang & Rivers 2009) which provide an enlightenment why organizations shift towards Green Supply Chain practices.

The study looks at the prospect that outsiders to the company may be able to shed light on certain strategic choices that businesses make, such those related to green supply chain practices, that help them become relevant and acceptable in society. This view holds that organizations can improve performance and attain a competitive advantage by being socially responsible to the society thereby building a good reputation (eg Aragon-Correa and Sharma, 2003; Sharma, 2009). Keindorfer et al. (2005) suggest closed loop systems deliver double rewards through savings from redundant manual product recovery programs as well as gains for sustainability in reducing waste and resources associated with virgin materials.

This is part of a more holistic considerate of Green Supply Chain Management Practices that has emerged in the literature (Preuss 2009; Seuring & Müller 2008; Seuring et al.

2008). From a purely "green" perspective, interest is now changing to an approach that considers performance according to the triple bottom line, underpinned by the larger ideas of corporate sustainability and corporate social responsibility (CSR) (Pagell, Wu & Wasserman 2010; Seuring & Müller 2008).

Institutional Theory posits that organizations are influenced by the norms, values, and expectations of the broader social and institutional context in which they operate (Scott, 2008). This perspective is particularly relevant to Corporate Social Responsibility (CSR), as it frames CSR practices as a response to institutional pressures from various stakeholders, including governments, industry associations, and the public (DiMaggio & Powell, 1983). Organizations often adopt CSR initiatives to conform to societal expectations and enhance their legitimacy, thereby ensuring their survival and success in competitive markets (Brammer & Millington, 2008). For example, firms in industries with high social scrutiny, such as energy and manufacturing, may implement robust CSR strategies to mitigate reputational risks and comply with regulatory requirements (Campbell, 2007).

Institutional environments characterized by strong normative and coercive pressures can lead organizations to adopt similar CSR practices, resulting in isomorphic behaviors across firms within the same industry (Meyer & Rowan, 1977). Ultimately, Institutional Theory highlights the importance of external influences in shaping CSR as a strategic response to the evolving expectations of stakeholders, illustrating how organizations navigate complex social landscapes to achieve legitimacy and competitive advantage.

2.2.5 Schein's Theory of Organizational Culture

The theory consists of three domains: basic underlying assumptions, espoused values, and artifacts. Artifacts are the surface level of an organizational culture, tangible, easily seen and felt which are manifested in the products, physical environment, language, technology, clothing, myths and stories, published values, rituals and ceremonies of the organization (James & Jones, 2005). Espoused beliefs and values include strategies, goals,

shared perceptions, shared assumptions, norms, beliefs and values instilled by founders and leaders. According to James and Jones (2005) basic underlying assumptions are the base level of organizational culture, and are the deeply-embedded, unconscious, taken for granted assumptions that are shared with others Any challenge of these assumptions will result in anxiety and defensiveness which will affect the stability that is necessary for good performance. Strong values in terms of clear goals and strategies is undeniably required for good performance while and organization lacking in this aspect, manifest poor performance attributes. This theory suggests that the basic artifacts, espoused values and underlying assumptions should be reflected in an organizational culture so as to promote organizational performance.

Adaptability is the ability of business managers to perceive and respond to external environments (Schein, 2010). This implies that business managers are passionate and responsive to internal and external factors and have the ability to modify the existing organizational culture to accommodate necessary changes. The change includes improving and modernizing internal departments and products in response to external competitions (Mousavi, 2015). An effective organizational culture includes a set of fundamental assumptions that the members of the organization are exposed and developed in dealing with external adaptation problems (Cian & Cervai, 2014).

Schein's Theory of Organizational Culture provides a comprehensive framework for understanding how culture shapes organizational behavior and effectiveness. According to Schein (2010), organizational culture consists of three interconnected levels: artifacts (visible structures and processes), espoused values (strategies and goals), and basic underlying assumptions (deeply held beliefs). As an independent variable, organizational culture influences various aspects of an organization, including employee engagement, decision-making, and overall performance. For instance, a strong, positive organizational culture can enhance employee motivation and foster a sense of belonging, which in turn can lead to increased productivity and innovation (Kotter & Heskett, 1992).

Conversely, a negative or toxic culture can impede communication and collaboration, ultimately affecting organizational effectiveness (Cameron & Quinn, 2011). Schein's framework emphasizes the importance of leaders in shaping and sustaining culture, as their behaviors and values significantly impact the underlying assumptions of the organization (Schein, 2010). By recognizing organizational culture as a critical independent variable, organizations can strategically manage cultural elements to align with their goals and improve overall performance.

2.3 Conceptual Framework

In a statistical perspective, the conceptual framework describes the connection between the most ideas of a study. It is organized in a logical structure to aid provide a picture or visual display of how ideas in a study relate to one another (Grant & Osanloo *et al*, 2014). Interestingly, it shows the series of actions the researcher intends to carry out in a research study (Dixon, Gulliver & Gibbon, 2001). The framework makes it easier for the researcher to simply specify and define the ideas within the problem of the study (Luse, Mennecke & Townsend, 2012).

The key variables in this study are categorized as independent variable (Green Supply Chain Practices) and dependent variable (performance of Kenyan food and beverage manufacturing firms). This study focused on the following independent variables; Green procurement, Corporate Social Responsibility, Green packing, Reverse logistics and organizational culture as a moderating variable.

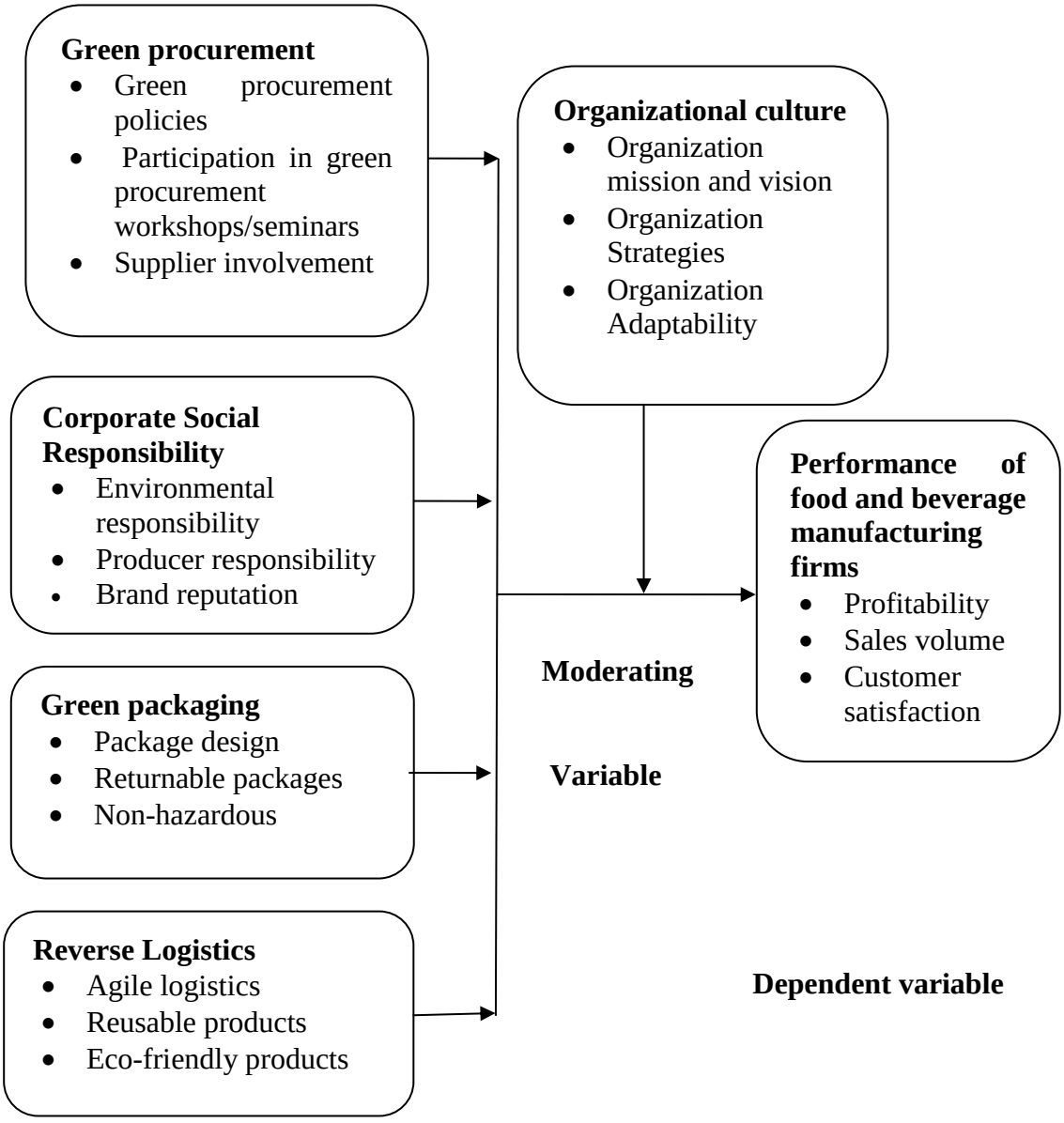

Figure 2.1: Conceptual Framework

2.3.1 Green Procurement

Green supply chain is a concept that combines green procurement, environmental management of manufacturing materials, environmental circulation marketing and reverse logistics (Yunis et al., 2016). Green practices for managing the supply chain, as defined by (Rakani et al.,2010) is the incorporation of natural reasoning into SCM, considering item plan, provider choice, material obtaining, fabricating processes, item bundling, conveyance of item to the customers and the end life the board of the item after its utilization. It deals with the purchase of products that are designed with environmental objectives and impact in mind. Practice involves cross-functional teams, supplier input, expertise and technology in response to customer demands. Such practices constitute implied, firm specific and inimitable strategic resources (Kirchoff et al., 2016).

Collaboration with suppliers on environmental initiatives is critical to the firm's performance. It is essential to have reliable suppliers in order to continuously provide customers with products and services that are desirable in every aspect, such as quality, price, and environmental impact, and in a timely manner. Environmental audit is a common term that can reflect a variety of types of evaluations intended to identify environmental compliance and management system implementation gaps, along with related corrective actions. In this way they perform a similar function similar to financial audits. There are generally two different types of environmental audits: compliance audits and management systems audits.

Environmental sensitization proves important for several reasons: it fosters a sense of connection to the natural world, promotes sustainable development and encourages conservation of irreplaceable natural resources and vulnerable plant and animal species. Environmental sensitization essentially serves as an educational tool, helping people around the world understand the economic, aesthetic and biological importance of preserving resources and reducing or eliminating the harmful impacts of man-made alterations. The choosing of goods and services that reduce environmental impacts is environmentally responsible or 'green' procurement. At all the various stages of its life

process a firm is required to do an examination of the effects of a product on the environment (Blome, 2014).

The commitment of a firm to contemplate and reduce the environmental results of its actions is demonstrated by practicing green supply chain management practices demonstrates. It therefore makes both monetary and environmental sense (Sterner, 2012). Limited natural resources are consumed or used in a sustainable manner in producing green like sustainable forestry. According to Russo and Cardinali (2012), incorporating environmental considerations into the company's strategic and operational decisions is a good management practice. As a result, a number of businesses employ various management concepts and sustainable thinking (Huang and Keska, 2013). As a result, the procurement function has deliberately placed itself at the center of sustainability as organizations strive for environmental compliance and fitness. As a result, it has been determined that certain procurement practices' green initiatives have resulted in improved procurement performance (Huang and Keska, 2013). Green specification is a well-known green procurement program (Agarwal and Vijayvargy, 2012).

Green procurement policies are formal guidelines and strategies that organizations implement to ensure that their purchasing decisions support environmental sustainability. These policies typically include criteria for evaluating the environmental performance of products and suppliers, and they guide decision-making to favor eco-friendly products. Recent studies highlight that robust green procurement policies lead to significant environmental benefits, such as reduced carbon footprints and waste (Testa, 2023). For instance, a study by Zeng (2022) found that firms with comprehensive green procurement policies are better positioned to achieve their sustainability goals and improve their overall environmental performance.

Participation in green procurement workshops refers to the involvement of procurement professionals in training and educational programs focused on sustainable procurement practices. These workshops often provide knowledge on green procurement strategies, tools for assessing environmental impact, and best practices for integrating sustainability

into procurement processes. According to a study by Goh et al. (2024), active participation in such workshops significantly enhances procurement professionals' capabilities and leads to better implementation of green procurement practices. Workshops help in raising awareness and improving skills necessary for effective green procurement, which in turn can lead to better environmental outcomes and increased organizational commitment to sustainability.

Supplier involvement in green procurement refers to the active engagement of suppliers in adopting and supporting sustainable practices. This includes collaboration on environmental performance, sharing information on sustainable practices, and jointly developing eco-friendly products. Research by Lee et al. (2023) emphasizes that involving suppliers in green procurement initiatives can lead to better sustainability outcomes by ensuring that the entire supply chain adheres to environmental standards. Effective supplier involvement not only helps in achieving compliance with green procurement policies but also fosters innovation and continuous improvement in sustainability practices throughout the supply chain (Sarkis, 2024).

2.3.2 Corporate Social Responsibility

Corporate Social Responsibility (CSR) is increasingly recognized as a vital component in the strategic management of firms, particularly in sectors such as food and beverage manufacturing. In the context of green supply chain management (GSCM), CSR involves integrating environmental and social considerations into business practices, promoting sustainability while addressing the ethical implications of operations (Cruz & Boehe, 2020). For food and beverage manufacturing firms in Kenya, CSR can manifest in various forms, including sustainable sourcing of raw materials, waste reduction, and community engagement initiatives. These practices not only help mitigate environmental impacts but also enhance brand reputation and consumer loyalty, which are crucial in a market where customers are becoming more environmentally conscious.

Effective CSR strategies can improve operational efficiencies and reduce costs through resource conservation and waste management practices (Jabbour et al., 2019). By adopting green supply chain practices as part of their CSR commitments, firms can demonstrate their dedication to sustainability, which may lead to better regulatory compliance and competitive advantage in the marketplace. In Kenya, where environmental challenges are significant, the commitment to CSR can also foster positive community relations and contribute to broader socio-economic development. The integration of CSR into GSCM practices not only enhances the performance of food and beverage manufacturing firms but also supports sustainable development goals, highlighting the interconnectedness of corporate performance and social responsibility.

The core "responsibility" historically for companies has been money making and increasing value of the shareholder within the business world (Navi, 2012). Company monetary responsibility has been the bottom line driving force this new driving force is referred to as corporate social responsibility. Corporate social responsibility is sometimes defined as the company "triple bottom line" the inclusivity of the company's financial, environmental and social performance in conducting its business (Crane, 2007). CSR narrows down on the idea that a corporation may be held socially and ethically accountable by an expansive array of stakeholders such as customers, employees, governments, communities, NGOs, investors, supply chain members, unions, regulators, and media. Corporate Social Responsibility research has evolved over the last 50 years. As a foundation, Carroll (1979, 1991) incorporated various streams of CSR research to define a model that extended corporate performance beyond traditional economic and legal considerations to include ethical and discretionary responsibilities.

From a supply chain perspective, Carter and Jennings (2004) indicated that CSR is not only the same with business ethics but also encompasses dimensions including philanthropy, community, workplace diversity, safety, human rights, and environment. Companies pursue CSR for a variety of reasons. Based on organizational values, some business leaders have embraced the concept and seek to provide leadership in the area (Maignan, 2002). Additionally, Spar and Mure (2003) indicated that firms may react from

threats to transaction costs, brand, and competitive positioning. CSR motivations may also involve marketing, publicity, and innovation (Maignan et al., 2002). Swindley (1990) pointed out that firms may regard CSR as cost of doing business though other firms may find CSR self-beneficial. Panapanaan and colleagues (2003) indicated that globalization, regulation, and sustainable development have fueled growth of CSR, and there have also been examples of investment companies exerting power to drive social responsibility among corporations (Spector, 2003). Several industry corporations promote CSR practices with notable examples including the US Chamber of Commerce Center for Corporate Citizenship (2004) and the World Business Council for Sustainable Development (WBCSD) (2005). Correspondingly, groups such as the Global Reporting Initiative (GRI) (2005) and the Institute for Social and Ethical Accountability (ISEA) (2004) focus on CSR reporting.

2.3.3 Green Packaging

Green packaging is a critical aspect of sustainable practices within green supply chain management, particularly for food and beverage manufacturing firms. This concept encompasses the design, production, and use of packaging materials that are environmentally friendly, aiming to reduce waste and minimize the carbon footprint associated with packaging processes (Singh et al., 2021). In the context of Kenya, where environmental concerns are increasingly pressing, adopting green packaging solutions can enhance the sustainability of food and beverage firms while meeting consumer demand for eco-friendly products.

Research indicates that green packaging can lead to significant improvements in both operational efficiency and brand image. By utilizing biodegradable, recyclable, or reusable materials, companies not only reduce their environmental impact but also appeal to a growing demographic of environmentally conscious consumers (Chen et al., 2022). Green packaging can contribute to compliance with local regulations and international standards aimed at reducing plastic waste and promoting sustainability (Kumar & Gupta, 2020). In Kenya, where the government has enacted measures to limit single-use plastics,

implementing green packaging strategies can help firms remain competitive and responsive to market trends. Integrating green packaging into supply chain practices not only supports environmental sustainability but also enhances the overall performance and reputation of food and beverage manufacturing firms in Kenya.

According to Hellström & Nilsson (2011) Packaging is a synchronized system of preparing goods for transport, distribution, storage, retailing and end-use. It ensures safe delivery of products to the ultimate consumer, in sound condition and at minimum cost, with the aim of cutting down on costs of delivery while maximizing sales and hence profits. Products' protection and other benefits to consumers are critical functions of packaging. It only considers one aspect of the product's overall impact on the environment; As a result, the packaging industry continues to focus on innovation in the key issue of minimizing packaging's environmental impact. It is a highly observable use of resources accounting for about a fifth of the household waste stream and between a tenth to a twentieth of commercial and industrial waste. Therefore, packaging is an issue of concern to both consumers and policy makers.

Basic packaging functions comprise of containment, protection, preservation, communication, convenience and, in some cases, marketing functions (Jinkarn & Suwannaporn 2015). Packaging has equally a logistic and marketing function; the former protects the products on transit while the latter provides consumers with information about product attributes (Arboretti & Bordignon, 2016). Packaging has been recognized as an integral part of processing in the food industry. The food package is the physical cover that functions as the obstacle between the contents and the exterior atmosphere. Other roles of packaging are: protection (active packaging), information (intelligent packaging) and transport (Singh et al., 2012). Packaging whether single-trip or reusable plays a very critical function in protecting goods, preventing damage during transport and storage from the elements, vibration, dropping and compression. It also provides the chance to communicate information to a customer regarding the product’s contents – whether promotional, factual or mandated by law, as well as providing product security, such as, making items more tamper-resistant.

From raw materials to finished products, reusable plastic packaging will safely and effectively pass materials/products through different points in the supply chain and ultimately reach their destination. Plastic reusable packaging improves the flow of product all along the supply chain in many industries, to reduce total costs and achieve sustained optimization. Whether shipping plastic bottles to a soft drink bottler for filling; trimmed parts to an automotive manufacturer; electronic components to a computer manufacturer or consumer goods to the mass retailer; plastic reusable containers and pallets help to move products faster, better, safer and more cost effectively (Orbis, 2004).

Re-using packaging along the supply chain can cut cost, waste and carbon emissions compared with single trip packaging. There may be numerous opportunities to reuse packaging directly without any further treatment except washing. These include use again by suppliers, within the plant itself or by other businesses and community groups. It is important that food processors design packaging to encourage packaging reuse. Packaging should also be stored and handled carefully to avoid damage that may prevent its reuse. It entails designing packaging so that it can be readily and efficiently recycled more easily. Using recycled material for packaging will not only reduce the amount that may end up in landfill but may reduce the carbon foot print of a pack (Smith, 2023).

Most consumers consider using recycled content packaging to be a positive move by a brand or retailer. Some packaging resources have the ability to use a recycled option, in the case of glass, aluminum, steel, paper and board, it is the industry norm. In today's ever changing economic, social and regulatory environment, organizations should adopt non-hazardous packaging approach on all their products. This approach not only meets but exceeds expectations and regulations while also reducing carbon emissions and risks. Packaging waste forms a major part of solid waste and has caused increasing environmental concerns, resulting in a strengthening of various regulations aimed at reducing the amounts generated.

The use of biodegradable materials will contribute to sustainability and reduction in the environmental impact associated with disposal of packaging materials (Song et al., 2009). All packages containing hazardous materials must be properly classified, described, packaged, marked, labeled and in proper condition for transportation according to applicable regulations.

2.3.4 Reverse Logistics

Reverse logistics is an essential component of green supply chain management, particularly for food and beverage manufacturing firms in Kenya, where sustainability and resource efficiency are becoming increasingly critical. This process involves the flow of products and materials from the consumer back to the producer for reuse, recycling, or proper disposal, thereby minimizing waste and maximizing resource recovery (Rogers & Tibben-Lembke, 2019). In the context of the food and beverage sector, reverse logistics can encompass the return of packaging materials, unsold products, or by-products generated during production, enabling companies to reduce their environmental footprint and improve operational efficiencies.

Recent studies highlight that effective reverse logistics can lead to significant cost savings, enhanced brand reputation, and compliance with regulatory requirements aimed at reducing waste (Govindan et al., 2020). For instance, by implementing return programs for packaging materials, firms can not only recover valuable resources but also engage consumers in sustainable practices, fostering loyalty and enhancing corporate social responsibility (CSM) initiatives. Reverse logistics contributes to circular economy models, promoting a closed-loop system where materials are reused and repurposed, aligning with global sustainability goals (Wang et al., 2021). In Kenya, where environmental challenges such as plastic pollution are prevalent, integrating reverse logistics into green supply chain practices can provide a competitive edge and support the country's broader efforts toward sustainability. Thus, reverse logistics serves as a vital strategy for food and beverage firms to enhance their performance while contributing positively to the environment.

Reverse logistics (RL) is the process of organizing, implementing, and managing the cost-effective flow of finished goods, in-process raw materials, and related information from the point of use to the point of origin, with the aim of recouping value or disposing of them properly. It adds the double intention of creating business and environmental value from reverse logistics processes which is indicative of the debate over the question of whether reverse logistics has an economical benefit. Although disposal aspect in not included in reverse logistics, it is considered as a destination for reverse Logistics flow (Bensalem & Vichara 2019).

In contrast, Agrawal and Murtaza (2015) take account of disposition in RL activities which are described as composed of product acquisition, gate keeping, collection, inspection, sorting and disposition. Returns management is an expensive exercise for organizations. It is brought about by products that are expired, recalled, damaged while packaging or delivered incorrectly (Sameer et al., 2009; Martin, 2007). Returns handling can be assessed in terms of volumes handled to indicate the size of the operation. According to Sameer et al., (2009), returned products can be handled up to four times while adding no value to the customer but adding significant cost to the supply chain. The two most common causes of returns in the pharmaceutical industry, for example, are expired drugs and recalls. Most firms must deal with product returns for various reasons. For instance, customers changing their minds, items being damaged or having quality problems, merchandise not being sold, or products being returned at the end of their usable life. Investment recovery and re-manufacturing captures value through resell and reuse of used materials.

Reverse logistics programs help firms to manage product end-of-life and investment recovery processes. Recovery efforts represent strategic resources that require complex coordination efforts with both upstream and downstream supply chain partners (Kirchoff et al., 2016). Nowadays recycling has grown in importance in the industrialized world, and for many products Recycling has become more of a rule than an exception. If recycling the product is an alternative, the end customer may not be the end of the business activity process.

Agile logistics can significantly impact reverse logistics by improving the responsiveness and efficiency of handling returned products. According to Christopher (2016), agility in logistics enables firms to better manage the variability and uncertainty associated with reverse flows, leading to more effective processing of returns and reduced cycle times. An agile reverse logistics system can swiftly accommodate returns, adjust routes for product recovery, and integrate feedback to optimize the reverse supply chain processes.

Reusable products play a crucial role in reverse logistics by minimizing waste and supporting sustainability goals. The integration of reusable products into the reverse logistics framework can reduce the need for new packaging and materials, thus lowering overall environmental impact. Research by Timmons and Mason (2017) highlights that the adoption of reusable packaging systems not only decreases waste but also supports cost savings through reduced packaging expenses and lower disposal fees. For instance, if a company implements a system where customers return used packaging for reuse, it can lead to significant reductions in material costs and waste management expenses.

Eco-friendly products are designed with environmental considerations in mind, such as using sustainable materials and minimizing carbon footprints. In the context of reverse logistics, eco-friendly products align with efforts to enhance sustainability by ensuring that returned items are managed in an environmentally responsible manner. According to Srivastava (2007), incorporating eco-friendly practices in reverse logistics helps in reducing environmental impacts and improving corporate sustainability profiles. For example, products designed to be more easily recyclable or biodegradable can facilitate smoother recycling processes and reduce landfill contributions, thus supporting a more sustainable reverse logistics system.

There have been a number of studies on performance and reverse logistics. Muttimos (2014) looked at how reverse logistics practices affect company performance in Kenyan manufacturing companies. A model of ten Kenyan manufacturing companies was incorporated into the survey research design of the study. A company's performance is significantly impacted by activities like recycling, reuse, and returns, the report claims. A

study by Kabergey and Richu (2015) looked specifically at sisal processing businesses in Nakuru County, Kenya, to see how reverse logistics affected operational performance. The study found a positive correlation between operational performance and reverse logistics. Reverse logistics was suggested as a way for businesses to gain a competitive advantage by the study.

A study by Gitau and Shalle (2014) examined the impact of reverse logistics on supply chain performance in Kenya's manufacturing sector: a Hewlett-Packard Kenya case. The study's conclusion was that the employment of reverse logistics has a considerable negative influence on the performance of the supply chain. Njuguna and Kagiri (2017) conducted a study on the impact of reverse logistics on Bata Shoe Company's operational performance. Using a descriptive survey research design and a sample size of 92 respondents, they found that product reuse and repackaging have a significant impact on Bata Shoe Company's operational performance. The study concluded that an organization's operational performance is significantly improved by using reverse logistics.

2.3.5 Organizational Culture

Organizational culture plays a pivotal role in shaping the implementation and effectiveness of green supply chain management (GSCM) practices within food and beverage manufacturing firms. It encompasses the shared values, beliefs, and norms that influence employee behavior and decision-making processes regarding sustainability initiatives (Zhao et al., 2021). In the context of Kenya, where the food and beverage sector face increasing pressure to adopt environmentally friendly practices, a strong organizational culture that prioritizes sustainability can significantly enhance performance and innovation.

Research indicates that organizations with a culture oriented towards sustainability are more likely to successfully implement green practices, such as waste reduction, energy efficiency, and sustainable sourcing (Jabbour et al., 2019). Such cultural alignment fosters

employee engagement and commitment, encouraging individuals at all levels to participate in sustainability efforts actively. A positive organizational culture can facilitate communication and collaboration across departments, enabling firms to integrate GSCM into their core strategies more effectively (Miroshnichenko et al., 2020). In Kenya, where cultural values often emphasize community and environmental stewardship, leveraging these aspects within organizational culture can enhance the adoption of GSCM practices. Therefore, cultivating a sustainability-focused organizational culture is essential for food and beverage manufacturers aiming to improve their environmental performance and competitiveness in an increasingly eco-conscious market.

The study used organizational culture as a moderator in the relationship between green procurement, reverse logistics, corporate social responsibility (CSR), green packaging, and firm performance. Organizational culture plays a pivotal role in shaping an organization's values, norms, and practices, which can profoundly influence the adoption and integration of sustainable practices (Schein, 2010). Existing research underscores that a strong alignment between organizational culture and sustainability initiatives positively impacts operational outcomes, including performance, innovation, and competitive advantage (Delgado-Ceballos, 2020). By investigating the role of organizational culture as a moderator, the study seeks to unveil how the compatibility between cultural values and sustainable practices influences the effectiveness of green procurement, reverse logistics, CSR, and green packaging, and subsequently, how these practices collectively drive the performance of Kenyan food and beverage manufacturing firm’s evolving market.

Culture refers to the norms, values and assumptions that are shared among the organizational members and that tend to continue in time (Kotter & Heskett, 1992). Culture can be assumed, invented, discovered or developed by the management team in an effort for disseminating a desired set of values that will guide the organizations and employees’ behavior (Schneider, 1988). Harris & Crane (2002) defined the green organizational culture as it is the extent to which, symbols, values, assumptions and artifacts organization reflect, need or desire to operate in manner which is environmentally

sustainable. Green organizational culture is a symbolic context relating to managing organization, catering for environmental protection where behaviors and processes are guided by environmental protection sense making (Chen, 2011). Formal and informal norms and values that govern the firm's routines facilitate the implementation of tangible sustainable practices because all the departments and employees acknowledge and share the same sustainability values (Karna *et al*., 2003). Green organizational culture can be seen as a strategic asset that allows organizations to translate their sustainable proactive strategies into a better performance. Having a strong green organizational culture allows organizations to capture the benefits associated with these practices because all the organizational and functional levels share the same green values and norms. Green organizational culture can act as a complementary resource that can strengthen and influence the implementation of sustainable practices in an organization (Teece, 1986).

In Literature scholars (Dunphy *et al*., 2007; Orssatto, 2001; Kekale and Kekale, 1995) illustrated that failure for the implementation of sustainability is brought about by a mismatch of organizational culture. It is considered that a successful implementation of sustainability practices depends on the organizational culture. Organizations that adopt the proactive environmental management strategies could integrate the objectives of sustainability within different departments of organization to solve the sustainability problems by utilizing the innovative practices (Greeno, 1992), such as green public procurement. Brio, Fernandes and Junquera (2007) stated that organizational culture is key indicator and determinant in failure or success of implementation of green practices. On the other hand, Stead and Stead (1992) observed that green culture in literature mostly addressed superficially and common view in the literature is to address the environmental issues; organization necessarily needs to have dramatic cultural changes.

2.3.6 Performance of Food and Beverage Manufacturing Firms

The performance of food and beverage manufacturing firms in Kenya is increasingly influenced by the adoption of green supply chain management (GSCM) practices, which focus on enhancing environmental sustainability while improving operational efficiency.

The Kenyan food and beverage sector face numerous challenges, including resource scarcity, waste management issues, and regulatory pressures related to environmental protection (Ochieng et al., 2021). Research indicates that firms that integrate GSCM practices, such as sustainable sourcing, waste reduction, and energy-efficient operations, tend to experience improved performance metrics, including cost savings, enhanced market competitiveness, and increased customer satisfaction (Jabbour et al., 2019).

The adoption of GSCM can lead to greater compliance with government regulations aimed at reducing environmental impacts, thereby mitigating risks associated with potential penalties and enhancing corporate reputation (Mugambi & Kiambati, 2020). In Kenya, where consumer awareness of sustainability issues is on the rise, food and beverage firms that demonstrate commitment to environmental responsibility can differentiate themselves in a competitive market. Studies also highlight the importance of organizational culture and leadership commitment in successfully implementing GSCM practices, suggesting that firms with strong sustainability values tend to perform better (Zhao et al., 2021). The performance of food and beverage manufacturing firms in Kenya is closely tied to their ability to adopt and effectively implement green supply chain practices, positioning them to meet both consumer expectations and regulatory requirements in an increasingly environmentally conscious marketplace.

The house of sustainable SCM proposed by Teuteberg and Wittstruck (2012) identified three dimensions of performance; environmental, economic and social. Zailani (2012) measured social performance in terms of product image and company image with customers and community stakeholders. This study measured intangible performance in terms of product image, customer loyalty and satisfaction and company image with suppliers, customers and employees. The study also measured economic performance in terms of reduced cost and increased profitability (Lin, 2011; Green, 2012), and environmental performance in terms of reduction in air emission, energy consumption, hazardous material, material usage and compliance to environmental standards.

There are many reasons as to why organizations measure their performance, for instance to see progress, identify success, report performance, evaluate performance, confirm what they already know, reveal what they do not know, understand their processes, assist operational personnel, identify problems and bottlenecks, form new objectives and targets, determining future courses of action and to confirm priorities (Björklund, 2012). Performance measurements are central to improving organizational competitiveness. Organizations and researchers have developed and investigated various performance-measurement systems to manage and improve internal and external operations for logistics and supply chains (Bai & Sarkis 2012).

Performance is an important component of organizations success (Whitten et al., 2012); previous studies that were conducted on firm performance focused on quality and costs. Further Whitten et al., (2012), posits that organizational performance should be based on financial and marketing aspects. Molina-Azorı´n et al., (2009), notes that a number of studies on green management suggest that it significantly enhances organizational performance. Further studies have established that substantial environmental management lowers manufacturing costs by eliminating waste. For instance, a study by Zhu and Geng (2013) highlights that companies implementing comprehensive environmental management systems (EMS) often see a reduction in operational costs through waste minimization and resource efficiency. The authors found that firms adopting such practices not only improve their environmental performance but also achieve notable cost savings by decreasing waste production and enhancing resource utilization.

2.4 Empirical Review

This section provides the empirical review of relevant studies prior to this research. The empirical review of green supply chain management (GSCM) highlights its critical role in enhancing the performance of food and beverage manufacturing firms in Kenya. GSCM encompasses various practices, including green packaging, green procurement, corporate social responsibility (CSR), and reverse logistics, each contributing uniquely to organizational efficiency and sustainability.

Green packaging, as noted by Luthra et al. (2020), not only reduces environmental impact but also enhances brand image and consumer loyalty. Firms that adopt eco-friendly packaging materials often experience a competitive advantage, aligning their operations with consumer preferences for sustainability. In the Kenyan context, where consumers are becoming increasingly aware of environmental issues, the implementation of green packaging can significantly impact sales and market positioning (Mwangi & Gachanja, 2022).

Green procurement practices emphasize sourcing materials that are environmentally friendly. According to Zailani et al. (2021), the integration of sustainability criteria in procurement processes leads to cost savings and improved supplier relationships. In Kenya, firms adopting these practices report better compliance with environmental regulations and enhanced overall performance metrics.

Corporate social responsibility (CSR) initiatives are also pivotal in the GSCM framework. Research by Raut et al. (2021) indicates that firms engaged in CSR not only contribute to societal welfare but also improve their operational performance by fostering stronger community relationships and enhancing stakeholder trust. In the food and beverage sector, where social perceptions play a crucial role, CSR initiatives can lead to increased consumer acceptance and loyalty.

Reverse logistics, the process of reclaiming products for reuse or recycling, is gaining traction among Kenyan firms. As highlighted by Govindan et al. (2020), effective reverse logistics practices can significantly reduce waste and operational costs. Implementing these strategies enables firms to recapture value from end-of-life products, thus supporting both environmental sustainability and economic performance. The integration of GSCM practices, including green packaging, green procurement, CSR, and reverse logistics, is essential for the performance enhancement of food and beverage manufacturing firms in Kenya. The empirical evidence underscores the importance of sustainability in creating competitive advantages and driving long-term success in the industry.

The review concentrates on each independent variable as postulated from the theories and how it is conceptualized. In an effort to enrich the study, most critical variables to explain the dependent variable, a synthesis and critique has permitted the researcher to mitigate and reveal opportunities of the limitations common in past studies.

The adoption of green procurement is one of the commonly accepted dimensions of GSCM practice. Tritos *et al*., (2013), states that buying organizations with a green supply chain initiative will pay attention to green practices of their suppliers, especially the small and medium-sized enterprises. In order to ensure that suppliers meet their environmental objectives, the buying firm may deploy collaboration-based activities that include training, environmental information sharing and joint research. Other firms may implement a less collaborative approach by simply demanding that their suppliers adopt environmental systems such as ISO 14001.

External motivators and customer pressure are key drivers of the adoption of ISO 14001 (Tritos et al., 2013). Other aspects of green procurement earlier discussed in the literature include the facilitation of recycling, reuse and resource reduction (Large & Thomsen, 2011; Diabat & Govindan, 2011). Studies have confirmed that some firms adopt a compliance and evaluative approach to the GSCM practices of their suppliers. This involves evaluation of suppliers based on environmental criteria and a requirement for suppliers to develop and maintain some form of environmental management system (Sarkis, 2012).

Green procurement is an integration of environmental management into the purchasing function of an organization that attempts to ensure that the purchased material meet the environmental objectives set by the procuring companies; such as promoting reusability, recycling, eliminating hazardous material from the product and substitution of material (Lokesh *et al*.,2017). It entails acquisition of environmentally friendly raw materials without sacrificing the traditional purchasing criteria of product quality, cost and delivery time. Green procurement is the alignment of environmental policies with the traditional procurement process. It emphasizes on reduction of waste produced, material substitution

through environmental sourcing of raw materials and waste minimization of hazardous material.

Based on several recent publicized instances, CSR appears to be gaining importance in the food supply chain due to not only the nature of the product as animal/plant-based consumables that are required for existence but also the complex, labor intensive nature of food supply chains and in general the performance of the organizations. The community aspect of CSR represents a broad set of activities that provide support for the local community. The Food manufacturing firms focuses on business impacts such as on educational support, economic development, job training, employee volunteering, health care, literacy, arts and culture, childcare, and housing. A bulk of these efforts revolves primarily around financial donations and food manufacturing firms intervene in such facilitations creates a positive image and hence improve their performance in long run.

The food industry has many impacts on the environment. For instance, Fox (1997) noted problems with manure disposal, soil and water damage, deforestation, and global warming from methane. Boehlje (1993) discussed additional agricultural issues including chemicals (fertilizers, herbicides, pesticides, etc.), waste disposal, and farming techniques, while Roberts (2003) mentioned forest destruction. Examples of other environment factors addressed in the literature include water pollution, packaging, food miles (distance traveled from farm to consumer leading to issues such fuel consumption and global warming), and damage compensation (Boehlje 1993; Wade, 2001). Subsequently, food industry retailers must not only be prepared to offer environmentally friendly products to consumers but also demonstrate responsible environmental care practices in their supply chains.

Food manufacturing firms have pursued lower costs by implementing more intensified animal farming (commonly known as factory farming). Zuzworsky (2001) noted that such practices have supported the industry in reducing costs, but this approach has led to several questionable animal welfare practices. For instance, Fox (1997) not only discussed issues with animal living freedom, access to fresh air and sunlight, and interaction with other

animals, but he also suggested it cruel to kill animals before the end of natural life. Although regulatory efforts including the Humane Slaughter Act of 1978 in the United States (Zuzworsky *et al*, 2001) and the European Convention for the Protection of Animals in 1976 (Blandford and Fulponi, 1999) attempted to get better general industry conditions, there are still grounds for potentially serious public concern. As a result, food retailers have amplified their attention to the animal welfare practices of their suppliers.

Green packaging is packaging related eco design and it is an integral component of GSCM practices. Green packaging includes: use of re-usable packaging, recyclable packaging material, use of non-hazardous packaging material, use of biodegradable packaging material and adopting reduced size of packaging in order to reduce transport cost, enhance better utilization of shelf space and reduce carbon foot print. Green packaging comes with a number of benefits; according to Ouyang, (2014), it reduces packaging cost and solid waste, it further maximizes environment friendliness through alternative packaging materials and techniques. Troisi, (2015), also posits that green packaging reduces waste and liability cost while building green corporate image for firms.

There is positive and negative news about the environmental impact of packaging; the good news is that many countries have succeeded in considerably reducing the amount of packaging waste going to landfill, for example 61% of the packaging waste in EU (Santén 2012; Besch et al., 2016) was recycled in 2008, exceeding the 55% target defined in the EU Packaging and Packaging Waste Directive (PPWD) for 2008. The negative news is that there are still environmental problems connected to packaging that remain unsolved. With respect to food, the functions of packaging are continually evolving from simple preservation methods to include aspects such as convenience features, tamper evidence and active packaging innovations that extend product shelf life or improve safety or sensory properties, while maintaining product quality and intelligent technologies that provide stakeholders with the status of the food or its surrounding environment (Besch & Pålsson, 2015).

According to Grönman et al., (2013) the most important role of packaging is to protect and distribute the right product to the right end-user in a safe, cost-efficient and user-friendly way. Theory suggests that improved packaging can mitigate the environmental impact of supply chains by minimizing product waste (Lewis 2007). Packaging development process should integrate requirements on packaging from the whole supply chain. Today's consumers are becoming increasingly aware of and concerned about their social responsibilities and their direct impact on environment through their purchasing behaviour (Lyndsey & Debbie, 2014; Stolz et al., 2013).

Many consumers are conversant with the benefits of making environmentally responsible purchasing decisions. Juwaheer *et al.,* (2012), posit that green marketing strategies including green packaging, can influence consumers' purchases. Katrin and Henrick (2016), note that there is need for better packaging per se, but that contributes to minimizing total resource consumption, emissions and waste, along the supply chain. Food packaging has been developed to contain food products, maintain food quality and inform consumers about the properties of the enclosed product (John & Abdennour 2016). In distribution, choosing the right size and material for packaging could cut logistical costs considerably (Power Packaging, 2010). According to Sing et al., (2016), studies have found out that many companies are switching towards re-usable packaging systems. Re-usable containers can reduce solid waste and product damage during shipping which can further help in eliminating ergonomic and safety problems.

Reverse logistics involves organizing, carrying out, and managing the cost-effective flow of raw materials, inventory of work-in-progress, finished goods, and related information from the point of use to the point of origin in order to add value and dispose of them properly (Sharma et al., 2016). Further, reverse logistics can slot in remanufacturing and refurbishment. The key focus of reverse logistics is the reverse flow of materials from customers to suppliers with the aim of maximizing value from the returned items or reduces the total cost incurred, such that products can be sorted for re-use, re-manufacture, re-cycle and disposal (Sharma et al., 2016). Preceding studies have shown that recovery

of used products is more economically sound than disposal hence organizations are very keen on this concept.

Reverse logistics has become a competitive necessity for many firms; the concept of reverse logistics has gained significant attention in both academia and practice, due to a variety of reasons especially those relating to environmental concerns (Sajan et al., 2017). These reasons include the motive for economic potential associated with used products and the resulting business options.

A good number of multinational firms have recognized and embraced reverse logistics practices, for instance Dell, General Motors, HP, Kodak & Xerox (Ulster et al., 2007). There is need for the food and beverage processing firms to handle the reverse logistics function appropriately owing to the cost associated with the process. A study by Min and Ko (2008) revealed that firms have not been keen to return merchandise until things get out of control. Reverse logistics practices usually minimize organizations current assets as it lowers returned products, inventory value and lengthen order cycle time due to shipping of ordered items. Min and Ko (2008), state that it causes organization to lose on sales and thus reduce sales revenue.

It is imperative to dispose of products in a proper manner after their useful life, failure to which it may pose a serious harm to the ecological environment. The management of returned products is a hazardous task as it requires special logistics hence there is need to design a proper reverse logistics network. According to Melo et al., (2014), the network design decision entails site selection for the location of new facilities, determination of numbers and size of facilities, identifying the channels of distribution and transportation requirements to sort customer needs.

Reverse logistics has been recognized as a strategic function of green supply chain practices. Researchers have revealed how efficient management of reverse logistics can bring rewarding economic benefits and enhance organizations' competitiveness (Buyukozkan & Cifci, 2012). Though the impact of reverse logistics on greening the

supply chain is significant, development of the reverse logistics function typically lacks other aspects of GSCM (Xie & Breen, 2012). Further, Lau and Wang (2009) noted that development of the reverse logistics is still at infancy stage in most developing countries in the world yet that is where the bulk of the world's manufacturing is undertaken.

Recent studies by (Lokesh et al., 2017; Dubey et al., 2015 & Zhu et al., 2012) have shown that the regulatory bodies have forced the industries to improve adoption of green supply chain management Practices (GSCMP) practices. According to Everton et al. (2014) and Zhu et al. (2008), the main forces behind the adoption of environmental practices in China are the regulatory requirements and the pressure from the outside market. A study by Elcio et al., (2015), notes that Governmental regulations might motivate firms to closely monitor their critical suppliers, whereas top management could drive firms to adopt an additional collaborative approach with vendors to improve environmental performance.

Kenyan environmental management practices are governed by laws and regulations under the Environmental Management and Co-ordination (Amendment) Act, 2015 No. 5 of 2015. This Act came by through the amendment of The Environmental Management and Coordination Act, 1999, which is referred to as the "principal Act" under section 2 of the 2015 amended Act. There are a number of regulations under the umbrella of EMCA (Amendment) Act (2015) including the Environmental Impact Assessment regulations 2009, noise regulations, 2009, wetland regulations, 2009 and water quality regulations.

According to Vivian et al., (2019) environmental laws and regulations of any country regulate many aspects including environmental protection and even Green House Gas (GHG) emissions. With respect to international environmental laws and regulations, there are three sustainable pillars: environmental, social, and economic pillars. Choosing soft or hard laws to confront environmental issues is always the question for any government all over the world. Hard laws, also known as binding laws, refer to lawful obligations that are defined and implemented by the state authority. Soft law applies when at least one of these aspects of legalization is violated: obligation, precision, and delegation (Abbott et al., 2000; Shaffer & Pollack 2009).

Organizational culture plays a key role in organization performance and sustainability. According to Quinn and Dalton, (2009) to achieve sustainability, organizations should fully integrate social and environmental issues into their vision, values and operations. Linnenleucke and Griffiths (2010) found that organizations require socially and environmentally responsible values if they are to progress towards sustainability. While some organizations' values reflect their commitment and motivation towards sustainability (Marrewijk, 2004), questions have been raised as to whether the culture and values of many organizations are appropriate to support sustainability practices (Quinn, L. & Dalton, 2009). Some maintain that it is essential for organizations to have organizational values which support sustainability (Bansal & Kandola, 2004).

Therefore, to become sustainable, it is argued that organizations should significantly change their values and beliefs, radically overhaul their culture (Crane, 2000; Edwards, M. G., 2009; Molnar & Mulvihill, 2003; Rimanoczy & Pearson, 2010; Shrivastava & Hart, 1995), and institutionalize sustainability beliefs into the organization (Harris, L. C. & Crane, 2002). Thus, to become sustainable, organizations must undergo a paradigm shift in their values and culture (Edwards, M. G., 2009), and this culture shift must impact every part of the organization's life (Rimanoczy & Pearson, 2010). Smith and Sharicz (2011) point out that, although they emphasize the importance of culture to achieving sustainability, a number of these authors provide little detail about whether specific cultural dimensions significantly contribute to sustainability and, if so, what are these dimensions.

Avery and Bergsteiner (2010) identified the foundational practices which drive sustainable organizations, one of which is organizational culture. From their observations of 47 sustainable organizations, they concluded that sustainable organizations foster a consistent, clearly articulated and shared organizational culture, and have non-negotiable core values, and organizations aspiring to sustainability need to build an enabling culture. However, Avery and Bergsteiner (2010) also did not specify whether particular traits of these shared organizational cultures are distinctive to sustainable organizations.

2.5 Critique of Relevant Existing Literature

The existing literature on green supply chain management (GSCM) in Kenya's food and beverage manufacturing sector reveals significant insights but also presents notable gaps. Several studies highlight the growing awareness among firms regarding the importance of sustainability. For example, Ochieng et al. (2023) emphasize that many companies are adopting eco-friendly practices, such as sustainable sourcing and waste reduction strategies, driven by both regulatory pressures and consumer demand for greener products. However, despite these advancements, Muriuki and Ngui (2022) point out that the implementation of GSCM practices remains inconsistent across the industry, largely due to financial constraints and a lack of technical expertise.

While some firms have begun to invest in renewable energy and efficient technologies, the overall pace of adoption is slow compared to global standards (Mugo & Sila, 2021). This inconsistency raises concerns about the long-term sustainability of these practices, as highlighted by the National Environment Management Authority (2023), which notes that many firms still rely on traditional, less sustainable methods. In addition, the literature often overlooks the role of stakeholder engagement in GSCM, which could enhance collaborative efforts and knowledge sharing among industry players. Addressing these gaps will be crucial for fostering a more robust and sustainable GSCM framework within Kenya's food and beverage sector.

Research has been done on the Green Supply Chain Management Practices and performance of Kenyan food and beverage manufacturing enterprises. Onyinkwa (2016) studied how green supply chain management practices methods affected the competitiveness of Kenyan food and beverage industries. According to the survey, the majority of companies used green supply chain methods that included purchasing, monitoring, monitoring the environment, and greening the production phase. Green supply chain techniques were also found to boost operational effectiveness, customer base size, service quality, waste reduction, and waste minimization, all of which improve financial performance. According to the findings of the study, food and beverage

companies should incorporate green supply chain management practices into their long-term strategy in order to gain a competitive advantage over their rivals. The study only looked at 71 Kenyan food and beverage manufacturing companies, so more companies need to be included to expand its scope.

Muthoni (2020) conducted a second study on the impact of supply chain management strategies on the performance of Kenyan companies that manufacture food and beverages. The study focused more on supply chain management and gave green supply chain less attention. The study employed a descriptive survey research design with a sample of 125 food and beverage production companies. Wanjiku (2019) conducted research on how Kenyan food and beverage manufacturing companies' performance was affected by best practices in procurement. Outsourcing, strategic relationships, and vendor managed inventory were the research's variables. In order to examine the relationship between Green Supply Chain Management Practices and the performance of Kenyan food and beverage manufacturing companies, additional variables like corporate social responsibility and green procurement need to be included in research.

Green supply chain management practices and the organizational performance of Kenyan food and beverage manufacturing companies were the subjects of a study by Nderitu (2016). 46 Nairobi-based food and beverage manufacturing companies served as the study's sample. Again, the supply chain aspect received less attention in the study than the sustainability aspect.

2.6 Research Gaps

Despite the growing body of research on green supply chain management (GSCM) practices and their implications for the performance of food and beverage manufacturing firms, significant research gaps persist, particularly in the Kenyan context. One prominent area lacking extensive investigation is green packaging. While existing studies have established a correlation between green packaging and enhanced consumer loyalty in developed markets (Luthra et al., 2020), there is a dearth of empirical research focused

specifically on Kenyan consumers. This gap is critical as consumer behavior in Kenya may be influenced by different cultural and economic factors compared to Western markets. For instance, Mwangi and Gachanja (2022) highlight that although Kenyan consumers are increasingly aware of environmental issues, the nuances of how green packaging affects purchasing decisions remain underexplored. Future research could investigate the specific attributes of green packaging that resonate with Kenyan consumers and how these factors influence the performance metrics of food and beverage firms.

Another area requiring further examination is green procurement. While literature has extensively discussed the benefits of integrating green procurement practices into supply chains (Zailani et al., 2021), studies often overlook the unique challenges faced by firms in developing countries, including Kenya. Current research tends to focus on successful implementations without adequately addressing the barriers, such as limited supplier awareness and resource constraints that hinder the adoption of green procurement (Raut et al., 2021). Understanding these challenges is essential for developing effective strategies tailored to the Kenyan market. Moreover, future studies should explore how green procurement impacts supplier relationships and overall supply chain resilience in a local context, as the interplay between these elements is vital for sustainable development.

Corporate social responsibility (CSR) also presents an important research gap. Although some studies suggest that CSR positively impacts firm performance and stakeholder engagement (Raut et al., 2021), there is limited empirical evidence on how CSR initiatives can be effectively integrated with GSCM practices within the food and beverage sector in Kenya. Research has predominantly focused on the financial benefits of CSR, neglecting its role in enhancing sustainability efforts in supply chains. Investigating how Kenyan firms align their CSR strategies with GSCM practices could yield valuable insights into improving sustainability while simultaneously bolstering competitive advantage. Furthermore, understanding the long-term impacts of CSR on brand reputation and consumer loyalty within Kenya’s unique market landscape remains largely unexplored.

The area of reverse logistics is another critical topic that requires further attention. While existing literature emphasizes the importance of reverse logistics in waste management and cost savings (Govindan et al., 2020), empirical studies focusing on the practical implementation of reverse logistics in Kenya's food and beverage industry are lacking. The majority of research has concentrated on theoretical frameworks without delving into real-world applications and challenges. Future studies should assess how firms manage reverse logistics processes, including product recovery and recycling, and the obstacles they face in these efforts. Additionally, understanding the impact of reverse logistics on overall supply chain performance and environmental sustainability within the Kenyan context is essential for developing robust GSCM frameworks.

Previous studies conducted in the field of sustainable purchasing have largely focused in Asia, America and Europe with a limitation in Africa and Kenyan perspective. Nyaga and Achuora's (2020) study of sustainable procurement and performance of Kenyan food and beverage manufacturing firms focused solely on Nairobi County manufacturing firms. Telewa (2014) examined sustainable procurement with a focus on the public water industry. Muthoni (2020) studied how supply chain management strategies affected the performance of Kenyan food and beverage manufacturing firms, but the sample she used only included 125 Kenyan firms. In a comparative study, Muma, Waruguru, Mundia, and Kiruri (2015) compared sustainable procurement practices at Sisal Processing Companies in Nakuru County. The aim of the study was to compare the adoption rates of the two largest sisal processing companies in Nakuru County and the extent to which they adopted sustainable procurement practices.

Kiswili and Shale (2016) focused at how sustainable procurement practices affected Kenya's manufacturing sector supply chain performance. The study was limited because it focused on the East African Portland Cement Company and used a case study research design. Additionally, Maina and Kwasira (2012) investigated the primary factors that influence sustainable procurement in public organizations in Kenya. Because it focused on the Kengen Olkaria Geothermal Station in Naivasha, the study was limited. Other studies on Kenyan food and beverage manufacturing companies focused primarily on

supply chain management without much consideration given to procurement sustainability.

Due to the use of samples, the previous studies' coverage appears to be incomplete as well. In order to determine how Green Supply Chain Management Practices impacts the performance of Kenya's food and beverage manufacturing industries, including all registered Kenyan businesses, a study on this topic is necessary. Therefore, the purpose of this study was to close this gap by emphasizing Green Supply Chain Management Practices and the performance of manufacturing companies in Kenya. All food and beverage manufacturing companies in Kenya were considered.

In summary, while significant advancements have been made in understanding GSCM practices and their effects on performance in the food and beverage sector, there are notable research gaps that need to be addressed, especially within the Kenyan context. Future research should focus on consumer perceptions of green packaging, the barriers to green procurement, the alignment of CSR with GSCM initiatives, and the practical challenges of implementing reverse logistics. By addressing these gaps, researchers can contribute to a more comprehensive understanding of how GSCM can be effectively integrated into the operations of food and beverage manufacturing firms in Kenya, ultimately leading to enhanced sustainability and competitiveness.

2.7 Summary

This chapter reviews the relevant literature and the considerable discussions on Green Supply Chain Management Practices and performance of Kenyan food and beverage manufacturing firms. The study adopted four theories, namely; Strategic Choice Theory, Resource Based View, The Stakeholder Theory and Institutional Theory. A conceptual framework was projected to conceptualize or represents the relationships between variables in the study and shows the relationship graphically or diagrammatically. The four independent variables used in the study are; Green Procurement, Corporate social Responsibility, Green packaging and Reverse logistics. Organizational culture was used

as a moderating variable and performance of food and beverage manufacturing firms as dependent variable. Previous studies related to the research have been explored and it comes out clearly that there is need to carry out this study in order to relate the findings. It is also evident that insufficient researches have been done on Green Supply Chain Management Practices and performance of Kenyan food and beverage manufacturing firms.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The purpose of the study was to determine how food and beverage manufacturing firms in Kenya performed in relation to green supply chain practices. This chapter provides a description of the process utilized to carry out the study's objectives. Since research methodology is a technique for gathering, organizing, and interpreting data, decisions about research methodology are typically influenced by the nature of the research issue. The research design, the research population and the target population, the sample size and sampling methods, the instruments of the research, the procedures for collecting data, the pilot test, and data processing and analysis make up the methodology.

3.2 Research Philosophy

There are various philosophical paradigms such as ontology, realism, positivist and phenomenological paradigms, but the two main paradigms that guide research in social sciences are the positivist and phenomenological paradigms (Munjuri, 2012). Positivism is when the researcher adopts the position of a philosopher, works with available data and the observable reality (Bono, 2012). According to Saunders, et, al. (2009), the positivist research philosophy is based on the idea that reality is constant and that it can be studied and described objectively without affecting the phenomenon itself.

Scholars assert that positivism research philosophy can be used to investigate what happens in an organization through scientific measurement of people and system behaviors. Under positivist research philosophy, it is possible to make predictions based on previously observed and explained realities and their interrelationships. The study was anchored on theory from which hypotheses are derived, follow deductive reasoning and employ quantitative methods to ensure precision, logic and evidence testing.

Research philosophy encompasses the foundational beliefs and assumptions that guide how researchers approach their inquiries, shaping their understanding of knowledge and reality. One of the most significant paradigms within this realm is positivism, which emerged in the 19th century, notably through the works of Auguste Comte. Positivism asserts that knowledge should be derived from empirical evidence and observable phenomena, aligning research closely with the methodologies of the natural sciences (Bryman, 2016). This paradigm prioritizes objectivity and the use of systematic scientific methods, which are critical for minimizing biases and ensuring reliability in findings (Creswell, 2014).

The justification for adopting a positivist paradigm is multi-faceted. Firstly, positivism emphasizes the importance of objectivity, allowing researchers to conduct studies based on measurable variables and quantifiable data, thereby enhancing the validity of their conclusions (Creswell, 2014). Secondly, the rigor associated with positivist approaches facilitates generalizability; large sample sizes and statistical analyses enable researchers to draw conclusions that can be applied beyond the specific study context (Bryman, 2016). Thirdly, the focus on clear hypotheses allows for systematic testing and refinement, contributing to the development of theoretical frameworks and advancing knowledge within a field (Blaikie, 2010). By reducing complex social phenomena into manageable variables, positivism provides a structured lens through which researchers can explore intricate relationships, making it particularly valuable in the social sciences. Overall, the adoption of a positivist paradigm not only strengthens the credibility of research outcomes but also aligns with the goals of empirical inquiry.

The positivist paradigm views the researcher as independent of the study they are conducting. They view the reality as objective and measurable, human beings are assumed to be rational; research emphasizes fact and predictions to explain cause and effects (Bryman & Bell, 2007; Heenetigala, 2011). This study is anchored on positivism philosophy and it is also the philosophy that shaped the study's research design. Because reality is observed and reported objectively without interfering with the factors that will be researched, positivism is the most appropriate philosophical perspective in this study.

Recent studies assert that in positivism philosophy approach, a researcher relies on the respondents to provide truthful data for the study (Kranenburg, 2013). Therefore, this study is anchored on the positivist philosophy of science which also shapes the research design for the study.

3.3 Research Design

Research design is a critical framework that guides the systematic investigation of research questions, determining how data will be collected, analyzed, and interpreted. It serves as the blueprint for a study, outlining the overall strategy and specific procedures that researchers will employ to ensure the integrity and validity of their findings (Creswell, 2014). The choice of research design is influenced by various factors, including the nature of the research problem, the objectives of the study, and the theoretical framework underpinning the research.

There are several types of research designs, broadly categorized into qualitative, quantitative, and mixed-methods approaches. Quantitative designs, such as experimental and survey research, focus on quantifying data and identifying patterns through statistical analysis (Bryman, 2016). In contrast, qualitative designs, like case studies and ethnographies, emphasize understanding the complexity of human behavior and social phenomena through in-depth exploration (Creswell, 2014). Mixed-methods designs integrate both quantitative and qualitative approaches, allowing for a more comprehensive understanding of the research problem by capitalizing on the strengths of each method (Tashakkori & Teddlie, 2010).

A well-structured research design enhances the reliability and validity of a study's findings, ensuring that the results can be confidently interpreted and generalized to broader contexts. It facilitates the identification of relationships among variables, guiding researchers in making informed conclusions and recommendations based on empirical evidence (Bryman, 2016). Ultimately, a robust research design is essential for advancing

knowledge within a field and providing a clear pathway for answering complex research questions.

Research design constitutes the blue print for collection, measurement and analysis of the data. The research design enables the researcher in allocation of limited resources by posing crucial choices in methodology (Cooper & Schindler, 2011). The study used explanatory research design as it aims at establishing the relationship between Green Supply Chain Management Practices and performance of food and beverage processing firms in Kenya. The research design is appropriate as it is quantitative in nature hence hypotheses is tested by measuring the relationships between variables. Further, it facilitates data analysis using statistical techniques.

Explanatory research design was applied in this study as very little prior research on the same area in Kenya has been done. The design helps in explaining the relationship among variables considered in this study.

3.4 Target Population

Target population refers to the entire group of individuals or objects to which researchers are interested in generalizing the conclusions (Kothari & Garg, 2014). In short, population is the aggregate of everything that conforms to a given specification. All items in the field of enquiry comprise a population. (Kombo & Tromp, 2013) According to Kombo and Tromp, (2013) target population is the aggregate of all cases that conform to the same designated set of Specifications. Zikmund, Babin, Carr and Griffin (2012) define population as the great collection of all subjects from where a sample is drawn.

Recent studies indicate that food and beverage manufacturing firms in Kenya are actively implementing green supply chain management (GSCM) practices, reflecting a growing commitment to sustainability. For instance, a study by Muriuki and Ngui (2022) highlights that companies are increasingly focusing on sustainable sourcing, prioritizing suppliers who engage in environmentally friendly practices. Furthermore, a survey conducted by

Ochieng et al. (2023) revealed that firms are adopting energy-efficient technologies, reducing waste through recycling initiatives, and implementing water conservation measures in their production processes. The Kenyan government's support for sustainable practices, as noted in the National Environment Management Authority reports (2023), has also encouraged manufacturers to adopt GSCM, fostering collaborations that enhance capacity building. These initiatives not only contribute to environmental conservation but also improve the firms' competitiveness in both local and international markets, demonstrating the tangible benefits of integrating GSCM practices into their operations.

The target population was all the Kenyan food and beverage manufacturing firms. According to the Kenya Association of Manufacturers (KAM, 2021) there are 172 companies in Kenya that produce food and beverages.

3.5 Sampling Frame

A sampling frame is a crucial element in the research process, representing the actual list or database from which a sample is drawn for a study. It provides the necessary groundwork for selecting participants and ensures that the sample accurately reflects the population of interest. The quality and comprehensiveness of the sampling frame directly influence the validity and generalizability of research findings (Creswell, 2014). An ideal sampling frame should encompass all elements of the target population, minimizing bias and ensuring that each member has a known chance of being selected (Bryman, 2016).

There are various methods to create a sampling frame, including using existing databases, conducting surveys, or employing administrative records. However, challenges often arise, such as incomplete lists or the presence of outdated information, which can lead to sampling bias if not addressed properly (Dillman et al., 2014). It is essential for researchers to evaluate the completeness and accuracy of their sampling frame before proceeding, as this will directly impact the robustness of the study's conclusions. An appropriately constructed sampling frame allows for the implementation of various sampling techniques, such as random sampling or stratified sampling, enhancing the

overall rigor of the research design (Creswell, 2014). A well-defined sampling frame is integral to effective research, as it lays the foundation for valid and reliable data collection.

A sampling frame is an exhaustive, comprehensive, correct, reliable and appropriate list of members of a defined population from which a sample is drawn (Oso,2016). The Sampling frame for the study comprised of the food and beverage processing firms in Kenya that are registered with the Kenya Association of Manufacturers. The greater part of the study's focus was on specific food and beverage manufacturing businesses. Since the food and beverage industry in Kenya is the largest sub-sector of manufacturing companies, it was the study's primary focus.

3.6 Sampling Technique and Sample Size

Sampling technique and sample size are critical aspects of research design that significantly impact the validity and reliability of study findings. Sampling technique refers to the method used to select participants from a larger population, which can be broadly categorized into probability and non-probability sampling methods. Probability sampling, such as simple random sampling or stratified sampling, ensures that every member of the population has a known chance of being included, thereby enhancing the representativeness of the sample (Fowler, 2014). In contrast, non-probability sampling methods, like convenience or purposive sampling, may introduce biases as they do not guarantee equal selection probabilities, potentially limiting the generalizability of the results (Bryman, 2016).

Sample size, on the other hand, refers to the number of participants included in the study and is crucial for achieving statistical power. A larger sample size can reduce the margin of error and increase the confidence in the findings, allowing for more reliable conclusions about the population (Creswell & Poth, 2018). Determining an appropriate sample size involves considering various factors, including the research design, the desired level of precision, and the expected variability within the population. Tools such as power analysis can assist researchers in calculating the optimal sample size necessary to detect

meaningful effects (Faul et al., 2009). The choice of sampling technique and the determination of sample size are foundational elements of research methodology that greatly influence the credibility and applicability of the results.

Sampling is the procedure a researcher utilizes to gather people, places or things to study (Kothari et al, 2014). It is the process of selecting a given number of individuals for a study in such a way that the individuals selected represent the large group from which they were selected. According to Topal, (2014), there are instances whereby the entire population is chosen since the size of population has the particular set of characteristics that you are interested in and the population size is very small. The study used Census method where all the 172 registered foods and beverage manufacturing firms in Kenya were considered. A total of 172 respondents were considered in this study.

3.7 Research Instrument

A research instrument is a critical tool utilized by researchers to collect data and measure variables relevant to their study. It encompasses various types of tools, including surveys, questionnaires, interviews, tests, and observational checklists, each tailored to gather specific types of information (Creswell & Poth, 2018). The choice of research instrument is pivotal, as it directly influences the quality and accuracy of the data collected, impacting the overall validity and reliability of the research findings.

When developing a research instrument, it is essential to consider factors such as clarity, relevance, and the ability to yield measurable and comparable data (Fowler, 2014). Researchers often engage in a rigorous process of instrument validation, which may include pilot testing and expert reviews, to ensure that the instrument effectively captures the constructs being studied (DeVellis, 2017). The use of established and tested instruments can enhance credibility, allowing for comparisons across studies and contributing to the accumulation of knowledge within a field (Bryman, 2016). A well-designed research instrument not only facilitates effective data collection but also

strengthens the overall research methodology, ensuring that the findings are both credible and applicable to real-world contexts.

A questionnaire was considered appropriate for this study since it provides for the collection of standardized data which is easier to analyze and further provide access to a bigger group of respondents (Zikmund, 2010). A questionnaire is a formulated written set of questions to which respondents record their answers, usually within rather closely defined alternatives (Sekaran *et al.,* 2011). The primary data was collected using open ended and closed ended questionnaires that capture the variables of the study. A total of 172 questionnaires were be administered.

3.8 Data Collection Procedure

Before going to the field to collect data, the researcher applied for a letter of introduction from the University (JKUAT) to support in carrying out the research in all the 172 Kenyan Food and Beverage Manufacturing firms. The researcher then proceeded to National Council for Science and Technology (NACOSTI) to seek permission and authorization to carry out the research. Using the letter of introduction from the University and the authorization letter from (NACOSTI), the researcher was ready to collect the data.

The questionnaires were the main data collection instrument with both open ended and closed ended questions. The use of questionnaires is recommended because they are efficient tools for gathering data and enable respondents to express many of their thoughts in relation to the study's subject (Dempsey, 2003). According to Kothari (2008), the data obtained from questionnaires is free from bias and researchers' influence and thus accurate and valid data is gathered. A pilot study for the instrument was carried out to ensure that the items in the questionnaire are stated clearly, have the same meaning to all the respondents, and also to give the researcher an idea of approximately how long it would take to complete the questionnaire.

3.9 Pilot Testing

Pilot testing is a crucial step in the research process, involving a preliminary trial run of the research instrument to assess its effectiveness and identify any potential issues before the main study is conducted. This phase allows researchers to evaluate the clarity, relevance, and functionality of their data collection tools, such as surveys or interview guides (Creswell & Poth, 2018). By administering the instrument to a smaller, representative sample of the target population, researchers can gather feedback on the instrument's design, length, and comprehensibility, which is essential for refining the tool and enhancing its validity (Fowler, 2014).

Pilot testing also serves to identify logistical challenges and potential biases in the data collection process, enabling researchers to make necessary adjustments to their methodologies. For instance, researchers may discover that certain questions are confusing or that the time required to complete the instrument is longer than anticipated, which can negatively affect participant engagement (Bryman, 2016). Moreover, pilot testing can help establish the reliability of the instrument by providing preliminary data that can be analyzed to assess consistency in responses (DeVellis, 2017). A well-executed pilot test not only strengthens the overall research design but also increases the likelihood of producing reliable and valid findings in the main study.

For high precision pilot studies, 1% to 10% of the sample should constitute the pilot test size (Lancaster, Dodd, &Williamson, 2010). In this study the questionnaire was tested on 5% of the entire sample size, which translates to 9 respondents. The questionnaire was pilot tested in nine (9) food and beverage manufacturing firms under the three categories; Juices, Waters and Carbonated Soft Drinks, Cocoa, Chocolate and Sugar Confectionery and lastly Bakers & Millers categories. The three categories were chosen by the researcher because they encompass the majority of Kenya's food and beverage manufacturing companies. According to Sang (2013), the role of pilot study is to review the preliminary questionnaire, check for ambiguity and in appropriateness of items. The questionnaire was

reviewed to ensure that the measurement items were appropriate in real-world business situations.

3.9.1 Reliability Test of the Instruments

Reliability is a measure of the degree to which a research instruments yields constant results or data after repeated trials (Kothari *et al,* 2014). Reliability enables the researcher to estimate error and make the necessary corrections if any. This is because the larger the reliability the smaller the error and conversely, the larger the error, the smaller the reliability. Reliability in this study was enhanced by pre-testing the questionnaire with a selected sample which was not included in the main study. To check the reliability of the research instrument, the questionnaires was randomly administered to pilot group respondents. The same respondents were not used again in the consequent study.

According to scholars, reliability of scale relates to consistency of the data collected and reliability of a measure is when a measure gives same outcome under same circumstances even when it is measured at different points in time (Kranenberg, 2015). In a study that has questionnaire data internal consistency indices of reliability are useful. One of the most widely used indices of internal consistency is Cronbach's coefficient alpha and according to Mugenda (2011) and Kinyili (2016), Cronbach's alpha is a technique of estimating reliability which does not require either splitting of a scale or the subjects retaking the test for a given construct thus it limits challenges inherent in split-half and the test-retest techniques. To measure reliability of the collected data, Cronbach's alpha which is is computed as shown below was considered

Alpha= Nr/ (1+ r (N-1)
Where r = the mean inter-item correlation
N = the number of items in the scale

According to the Cronbach's alpha technique, the more the numbers of items in the scale, the higher the reliability, as long as the added items don't reduce the average inter-item reliability (Mugenda *et al*, 2011).

3.9.2 Validity Test of the Instruments

According to Mugenda & Mugenda (2011), validity is the accuracy, truthfulness and meaningfulness of inferences that are based on the data obtained from the use of a tool or a scale for each construct or variable in the study. Kranenberg (2013), posit that validity of research instrument is the ability of a test to measure what it is supposed to measure. Recent studies have also stated that content validity is determined by judgments on the appropriateness of the instrument's content (Kinyili, 2016; Mwanje, 2016). But content legitimacy—also referred to as coherent legitimacy—refers to how thoroughly a policy considers a specific social structure. The validity of this investigation will increase.

Legitimacy can be characterized as the degree to which results acquired from the investigation of the information really speak to the marvel under examination. Legitimacy likewise alludes to how much an instrument estimates what it indicates to gauge (Mugenda, 2008; Bryman, 2012). Legitimacy in this manner is worried about the seriousness of research parts. Build legitimacy alludes to how well you deciphered or changed an idea, thought, or conduct into a working and working reality, the operationalization. Build legitimacy is accomplished through confining the inquiries to conceptualization of the factors and guaranteeing that markers of every factor fall with a similar develop. The reason for this test is to guarantee that each measure evaluates the development it is implied to assess. To produce valid results, the content of a test which in this case was a questionnaire, must cover all relevant items of the subject it aims to measure. This was confirmed by subjecting the questionnaire to the supervisors and other scholars in procurement to guarantee content validity and their views were incorporated.

3.10 Data Analysis

Data analysis is a fundamental component of the research process, involving the systematic examination and interpretation of data collected through various methods. This phase is critical for transforming raw data into meaningful insights that address the research questions and hypotheses (Creswell & Poth, 2018). Depending on the nature of the data qualitative or quantitative different analytical techniques are employed. Quantitative data often requires statistical analysis, which can include descriptive statistics, inferential statistics, and regression analysis to uncover patterns, relationships, and trends within the data (Field, 2018). In contrast, qualitative data analysis may involve coding, thematic analysis, or content analysis, focusing on understanding the underlying meanings and contextual factors influencing the responses (Braun & Clarke, 2021).

The choice of data analysis methods is influenced by the research design, the type of data collected, and the overall research objectives. Proper data analysis not only enhances the credibility of the findings but also ensures that the conclusions drawn are based on rigorous and systematic evaluation (Bryman, 2016). Transparency in the data analysis process is essential; researchers should clearly outline their analytical procedures and provide justifications for their chosen methods to facilitate reproducibility and validate their findings (Saldana, 2016). Effective data analysis plays a pivotal role in contributing to knowledge advancement within a field, allowing researchers to make informed recommendations and decisions based on their empirical evidence.

Both primary data and Secondary data was analyzed. The primary data was analyzed using descriptive and inferential statistical analysis techniques. Descriptive statistics gives the profile of the respondents, that is, the frequencies and their percentages; whereas inferential statistics adopts a hierarchical, moderated, multiple regression analysis models in order to determine the effect of the explanatory variable. A statistical analysis was done using multivariate method since the data is from more than one variable. Owing to the existence of a moderator as the fifth variable, the moderated multiple regression analysis model will be deemed appropriate.

Inferential statistics was used to test and validate the hypothesized relationships between Green Supply Chain Management Practices and performance. Using SPSS Version 25, the responses were coded and analyzed. The researcher arrived at their conclusions by comparing the outcomes of the primary data analysis to those of the secondary data analysis.

3.10.1 Multiple Regression Model

Multiple regression analysis is a powerful statistical technique used in data analysis to examine the relationship between one dependent variable and two or more independent variables. This method allows researchers to understand how various factors contribute to an outcome, making it particularly useful in fields such as social sciences, health research, and business (Field, 2018). By estimating the coefficients for each independent variable, multiple regression provides insights into the strength and direction of the relationships, enabling researchers to predict the value of the dependent variable based on the values of the independent variables.

One of the key advantages of multiple regression is its ability to control for confounding variables, which enhances the validity of the conclusions drawn from the analysis (Cohen et al., 2018). Multiple regression can assess interactions between variables, allowing researchers to explore more complex relationships that may not be evident through simple regression techniques. However, it is essential to meet certain assumptions, such as linearity, independence, homoscedasticity, and normality of residuals, to ensure the reliability of the results (Field, 2018). By appropriately applying multiple regression, researchers can derive nuanced insights and make informed predictions, significantly contributing to evidence-based decision-making in various domains.

In order to establish the relationship between Green Supply Chain Management Practices (Independent Variable X), and performance of Kenyan food and beverage manufacturing firms (Dependent Variable Y), Regression model was fitted and hypothesis testing carried using the following multiple regression analysis:

$$Y = ß_0 + ß_1X_1 + ß_2X_2 + ß_3X_3 + ß_4X_4 + \varepsilon_\iota \quad \text{.....i}$$

Where: Y = performance of Kenyan food and beverage manufacturing firms

$ß_0$= Constant Term;

$ß_1$, $ß_2$ and$ß_3$ =Beta coefficients;

X_1= Green procurement

X_2= Corporate Social Responsibility

X_3= Green packaging

X_4= Reverse Logistics

ε_ι = Error term

The moderating effect of organizational culture was analyzed using the following regression model:

$$Y = ß_0 + (ß_1X_1 + ß_2X_2 + ß_3X_3 + ß_4X_4)\, m + \varepsilon_\iota \quad \text{.....ii}$$

m= Moderating Variable

3.10.2 Assumptions of Moderated Multiple Regression Analysis Model

Statistical tests rely upon certain assumptions about the variables used in an analysis (Osborne & Waters, 2002). Multiple regressions examine the relationship between a single outcome measure and several predictors or independent variables (Jaccard *et al.*,2006).

3.10.2.1 Linearity

Linearity defines the dependent variable as a linear function of the predictor (Independent) variables (Darlington, 1968). Multiple regressions can accurately estimate the relationship between dependent variable and independent variables when the relationship is linear in nature (Osborne & Waters, 2002). According to Keith (2006), if linearity is violated, all the estimates of the regression including regression coefficients, standard errors, and tests of statistical significance may be biased. Further, if the relationship between the dependent

and independent variable is not linear, the results of linear analysis will under or over-estimate the true relationship and increase the risk of Type I and Type II errors (Osborne & Waters, 2002).

3.10.2.2 Homoscedasticity

It refers to equal variance of errors across all levels of the independent variables (Osborne & Waters, 2002). According to Keith (2006), Researchers assume that errors are spread out consistently between the variables, that is, variance around the regression line is same for all values of the predictor variable.

3.10.2.3 Normality Test

Multiple regressions propose that variables have normal distributions (Darlington, 1968; Osborne & Waters, 2002). This implies that errors are normally distributed, and that a plot of the values of the residuals approximates a normal curve (Keith, 2006). The assumption is founded on the shape of normal distribution and gives the researcher knowledge about what values to expect (Keith, 2006).

3.10.2.4 Multicollinearity Test

Multicollinearity happens when independent variables in a regression model are correlated. This correlation is a challenge because independent variables should be independent. If the degree of correlation between variables is beyond the expectation, it can cause problems when you fit the model and interpret the results. Multicollinearity can result in misleading and unusual results, inflated standard error and reduced power of the regression coefficients that create a need for larger sample sizes (Jaccard *et al*., 2006; Keith, 2006).

Table 3.1: Operationalization of Variables

Constructs	Type	Operationalization/ Indicators	Measurement Scale	Sources
Green Procurement	Independent Variable	• Green procurement policies • Participation in green procurement workshops/seminars • Supplier involvement	Aggregate index of 1-5	Onyikwa and Ochiri,2016
Corporate Social Responsibility	Independent Variable	• Environmental responsibility • Producer responsibility • Brand reputation	Aggregate index of 1-5	Nderitu,2016
Green packaging	Independent Variable	• Package design • Returnable packages • Non-hazardous	Aggregate index of 1-5	Barney,2011; Alkhafaji,2011
Reverse Logistics	Independent Variable	• Agile logistics • Reusable products • Eco-friendly products	Aggregate index of 1-5	Barney,2011; Alkhafaji,2011
Organizational culture	Moderating Variable	• Organization mission and vision • Organization Strategies • Organization Adaptability	Aggregate index of 1-5	Nadeem, S., Mohamad, M. H., Abdullah, N., & Halim, N. A. (2017)
Performance of food and beverage manufacturing firms	Dependent Variable	• Profitability • Sales volume • Customer satisfaction	Aggregate index of 1-5	Hervani, Helms, and Sarkis, 2015; Van Weele, 2012

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This study sought to establish the relationship between Green Supply Chain Management Practices and performance of Kenyan food and beverage manufacturing firms. This chapter presents the data analysis results, interpretation, and presentation. Findings on the objectives of the study are outlined.

4.2 Response Rate

Table 4.1 indicates that out of the 172 questionnaires administered, all the 142 were returned. The overall response rate was thus found to be 82.56% This was above the 50% which is considered adequate in descriptive statistics according to (Dunn, 2010).

Table 4.1: Response Rate

Category	Frequency	Percentage
Responded	142	82.56%
Did not respond	30	17.44%
Total	**172**	**100%**

4.3 Reliability Test

From the Research study, Construct reliability was assessed by computing the composite reliability and the Cronbach alpha of the constructs. Composite reliability measures were evaluated by using SmartPLS. The Cronbach alpha were all above the 0.7 threshold as specified for PLS analysis (Hair et al., 2016). Composite reliability of indicator items were all above the acceptable 0.7 threshold which means all the variables in the study exhibited construct reliability.

Cronbach alpha were all above the 0.7 threshold as specified for PLS analysis (Hair et al., 2016) indicating average to good reliability.

From Table 4.2, all constructs were viewed to have acceptable reliability levels because the composite reliability scores for all constructs were above the 0.7 threshold.

Table 4.2: Reliability Test

	Cronbach's Alpha	rho_A	No. of Items	Composite Reliability
Corporate Social Responsibility	**0.845**	**1.031**	**6**	**0.892**
Green Packaging	**0.745**	**0.821**	**6**	**0.761**
Green Procurement	**0.712**	**0.829**	**6**	**0.713**
Performance	**0.732**	**0.797**	**6**	**0.743**
Reverse Logistics	**0.741**	**0.806**	**6**	**0.752**

4.4 Demographic Characteristics

This section discusses the demographics of the general information about the respondents.

4.4.1 Firm's Category

Establishing a firm's category in a study focused on green supply chain management (GSCM) and performance within the food and beverage manufacturing sector in Kenya is crucial for several reasons. First, different categories of firms such as large multinationals, small and medium-sized enterprises (SMEs), and local startups exhibit varying capacities, resources, and motivations for implementing green practices (Zhu et al., 2013). Understanding these distinctions allows researchers to tailor their analyses and recommendations to the specific challenges and opportunities each category faces. Moreover, the regulatory environment and market dynamics in Kenya may impact firms differently based on their category, influencing how they approach sustainability initiatives (Geng et al., 2013).

By categorizing firms, the study can identify sector-specific best practices and benchmarks, thereby facilitating more effective policy-making and strategic decision-making for enhancing GSCM practices. Additionally, this categorization can shed light on the overall performance metrics associated with green initiatives, helping to illustrate the broader implications of sustainability efforts on operational efficiency and market competitiveness within the diverse landscape of Kenya's food and beverage industry.

The study targeted all the Kenyan food and beverage manufacturing firms. To determine which subsector has the most firms, analysis of firm categories was performed. The results revealed that majority of the firms are Bakers & Millers (25%), while juices water and carbonated drinks (20%) and cocoa, chocolate and sugar confectionery (16%). Their response rate was also high compared to other firms dealing with other product categories. The study's findings are supported by the results by (Gundi, 2018) on effect of internationalization on organizational performance of Kenyan food and beverage manufacturing firms which found out that Bakers & Millers, Juices/Waters/carbonated soft drinks and Cocoa, Chocolate and Sugar Confectionery accounted for higher percentages compared with other firms.

Other food and beverage manufacturing firms included in the study were dealers in dairy products (16%), alcoholic beverages and spirits (13%), vegetable oils (6%) and Slaughtering and preservation of meat (4%). The firm’s category results are summarized in the figure below.

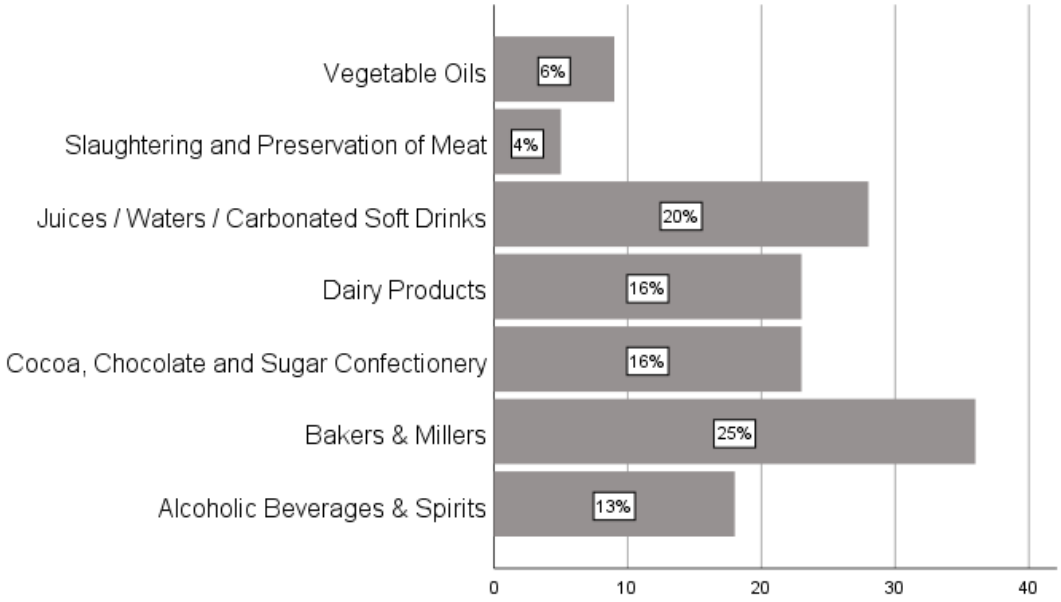

Figure 4.1: Firm's Category

4.4.2 Position in the Firm

Establishing the position of respondents within their firms is essential in a study examining green supply chain management (GSCM) and performance in the food and beverage manufacturing sector in Kenya for several key reasons. First, individuals in different positions, such as top management, mid-level management, and operational staff, may have varying perspectives on the implementation and impact of GSCM practices. For example, top management is typically responsible for strategic decision-making and resource allocation, while operational staff may provide insights into day-to-day practices and challenges (Zhu et al., 2013). Understanding these perspectives can help identify potential gaps between strategy and execution, which is crucial for effective GSCM implementation.

In addition, the level of authority and involvement in sustainability initiatives often varies by position, influencing the degree of commitment and awareness regarding green practices (Walker et al., 2012). By capturing data from respondents at various

organizational levels, the study can provide a more comprehensive view of how GSCM practices are perceived and enacted within firms, ultimately leading to more targeted recommendations for enhancing sustainability performance across the food and beverage sector in Kenya.

When asked to describe the position they had within the company, the respondents, the majority of whom (46%) held middle level management positions, responded. The data also showed that 27% of respondents held top-level management positions while the remaining 26% held lower-level positions. Since the majority of the respondents held middle-level, top-level, and finally lower-level management positions, it is expected that all management levels would be represented in the study's findings.

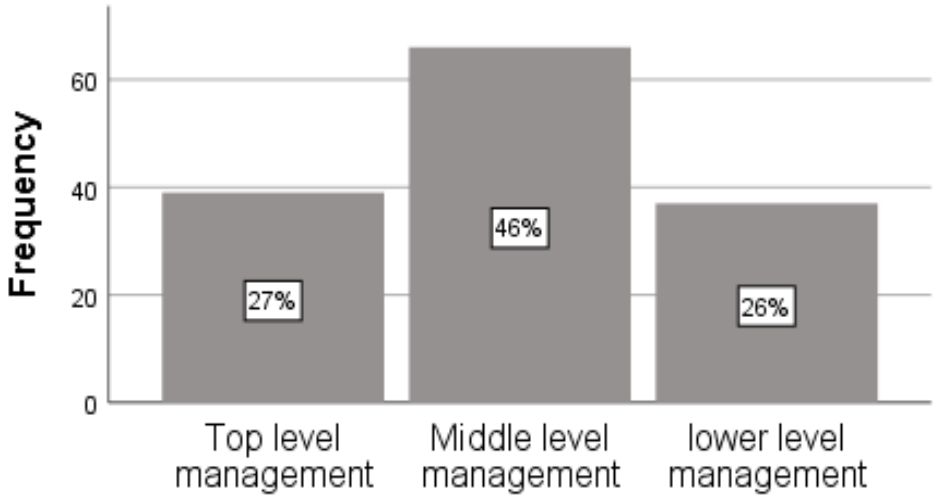

Figure 4.2: Position in the Firm

4.5 Descriptive Analysis for Study Variables

The variables; green procurement, corporate social responsibility, green packaging, reverse logistics, organizational culture and performance of food and beverage manufacturing were conceptualized and the results were analyzed as discussed below. The responses were rated on a 5-point Likert scale ranging from; 1 = strongly disagree to 5 = strongly agree. The scores of ‘strongly disagree’ and ‘disagree’ were taken to represent a

statement not agreed upon, equivalent to mean score of 0 to 2.4. The score of 'neutral' was taken to represent a statement of undecided, equivalent to a mean score of 2.5 to 3.4. The score of 'agree' and 'strongly agree' have been taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5.

4.5.1 Green Procurement

The respondents were asked to rate their agreement with the green procurement claims made about the performance of Kenyan companies that produce food and beverages. The majority of respondents, with a mean of 4.729 and a standard deviation of 0.507, concurred with the assertion that the company has policies that guide the procurement and development of environmentally friendly goods. The majority of respondents, with a mean score of 4.574, concurred with the assertion that the company has designed its processes to reduce waste, with a standard deviation of 0.612 indicating that the results were slightly varied. The results indicated that only few firms regularly visit the supplier's premises to confirm compliance with production of environmentally friendly goods with a mean of 3.454 and a standard deviation of 1.205 which shows that the results were very varied.

With a mean of 3.451 and a standard deviation of 1.179, the data demonstrate that not all business staff frequently attends a seminar or workshop on green procurement, indicating a broad range of results. The results also show that the majority of respondents agreed with the assertion that the company had decreased its procurement of hazardous and challenging-to-recycle goods, with a mean of 4.521 and a standard deviation of 0.702. This indicates that the results were varied. With a mean of 4.496 and a standard deviation of 0.661, the results also indicated that the majority of respondents agreed that green procurement improves firm performance.

The majority of respondents agreed that there is a correlation between green procurement and the success of Kenyan food and beverage manufacturing companies, as indicated by the average mean of all the statements, which was 4.204. However, the responses varied, as seen by the 0.811 standard deviation. According to the findings and the average of the

responses, the majority of food and beverage processing companies in Kenya have been practicing green procurement. The results compare with those of Mosbei (2021), who found that Kenyan food and beverage processing companies perform significantly better when using green procurement. The results also compare with the findings by Agarwal & Vijayvargy *et al.* (2012) who concluded that Green supplier assessment is also necessary for sustainable supply chain management.

The research data on green procurement reveals notable trends when compared to existing literature in the field. The high mean scores, particularly for statements such as "The firm has policies that guide on procuring and development of environmentally friendly goods" (M = 4.729), indicate a strong commitment to green procurement practices among the firms surveyed. This aligns with findings from Zhu et al. (2013), which highlight that well-defined policies and procedures are critical for effective green procurement and overall sustainability performance in manufacturing firms. Similarly, the emphasis on waste reduction processes, reflected in a mean score of 4.574, resonates with the literature that underscores the importance of integrating sustainable practices into operational processes to enhance environmental performance (Walker et al., 2012).

However, the lower scores for statements regarding supplier visits and staff training 3.454 and 3.451, respectively suggest potential gaps in supplier engagement and staff development in green procurement practices. This contrasts with studies by Brammer and Walker (2011), which argue that regular interactions with suppliers and continuous staff education are vital for successful implementation of green initiatives. Overall, while the data indicates a solid foundation in green procurement policies, the comparative analysis reveals opportunities for improvement in supplier collaboration and workforce training, highlighting the need for a more comprehensive approach to enhance the effectiveness of green procurement strategies.

Table 4.3: Green Procurement

Green procurement	SD %	D %	N %	A %	SA %	Mean	Std. Deviation
Firm has policies that guide on procuring and development of environmentally friendly goods	0	0	5	28	108	4.729	0.507
Firm's processes are designed to reduce wastes.	0	2	6	42	91	4.574	0.612
The firm regularly visits the supplier's premises to confirm compliance with production of environmentally friendly goods.	10	27	25	47	32	3.454	1.205
Firm's Staff regularly attends a seminar/workshop on green procurement.	10	28	24	45	33	3.451	1.179
The firm has minimized purchase of goods that are hazardous and difficult to dispose.	0	1	9	48	84	4.521	0.702
Implementing green procurement improves firm performance	0	2	8	49	82	4.496	0.661
Composite						***4.204***	***0.811***

The respondents were asked to provide any additional recommendations for green purchasing that would enhance the efficiency of Kenyan companies that produce food and beverages. The respondents indicated that implementing green procurement would; conserve the environment, reduce unnecessary costs to a firm, improve customer satisfaction, improve firm reputation, increase product acceptance and increase the sales volume. The respondents further indicated that firms should adhere to the green policies, regular sensitizations to be done to ensure adoption of green procurement.

In accordance with the National Climate Change Action Plan 2018–2022, the Kenya Association of Manufacturers acknowledges the contribution of manufacturing to the fight against global warming. The Kenya Association of Manufacturers' (KAM) Centre for Green Growth and Climate Change (CGGCC) aims to intensify industry-level interventions to become a one-stop solution hub for the promotion of circular economy, import-substitution, climate change initiatives, and financial linkages. The center will

prioritize people, planet, and profit to improve the manufacturers' bottom-line while preserving the environment for future generations.

In advancing Circular Economy and Green Growth, the Center seeks to reach out to industry with value – add services and products that will address the reduction in CO2 emissions, create a circular economy, improve on energy and resource efficiency and enhance human capacity at the firm level to drive green growth and climate change initiatives.

4.4.2 Corporate Social Responsibility

The respondents were asked to indicate to what extent they agreed with the corporate social responsibility statements relating to the performance of Kenyan food and beverage manufacturing firms. The majority of respondents, with a mean score of 4.606 and a standard deviation of 0.607, concurred that their employer has a CSR policy, validating the range of answers. The findings revealed that the majority of respondents agreed that the company participates in community projects, with a mean of 4.458 and a standard deviation of 0.680. Respondents overwhelmingly concurred that the company participates in environmental-related projects, with a mean of 4.546 and a standard deviation of 0.681.

Few respondents (mean 3.345; standard deviation 1.048) agreed that firms participate in suppliers' manufacturing of goods. With a mean of 3.525 and a standard deviation of 1.082, the respondents only slightly agreed that being involved in community projects enhances the company's reputation. This indicates that the responses were very diverse. Finally, with a mean of 4.414 and a standard deviation of 0.689, the respondents agreed that integrating corporate social responsibility enhances the performance of food and beverage manufacturing enterprises.

The majority of respondents believed that there is a correlation between corporate social responsibility and the success of Kenyan companies that produce food and beverages, as indicated by the average mean of all the assertions, which was 4.149. On the other hand,

the standard deviation of 0.798 shows that there was variance in the responses. Based on the mean of the responses, the findings suggest that the majority of Kenyan food and beverage processing companies have been practicing CSR in some way. The findings compare with those by Mbugua (2012), who established most multinationals in the food and beverage industry engage in one or more forms of CSR at any given time. It is therefore evident that the involvement in CSR is a deliberate action and not merely accidental as its planned for. The results also compare with those by Wang & Zhang (2020) who in their research Corporate social responsibility, Green supply chain management practices and firm performance concluded that internal CSR (management practice towards employees) and external CSR (management practice towards external stakeholders) has a positive impact on green supply chain practices.

The research data on Corporate Social Responsibility (CSR) highlights significant findings that align with existing literature on CSR policies and community engagement. The high mean score of 4.606 for the statement "Firm has a policy on corporate social responsibility" suggests that the firms surveyed prioritize formal CSR frameworks, which is consistent with Aguinis and Glavas (2012) in their study on the effectiveness of CSR policies in enhancing corporate reputation and stakeholder relationships. Furthermore, the strong participation rates in community projects (M = 4.458) and environmental initiatives (M = 4.546) reflect a proactive approach to social responsibility, echoing the findings of Porter and Kramer (2006), who examined the strategic benefits of engaging in community-focused initiatives to strengthen corporate reputation and competitive advantage.

In contrast, the lower mean score for participation in production by suppliers (M = 3.345) indicates a potential gap in integrating CSR practices within the supply chain, which aligns with the research of Brammer and Millington (2008) on the importance of supply chain engagement for comprehensive CSR strategies. Additionally, the score of 3.525 for the belief that community participation enhances reputation suggests that while firms recognize the importance of CSR, they may not fully leverage its benefits for reputation management, which is a concern also raised by Du et al. (2010) in their exploration of the

relationship between CSR and corporate image. Overall, while the data indicates a strong commitment to CSR initiatives, the comparative analysis reveals areas for improvement, particularly in supply chain collaboration and the strategic communication of CSR efforts.

Table 4.4: Corporate Social Responsibility

Corporate Social Responsibility	SD %	D %	N %	A %	SA %	Mean	Std. Deviation
Firm has a policy on corporate social responsibility	0	1	2	48	91	4.606	0.607
Firm participate in community projects	0	6	7	44	84	4.458	0.680
Firm participate in projects that have a concern with the environment	0	3	6	44	89	4.546	0.681
Firm participate in production of goods by the suppliers	4	36	36	34	29	3.345	1.048
Participating in community projects improves the reputation of the firm	5	31	20	52	31	3.525	1.082
Composite						***4.096***	***0.8196***

The respondents were asked to share other comments relating to corporate social responsibility. They indicated that firms must set aside a budget for CSR and support the surrounding community through hiring, reducing pollution, supporting community-based projects and even acquiring raw materials from locals. By doing so, the firm will improve its reputation.

In Kenya, the concept of CSR disclosure is gaining momentum as firms acknowledge its key role to organizational performance. This is particularly the case among large firms which utilize it as a corporate positioning tool. Research has shown that by integrating CSR disclosures in business operations, these firms have been able to enjoy high profit due to positive market perception. These firms have also benefited from operational efficiency through reduction of waste with policies compelling the businesses to safeguard the environment in which they operate. In this regard, Wafula, (2012) posits that it is important to integrate CSR practices in the business operations in order for the firm to explore profitable prospects.

4.5.3 Green Packaging

The respondents were asked to rate their agreement with the statements made on the green packaging regarding the performance of Kenyan companies that produce food and beverages. Only a small number of respondents (mean 3.546; standard deviation 1.065) agreed that the company used recyclable packaging. Few respondents, with a mean of 3.535 and a standard deviation of 1.063, agreed that the business utilizes recyclable packaging. This suggests that the outcomes were diverse. The respondents overwhelmingly concurred that the company employs environmentally friendly packaging materials, with a mean of 4.119 and a standard deviation of 0.759.

With a mean of 3.452 and a standard deviation of 1.171, the survey found that few respondents agreed that the company utilizes biodegradable packaging materials, indicating that the results were varied. With a mean of 4.669 and a standard deviation of 0.580, the responses showed that respondents agreed with the assertion that the firm employs packaging that ensures safety. Lastly, with a mean of 4.634 and a standard deviation of 0.577, the respondents agreed that the organization may increase performance by utilizing green packaging.

The average of all the statements relating to green packaging indicated that majority of the respondents agreed with a mean of 3.993 that there exists a relationship between green packaging and performance of Kenyan food and beverage manufacturing firms with a standard deviation of 0.869 which shows that the results were varied. According to the overall mean of the responses, the findings suggest that the businesses tended to follow green packaging practices in a fairly consistent manner. The goal of the practice is to make food and beverage processing companies in Kenya perform better. The findings are in line with those of Mosbei et al. (2021), who came to the concluded that there is a positive correlation between the performance of Kenyan food and beverage manufacturing companies and green packaging.

The research data on green packaging reveals important insights that align with and contrast against existing literature in the area of sustainable packaging practices. The high mean score of 4.669 for the statement "Firm uses packaging that ensures safety" underscores a critical priority for firms, reflecting the findings of Peattie and Crotty (2009), who emphasize that safety and compliance with regulations are fundamental in the adoption of green packaging solutions. Additionally, the mean score of 4.119 for using packaging materials that do not cause negative harm to the environment indicates a strong commitment to environmental sustainability, which supports the conclusions of Thompson et al. (2020), who identified environmental safety as a key driver for consumers and businesses in choosing packaging solutions.

Conversely, the lower scores for the use of re-usable (M = 3.546) and biodegradable packaging materials (M = 3.452) suggest that while firms are adopting some green practices, there may still be significant room for improvement. This is consistent with findings from Singh et al. (2017), who reported that the transition to reusable and biodegradable packaging materials is often hindered by cost considerations and logistical challenges. Furthermore, the data indicates that a majority of firms are still reliant on conventional materials, which contrasts with the expectations set forth by recent studies advocating for a more comprehensive embrace of sustainable packaging practices (Rundh, 2016). Overall, while the firms demonstrate strong safety and environmental awareness in their packaging choices, the comparative analysis reveals critical areas where further commitment to reusable and biodegradable materials could enhance their sustainability profiles.

Table 4.5: Green Packaging

Green packaging	SD %	D %	N %	A %	SA %	Mean	Std. Deviation
Firm uses re-usable packaging material.	1	18	53	41	28	3.546	1.065
Firm uses durable packaging materials that allow recyclability.	2	29	24	62	23	3.535	1.063
Firm uses packaging material that does not cause negative harm to the environment.	0	2	14	91	35	4.119	0.759
Firm uses bio-degradable packaging materials.	7	35	15	57	28	3.452	1.171
Firm uses Packaging that ensure safety	1	1	0	40	100	4.669	0.580
Composite						**4.8642**	**0.9276**

The respondents were requested to share any other relevant information that may improve firm performance in relation to green packaging. The respondents indicated that the firms should embrace the use of green packaging materials that can be recycled and repurposed into entirely new products, so as to minimize harm to the environment. They indicated that firm should use safe packaging materials that have less negative impact to the environment. It was noted that implementing green packaging improves firm brand thereby increasing sales. It was suggested that firms should use organic packaging to reduce pollution. Lastly, it was suggested that the packaging should be affordable to avoid exaggerating product prices which may affect the product pricing.

4.5.4 Reverse Logistics

The respondents were asked to rate their agreement with the comments made in the reverse logistics section regarding the performance of Kenyan food and beverage manufacturing companies. The majority of survey participants felt that the organization had successfully integrated manufacturing, transportation, and information flow to fulfill consumer expectations, with a mean of 4.592 and a standard deviation of 0.726. This shows that the responses were reasonably varied. The responses' wide range and a mean of 4.479 with a standard deviation of 0.722 suggest that the business creates recyclable products. The

responses showed that the majority of respondents concurred that the company encourages suppliers to utilize returnable packaging materials, with a mean of 4.380 and a standard deviation of 0.823. This suggests that there was a wide range of replies.

With a mean of 3.474 and a standard deviation of 1.072, the responses showed that only a small number of businesses work with suppliers whose products can be recycled, indicating that the results were highly variable. With a mean of 3.523 and a standard deviation of 1.014, the respondents only slightly agreed that businesses package their items on returnable packaging materials. Finally, with a mean of 4.458 and a standard deviation of 0.721, the respondents agreed with the assertion that the organization is able to increase its performance by applying reverse logistics. The average mean of all the statements was 4.151 indicating that majority of the respondents agreed that there exists a relationship between reverse logistics and performance of Kenyan food and beverage manufacturing firms. However, there was variation in the responses as shown by a standard deviation of 0.846.

The research reveals that reverse logistics has been used quite often by Kenya's food and beverage manufacturing companies. The average mean of the responses provided supports this. The results are compared to those by Mutuku (2020), who asked the respondents to give their opinions on how product returns management affected the performance of Kenyan companies that manufacture food and beverages. The majority of respondents, according to the findings, agreed with the comments. Wanja and Achuora (2020) in their study titled Sustainable procurement practices and performance of procurement in food and beverages manufacturing firms in Kenya arrived at the same conclusions that reverse logistics significantly positively affect procurement performance through reduction of cost, clean environment and increased quality of supplies.

The research data on reverse logistics highlights significant findings that align with existing literature on sustainable supply chain practices. The high mean score of 4.592 for the statement "The firm has integrated manufacturing, transportation, and flow of information to effectively respond to customer’s requirements" indicates a strong

emphasis on coordination and responsiveness in supply chain operations. This aligns with the work of Ko et al. (2013), who emphasize the importance of integrating various logistics functions to enhance overall supply chain efficiency and customer satisfaction. Similarly, the mean score of 4.479 for designing recyclable products reflects a commitment to sustainability, which is consistent with findings from Sweeney and Soutar (2001), who highlight that product design plays a crucial role in facilitating recycling and minimizing waste.

Conversely, the lower mean scores for statements regarding engaging suppliers whose products can be recycled (M = 3.474) and packaging products in returnable materials (M = 3.523) suggest potential weaknesses in the supply chain's commitment to reverse logistics practices. This is supported by the research of Govindan et al. (2015), who found that while companies may recognize the benefits of reverse logistics, challenges such as supplier collaboration and logistical complexities often hinder full implementation. Overall, while the data indicates a strong foundation in reverse logistics through integration and product design, the comparative analysis highlights critical areas for improvement, particularly in fostering supplier partnerships and enhancing the use of returnable packaging.

Table 4.6: Reverse Logistics

Reverse Logistics	SD %	D %	N %	A %	SA %	Mean	Std. Deviation
The firm has integrated manufacturing, transportation and flow of information to effectively respond to customer's requirements	1	2	10	28	101	4.592	0.726
Firm designs products that can be recycled	2	0	10	47	83	4.479	0.722
The firm encourages suppliers to use Returnable packaging materials.	0	6	13	38	76	4.380	0.823
The firm engage suppliers whose products can be recycled	3	31	24	61	21	3.474	1.072
Firm package its products on returnable packaging materials	0	29	20	56	19	3.523	1.014
Composite						**4.0896**	**0.8714**

The respondents were asked to list any other reverse logistics recommendations that they felt could help Kenyan food and beverage manufacturing companies perform better. They noted that use of packaging that are returnable may save costs for the firms and improve efficiency. Reverse logistics can help a company identify ways to reuse, resell or recycle materials that would otherwise end up in a landfill. Implementing reverse logistics not only helps in profit margins, but it also helps improve the company's brand reputation.

4.5.5 Organizational Culture

The respondents were asked to rate their agreement with the organizational culture statements regarding the productivity of Kenyan companies that produce food and beverages. With a mean of 4.702 and a standard deviation of 0.570, the majority of respondents felt that they understood the goals and objectives of their organizations. The majority of respondents, with a mean of 4.518 and a standard deviation of 0.672, concurred that businesses alter their structural layout to respond to changes in the market. Only a small portion of respondents, with a mean of 3.553 and a standard deviation of 0.993, agreed that the company's strategies are routinely reviewed to successfully address environmental changes. Few respondents, with a mean of 3.604 and a standard deviation

of 1.016, agreed that the organization invests in R&I. This suggests that there was a wide range of replies.

With a mean of 4.567 and a standard deviation of 0.647, the respondents all agreed that there are well-established, efficient procedures, policies, and guidelines in the company. The respondents also agreed, with a mean of 4.636 and a standard deviation of 0.578, that organizational culture has an impact on company performance. The majority of respondents agreed that there is a correlation between organizational culture and performance of food and beverage manufacturing enterprises in Kenya, as indicated by the average mean of all the claims, which was 4.263. However, a standard deviation of 0.746 indicated that there was variation in the responses.

The findings show that most of the Kenyan food and beverage manufacturing firms have relatively implemented organizational culture as confirmed by the average mean of the responses given. The findings compare with those by Muteshi (2018), who indicated that the dimensions of culture are critical to organizational performance and provide mechanisms for institutional amendments.

The research data on organizational culture reveals strong alignment with existing literature that emphasizes the significance of a well-defined organizational culture in facilitating strategic adaptation and employee engagement. The high mean score of 4.702 for understanding the firm's vision and mission indicates a strong alignment of employees with organizational goals, which is consistent with the findings of Kotter and Heskett (1992), who highlight that a clear vision fosters a sense of purpose and commitment among employees. Additionally, the score of 4.518 for structural adjustments suggests that the organization is responsive to market changes, reflecting the research by Burnes (2004), which posits that adaptability is a crucial component of organizational success in dynamic environments.

However, the lower mean scores for the review of strategies (M = 3.553) and investment in research and innovation (M = 3.604) suggest areas where the organization may lag in

fully integrating adaptive practices into its culture. This observation aligns with the work of McKinsey & Company (2015), which emphasizes that organizations must continuously evolve their strategies and foster innovation to remain competitive. Furthermore, while the data indicates strong systems and policies (M = 4.567), the comparative analysis suggests that a more proactive approach to strategy review and innovation could further enhance organizational effectiveness and adaptability. Overall, while the foundation of organizational culture appears solid, there are critical areas for improvement to ensure sustained growth and responsiveness to environmental changes.

Table 4.7: Organizational Culture

Organizational culture	SD %	D %	N %	A %	SA %	Mean	Std. Deviation
I understand the Vision and Mission of my firm/organization.	0	1	6	27	107	4.702	0.570
Structural adjustments are carried out by firms to adapt to changes in the market	0	3	10	39	88	4.518	0.672
The firm's Strategies are reviewed from time to time to effectively respond to environmental changes	2	25	29	63	22	3.553	0.993
The firm invest in research and innovation	2	26	9	72	17	3.604	1.016
There exist established effective systems, policies, and guidelines in the firm.	0	0	3	55	83	4.567	0.647
Composite						**4.1888**	**0.7796**

In order to help Kenyan food and beverage manufacturing companies operate better, we asked the respondents for organizational culture-related advice. It was noted that Organizational culture makes operations more efficient and much more effective. By separating employees and functions into different departments, the company can perform different operations at once seamlessly. The beliefs and values of a firm contribute to the sustainability of a firm.

4.5.6 Performance of Food and Beverage Manufacturing Firms

The majority of respondents, with a mean of 4.690 and a standard deviation of 0.535, agreed that the organization may boost its profit margins by using green supply chain practices. This suggests that the outcomes were somewhat variable. The majority of respondents, with a mean of 4.444 and a standard deviation of 0.871, agreed that implementing green supply chain management practices has reduced the company's production costs. This shows that the responses were diverse. The majority of respondents, with a mean of 4.521 and a standard deviation of 0.702, concurred that the company had reached its maximum sales volumes after implementing green supply chain practices. This shows that the responses were diverse.

With a mean of 4.546 and a standard deviation of 0.681, the results showed that using green supply chain management practices has increased the quality of the products produced. The findings showed that the firm can grow its market share by implementing green supply chain practices, with a mean of 4.542 and a standard deviation of 0.554. With a mean of 4.556 and a standard deviation of 0.658, the majority of respondents believed that implementing green supply chain management practices improves the performance of companies that manufacture foods and beverages. The majority of respondents agreed with the claims about the performance of food and beverage manufacturing enterprises in Kenya, as indicated by the average mean of all the statements, which was 4.550. However, a standard deviation of 0.667 indicates that there was variation in the responses.

The results demonstrate that by using Green Supply Chain Practices, the majority of Kenya's food and beverage manufacturing companies have been successful in raising their performance levels. The results compare with those of Islam, M., Turki, A., Murad, & Karim's (2017) study on Green Supply Chain Management Practices and organizational performance, which found a significant correlation between Green Supply Chain Management Practices as a whole and the performance of organizations. The findings also compare with the results by Kimani et al. (2020) who noted that the integration of green supply chain management practices in the Kenyan food and beverage industry has led to

reductions in waste generation, energy consumption, and overall resource usage. These efficiencies, in turn, positively influence firm's profitability. While initial investments might be required to implement eco-friendly technologies and processes, the long-term benefits include improved reputation, improved profit margins, reduced operational risks, and potential competitive advantages in the market.

The research data on the performance of food and beverage manufacturing firms reveals a strong correlation between the adoption of Green Supply Chain Management (GSCM) practices and enhanced organizational performance. The high mean score of 4.690 for the statement "By adopting Green Supply Chain Management Practices, the firm is able to increase its profit margins" underscores a significant perception of financial benefits associated with sustainable practices, aligning with findings from Jabbour et al. (2014), who noted that GSCM can lead to improved financial performance through cost savings and increased efficiency. Furthermore, the mean score of 4.444 for the reduction of manufacturing costs complements the research by Zhu et al. (2013), which emphasizes that GSCM not only lowers costs but also enhances competitive advantage by fostering innovation and resource efficiency.

In addition, the positive responses regarding increased sales volumes (M = 4.521) and improved product quality (M = 4.546) are consistent with the work of Dangelico and Pontrandolfo (2015), which indicates that firms that adopt sustainable practices often experience enhanced brand loyalty and customer acceptance. The mean score of 4.542 for increased market share further supports the assertion that sustainability can be a strategic differentiator in the competitive landscape of the food and beverage sector. Overall, the composite score of 4.5486 suggests a robust perception among firms that GSCM practices not only contribute to operational efficiency but also significantly enhance overall performance, corroborating the growing body of literature advocating for the integration of sustainability into business strategies.

Table 4.8: Performance of Food and Beverage Manufacturing Firms

Performance of food and beverage manufacturing firms	SD %	D %	N %	A %	SA %	Mean	Std. Deviation
By adopting Green Supply Chain Management Practices firm is able to increase its profit margins	0	0	1	42	99	4.690	0.535
Firm has experienced reduction on overall cost of manufacturing by implementing Green Supply Chain Practices.	0	3	15	39	83	4.444	0.871
Firm has increased the sales volumes after implementing Green Supply Chain Practices.	0	4	6	42	88	4.521	0.702
The quality of goods produced has improved as a result of adopting Green Supply Chain Management Practices hence increasing acceptance by customers.	0	1	8	45	87	4.546	0.681
By adopting Green Supply Chain Practices, firm is able to increase its market share.	0	0	7	47	79	4.542	0.554
Composite						**4.5486**	**0.6686**

From the year 2019 to 2022, Kenyan food and beverage manufacturing firms faced significant financial shifts due to various market conditions, including the COVID-19 pandemic and subsequent recovery phases. In 2019, companies such as East African Breweries Limited (EABL) reported strong financial results, with EABL achieving KES 96.3 billion in revenue and Brookside Dairy at KES 45 billion (KAM, 2021). However, the pandemic's onset in 2020 led to revenue declines across the sector, with EABL's revenue dropping to KES 82.5 billion and Kenya Breweries to KES 62 billion (KAM, 2021). The sector's financial performance began to rebound in 2021, with EABL's revenue rising to KES 85 billion and Kenya Breweries improving to KES 64.5 billion (KAM, 2021). By 2022, this upward trend continued, with EABL reaching KES 88 billion in revenue and Brookside Dairy increasing to KES 48 billion, reflecting a recovery and growth trajectory (KAM, 2023).

During this period, many firms adopted green supply chain management (GSCM) practices to manage costs and improve sustainability. By integrating GSCM, companies reduced operational costs through enhanced resource efficiency and waste management. For instance, firms that invested in energy-efficient technologies and sustainable packaging saw lower energy and material costs, which helped offset the financial pressures from declining revenues and rising operational expenses (KAM, 2023). Additionally, these practices not only contributed to cost savings but also improved brand image and compliance with environmental regulations, fostering long-term profitability. Overall, the adoption of green supply chain practices played a crucial role in helping Kenyan food and beverage firms navigate economic challenges and drive financial recovery and growth.

4.6 Quantitative Results

4.6.1 Correlation Analysis

The correlation matrix in Table 4.9 displays the correlation coefficients between various variables. The correlation coefficient between any two variables is shown in each cell of the table. According to Gogtay and Thatte (2017), the correlation coefficient, which runs from -1 to +1, shows the intensity and direction of the association between the variables. Since a variable has a perfect correlation with itself, the correlation of each variable with itself is represented by the diagonal cells and is always 1. The correlation coefficients between pairs of variables are represented by the values above and below the diagonal. A greater positive association between the variables is indicated by higher positive correlation coefficients nearer to +1. Negative correlation coefficients, on the other hand, that are closer to -1 show a negative association between the variables.

Corporate social responsibility and green purchasing have a 0.473 correlated coefficient. This implies a weakly positive association between these two factors, indicating that businesses that prioritize corporate social responsibility also tend to prioritize green procurement. Green packaging and green procurement have a 0.463 correlated

relationship. This suggests a positive link between these two factors, suggesting that businesses that emphasize green purchasing are also likely to encourage the usage of eco-friendly packaging. Reverse logistics and green procurement have a 0.493 correlation coefficient. As a result, there may be a weakly positive association between these factors, suggesting that businesses who use green buying methods are also more likely to use reverse logistics techniques.

The organizational culture and green purchasing have a correlation coefficient of 0.415. This is a weakly positive link between these factors, suggesting that businesses that emphasize environmentally sustainable purchasing often have a supportive organizational culture. Performance and green procurement have a 0.701 connection relationship. The association between these factors is positive, indicating that green procurement strategies are more likely to lead to greater performance levels for firms.

The presence of high correlations among independent variables in may indicate potential multicollinearity (Alin, 2010). High correlations can make it difficult to determine the individual effects of each variable in a regression analysis and therefore, when conducting regression analysis, assessment of the impact of multicollinearity on the results was done using variance inflation factor (VIF) analysis used to assess and mitigate multicollinearity if necessary.

Table 4.9: Correlation Analysis

	Green procurement	**Corporate Social Responsibility**	**Green packaging**	**Reverse Logistics**	**Performance**
Green procurement	1				
Corporate Social Responsibility	.473**	1			
Green packaging	.463**	.468**	1		
Reverse Logistics	.493**	.463**	.403**	1	
Performance	.701**	.698**	.697**	.705**	1

4.6.2 Testing of Outliers of the Study Variables

Testing for outliers in a study on green supply chain management (GSCM) practices is essential for ensuring the accuracy and reliability of research findings. Outliers can significantly impact statistical analyses, leading to biased estimates and potentially erroneous conclusions. For instance, in GSCM research, outliers may represent firms that either excel exceptionally in sustainability practices or face unique challenges, which can skew mean values and other statistical measures (Deng et al., 2019). By identifying these outliers, researchers can assess whether they are the result of measurement errors, data entry mistakes, or genuine variability that deserves further exploration.

Outliers in GSCM studies can provide valuable insights into best practices or obstacles that certain firms encounter. For example, a company that demonstrates an unusually high adoption of green practices may serve as a model for others, while firms with low adoption rates may highlight barriers to implementation that could be addressed through targeted interventions (Zhu & Sarkis, 2004). Identifying and analyzing these outliers helps researchers understand the broader context of GSCM practices and contributes to the development of more nuanced strategies for enhancing sustainability across the supply chain.

A robust outlier testing strengthens the overall integrity of the research findings. By ensuring that statistical analyses are not unduly influenced by extreme values, researchers can provide more accurate and generalizable insights into the relationship between GSCM practices and performance outcomes (Chatterjee et al., 2021). This is particularly critical in studies aiming to inform policy and practice, where misleading conclusions could lead to ineffective recommendations. Overall, rigorous testing for outliers is crucial in GSCM research, as it enhances the validity of results and supports the development of effective, evidence-based practices.

The dependent and independent constructs' outliers were eliminated. Cases or observations that deviate significantly from the bulk of cases in a data set in terms of their

attributes or values are typically eliminated (Kline, 2005; Hair et al., 2010). This is due to the fact that they misrepresent the genuine link between variables, either by introducing an incorrect correlation or by suppressing an appropriate correlation (Abbott & McKinney, 2013). Figure 4.3 demonstrates that no outliers were found since the analysis produced appropriate boxplots.

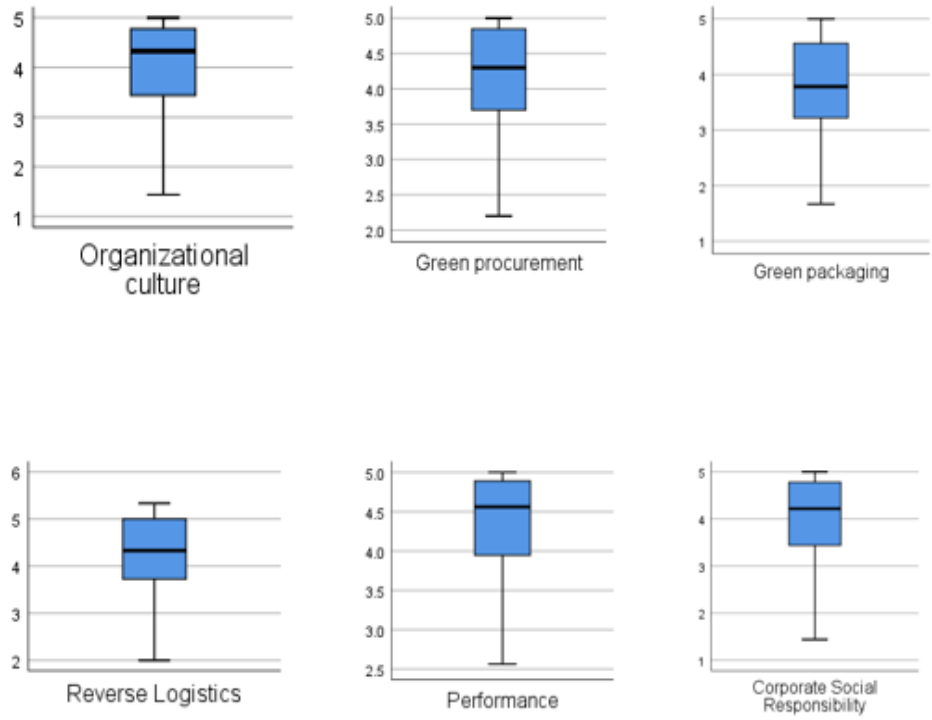

Figure 4.3: Test of Outliers

4.6.3 Testing for Normality

Testing for normality in a study related to green supply chain management (GSCM) practices is essential to ensure the validity of statistical analyses and the reliability of research findings. Many statistical methods, particularly parametric tests, assume that the data follows a normal distribution. Violations of this assumption can lead to inaccurate

results and misinterpretations of the relationships among variables (Field, 2013). For instance, if the variables associated with GSCM practices such as adoption rates, cost savings, or environmental performance are not normally distributed, using methods like t-tests or ANOVA without appropriate adjustments could result in biased estimates of effects and erroneous conclusions (Tabachnick & Fidell, 2019).

Testing for normality helps researchers identify the presence of skewness or kurtosis in the data, which may indicate that certain factors influence the adoption of GSCM practices differently across firms. For example, if the data shows a right skew, it could imply that most firms are adopting GSCM practices at a lower level, with only a few firms achieving higher levels of sustainability (González-Benito & González-Benito, 2006). Understanding the distribution of these variables allows researchers to tailor their analyses and interpret the data within its proper context, ultimately leading to more accurate conclusions about the effectiveness of GSCM initiatives.

Assessing normality can inform the choice of statistical methods. If the data does not meet normality assumptions, researchers may opt for non-parametric alternatives or transformations to address the issues (Conover, 1999). This adaptability is crucial in GSCM studies, where diverse datasets often arise from varying organizational practices and contexts. By ensuring that normality is tested and appropriately addressed, researchers can enhance the robustness of their findings and contribute valuable insights to the field of sustainable supply chain management.

A normality test examines whether a normal distribution is an appropriate match for the data set (Paul & Zhang, 2010). Kurtosis and Skewness were utilized in this study's normalcy tests. While skewness serves as a marker of asymmetry and deviation from a normal distribution, kurtosis is a measure of "flattening" of a distribution. According to Onwuegbuzie and Daniel (2002), skewness and kurtosis values that fall between +/-3 (SE) and +/-3 are commonly regarded as normal. Table 4.10 presents the findings. As can be seen, all of the factors' skewness values fall inside the +/-3 range. It follows from this that the presumption of normality was met.

Table 4.10: Normality Test of the Study Variables

Construct	Statistics	Statistic	Std. Error
Green procurement	Mean	4.554	0.068
	Std. Deviation	0.646	
	Skewness	-0.790	0.203
	Kurtosis	0.024	0.404
Corporate Social Responsibility	Mean	4.494	0.082
	Std. Deviation	0.687	
	Skewness	-1.040	0.203
	Kurtosis	0.644	0.404
Green packaging	Mean	4.572	0.082
	Std. Deviation	0.650	
	Skewness	-0.476	0.203
	Kurtosis	-0.335	0.404
Reverse Logistics	Mean	4.466	0.078
	Std. Deviation	0.749	
	Skewness	-0.873	0.203
	Kurtosis	-0.088	0.404
Organizational culture	Mean	4.596	0.075
	Std. Deviation	0.641	
	Skewness	-0.731	0.203
	Kurtosis	-0.429	0.404
Performance	Mean	4.550	0.069
	Std. Deviation	0.667	
	Skewness	-1.204	0.203
	Kurtosis	0.799	0.404

Normal QQ plots

To corroborate the skewness and kurtosis results, the graphical analysis results showed the line representing the actual data distribution closely follow the diagonal in the normal Q-Q plot as shown in figures 4.4, suggesting normal distribution (Hair, Tatham, Anderson & Black, 2006). In q-q plot, or the normal probability plot, the observed value for each score is plotted against the expected value from the normal distribution, where, a sensibly straight line suggests a normal distribution (Pallant, 2007). By and large, if the points in a q-q plot depart from a straight line, then the assumed distribution is called into question (Aas & Haff, 2006).

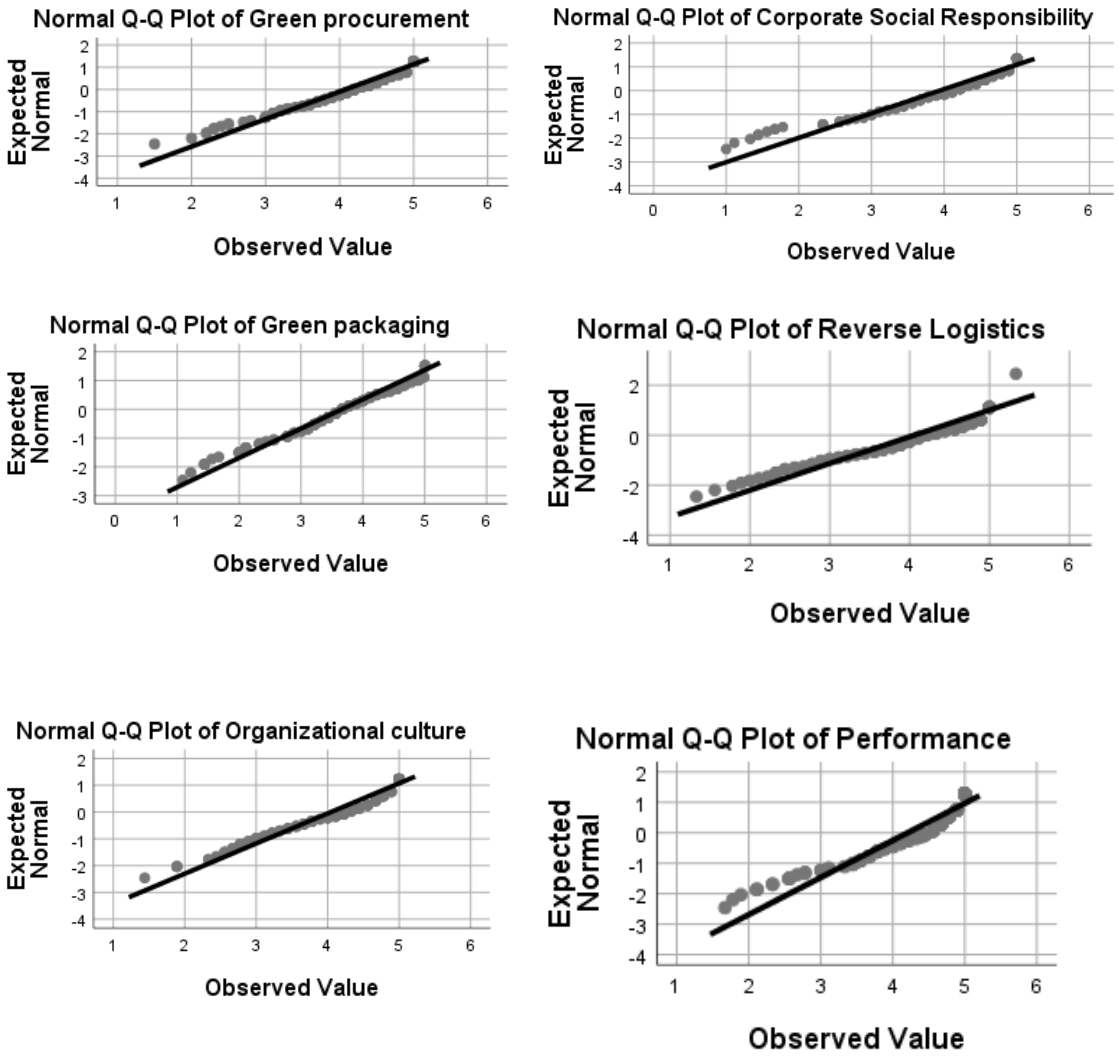

Figure 4.4: Normal QQ Plots

4.6.4 Heteroscedasticity

Heteroscedasticity refers to the circumstance where the variance of the errors in a regression model is not constant across all levels of an independent variable. This can lead to inefficiencies in estimations and can affect hypothesis testing by producing biased standard errors, ultimately resulting in misleading statistical inferences (Wooldridge, 2019). In the context of GSCM, where firms may exhibit varying levels of sustainability

practices based on factors such as size, industry, or geographic location, identifying and addressing heteroscedasticity is essential for obtaining accurate insights.

The presence of heteroscedasticity can indicate that the relationship between GSCM practices and performance outcomes might differ across firms. For example, larger firms may have different variance in their adoption of green practices compared to smaller firms, which could suggest that specific factors influencing GSCM effectiveness are more pronounced in one group over another (Deng et al., 2020). Recognizing these differences allows researchers to tailor their models and interpretations, providing a more nuanced understanding of the dynamics at play in sustainable supply chains.

Ignoring heteroscedasticity can lead to overestimating the significance of certain variables, which could mislead stakeholders regarding the effectiveness of GSCM initiatives. For instance, if a regression model suggests that specific green practices lead to significantly improved performance without accounting for heteroscedasticity, decision-makers might implement those practices without recognizing their varying effectiveness across different contexts (White, 1980). Therefore, incorporating tests for heteroscedasticity is not only a methodological necessity but also a means to enhance the practical relevance of the findings within the field of GSCM.

When the variance of the errors differs between observations, heteroscedasticity occurs (Long & Ervin, 1998). The OLS estimator becomes unreliable and ineffective when the errors are heteroscedastic, rendering the standard methods for hypothesis testing ineffective. The Breusch-Pagan test was employed in this research to check for heteroscedasticity. Breusch-Pagan compares the alternative, that the error variances are a multiplicative function of one or more variables, to the null hypothesis that they are all equal (Sazali, Haslinda, Jegak & Raduan, 2009). The conclusion of the Breusch-Pagan heteroscedasticity test is shown in Table 4.11. Heteroscedasticity is evident when the chi-square value is high, more than 9.21 (Sazali et al., 2009). The chi-square score for this study was low (3.850), indicating that heteroscedasticity was not a problem.

Table 4.11: Heteroscedasticity Test

Test	Test value	Sig
Breusch-Pagan	3.850	.352
Koenker test	0.505	.477

4.6.5 Multicollinearity

Multicollinearity occurs when two or more independent variables in a regression model are highly correlated, which can lead to inflated standard errors, unreliable coefficient estimates, and difficulties in determining the individual effect of each predictor on the dependent variable (James et al., 2013). In the context of GSCM, where multiple practices may influence performance outcomes such as waste reduction, resource efficiency, and supplier collaboration understanding the relationships between these practices is crucial for drawing valid conclusions.

When multicollinearity is present, it becomes challenging to ascertain which specific GSCM practices are driving performance improvements. For example, if both "investment in renewable technologies" and "implementation of recycling programs" are included as predictors in a model, high correlation between these variables may obscure their individual contributions to overall sustainability performance (O'Brien, 2007). This situation could lead to misleading implications for practitioners who seek to prioritize certain GSCM strategies over others.

Furthermore, addressing multicollinearity enhances the predictive power of the model. By identifying and potentially removing or combining correlated variables, researchers can create a more parsimonious model that retains essential information while improving estimation accuracy (Hair et al., 2010). This is particularly important in GSCM studies, where decision-makers rely on empirical evidence to guide strategic initiatives and resource allocation. Overall, testing for multicollinearity not only strengthens the statistical integrity of the research but also ensures that findings are meaningful and actionable within the realm of sustainable supply chain practices.

High correlations between independent variables are referred to as multicollinearity, which can be problematic in statistical research. (Martz, 2013). Calculating the tolerance of an independent variable is done by subtracting 1 from R2. Low multicollinearity is indicated by a tolerance value close to 1, whereas severe multicollinearity is indicated by values close to 0 (Belsley, Kuh & Welsch, 2004). The reciprocal of the tolerance is known as Variance Inflation Factor (VIF). Equally, the VIF measures multicollinearity in the model in such a way that if no two independent variables are correlated, then all the VIF values will be 1, that is, there is no multicollinearity among factors. But if VIF value for one of the variables is around or greater than 5, then there is multicollinearity associated with that variable (Martz, 2013).

With a tolerance value of 0.852 in Table 4.12, green procurement indicates minimal multicollinearity because 85.2% of its variance cannot be explained by the other independent variables. The computed regression coefficients' variance has somewhat increased due to multicollinearity, as indicated by the VIF value of 1.137, but it is still within acceptable limits. Corporate Social Responsibility has a tolerance value of 0.886, indicating low multicollinearity, and that 88.6% of its variance is not explained by the other independent variables. The calculated regression coefficients' variance has somewhat increased, as seen by the VIF value of 1.121, as a result of multicollinearity. Low multicollinearity is indicated by the tolerance value of 0.965, which means that 96.5% of the variance in green packaging is not explainable by the other independent variables. The computed regression coefficients' estimated variance has only slightly increased due to multicollinearity, as indicated by the VIF value of 1.036.

With a tolerance value of 0.892, reverse logistics suggests minimal multicollinearity because 89.2% of its variance cannot be predicted from the other independent variables. The calculated regression coefficients' variance has somewhat increased, as indicated by the VIF value of 1.104, as a result of multicollinearity. Low multicollinearity can be observed by the tolerance value of 0.873, which shows that 87.3% of the variance in organizational culture is not explainable by the other independent variables. The calculated regression coefficients' variance has slightly increased, but it is still within an

acceptable range, according to the VIF value of 1.146, which is caused by multicollinearity.

Based on the tolerance and VIF values, it can be concluded that the multicollinearity among the constructs is low, indicating that the independent variables are relatively independent of each other and should not pose significant issues in the statistical analysis of performance of Kenyan food and beverage manufacturing firms.

Table 4.12: Multicollinearity

	Collinearity Statistics	
Constructs	**Tolerance**	**VIF**
Green procurement	0.852	1.137
Corporate Social Responsibility	0.886	1.121
Green packaging	0.965	1.036
Reverse Logistics	0.892	1.104
Organizational culture	0.873	1.146

a. Dependent Variable: Performance

4.7 Hypothesis testing of study Variables

4.7.1 Influence of Green Procurement on Performance of Kenyan Food and Beverage Manufacturing Firms.

This study's first goal was to assess the relationship between green procurement and Kenyan food and beverage manufacturing companies' performance. For this particular purpose, the hypothesis to be tested was:

H_{01}: Green procurement has no significant relationship on performance of Kenyan food and beverage manufacturing firms.

Table 4.13 displays the results of the analysis of the relationship between the dependent variable Performance of Kenyan food and beverage manufacturing firms and the independent variable Green procurement. The association between green purchasing and the performance of Kenyan companies that manufacture food and beverages is moderately

significant at 0.701. Additionally, it should be emphasized that the regression model's green procurement component accounted for 0.491 (49.1%) of the variance in the performance of Kenya's food and beverage manufacturing companies. Given the intricacy of the model and the data gathered, the value of 0.487 demonstrates that green procurement accounted for 48.7% of the variation in the performance of Kenyan food and beverage manufacturing firms.

Table 4.13: Regression Model Summary of Green Procurement on Performance of Food and Beverage Manufacturing Firms in Kenya

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.701[a]	.491	.487	.58773

a. Predictors: (Constant), Green procurement
b. Dependent Variable: Performance

From table 4.14 below, the sum of squares for Regression is 46.614, indicating the amount of variation in the dependent variable explained by the predictors in the model. The sum of squares for Residual is 48.359 which represents the unexplained variation or the residual error. The significance value in this table is .000b, suggesting a very low p-value. This indicates strong evidence to reject the null hypothesis and conclude that the regression model is statistically significant.

It can therefore be concluded that the relationship between green procurement and Performance of Kenyan food and beverage manufacturing firms is statistically significant.

Table 4.14: ANOVA Summary for Regression Model of Green Procurement on Performance of Food and Beverage Manufacturing Firms in Kenya

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.614	1	46.614	134.949	.000[b]
	Residual	48.359	140	.345		
	Total	94.973	141			

a. Dependent Variable: Performance
b. Predictors: (Constant), Green procurement

From the Regression coefficient table 4.15 below, the regression equation for this model is;

$Y = ß_0 + ß_1X_1 + ε_i$

$Y = 1.304 + 0.711X_1 + ε_i$

The performance of Kenyan food and beverages manufacturing firms is significantly and favourably impacted by green procurement, according to the regression study. Performance of Kenyan companies that manufacture food and beverages is anticipated to improve by 0.711 units for every unit increase in green procurement. The results support Wanja and Achuola's (2020) recommendation that manufacturing companies institutionalize sustainable procurement practices through the development and application of green procurement policies and procedures in order to control operational costs, adhere to environmental regulatory authority requirements, and improve supply quality. The results are comparable to those of Bor (2021), who found that green procurement significantly affects the performance of the food and beverage industry in Kenya.

Table 4.15: Regression Coefficient of Green Procurement on Performance of Food and Beverage Manufacturing Firms in Kenya

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.304	.255		5.125	.000
	Green procurement	.711	.061	.701	11.617	.000

a. Dependent Variable: Performance

The research's findings are compared to those of Bor et al. (2021), who discovered a high positive correlation between green procurement and the productivity of Kenyan businesses that handle food and beverages. According to a study by Onyinkwa (2016), green supply chain Management practices strategies have helped Kenyan food and beverage industries perform much better. The study's conclusions indicate that employing

green supply chain Management practices solutions is advantageous to food and beverage businesses and should be a significant part of their long-term goals if they wish to beat their competitors.

4.7.2 Influence of Corporate Social Responsibility on Performance of Kenyan Food and Beverage Manufacturing Firms

Examining the relationship between corporate social responsibility and the performance of Kenyan companies that produce food and beverages was the second particular goal of this study. For this particular purpose, the hypothesis to be tested was:

H_{02}: Corporate Social Responsibility has no significant relationship on performance of Kenyan food and beverage manufacturing firms.

The data in Table 4.16 are from a linear regression model that looked at the performance of Kenyan food and beverage manufacturing companies in relation to the predictor variable Corporate Social Responsibility. The link between green procurement and the performance of Kenyan food and beverage manufacturing companies is moderately significant at 0.698. How well the regression model fits the data is determined by the adjusted R Square. It displays the percentage of the dependent variable's variance that the model's predictors can account for. In this case, the adjusted R Square value is 0.484, which means that approximately 48.4% of the variance in the dependent variable Performance of Kenyan food and beverage manufacturing firms is accounted for by the predictor variable Corporate Social Responsibility in the regression model.

Table 4.16: Regression Model Summary of Corporate Social Responsibility on the Performance of Food and Beverage Manufacturing Firms in Kenya

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.698[a]	.488	.484	.58942

a. Predictors: (Constant), Corporate Social Responsibility
b. Dependent Variable: Performance

From table 4.17 below, the mean square is calculated, according to Field (2013), by dividing the sum of squares by the corresponding degrees of freedom. It shows the typical amount of residual variability that can be predicted or the typical amount of residual variability that cannot be predicted. The mean square for the predictor variable in this particular case, Corporate Social Responsibility, is 46.336. This is an illustration of the variability that this predictor in the regression model explains. The residuals' mean square, which measures the discrepancies between the values actually measured and those predicted by the regression model, is 0.347. The ANOVA Table 4.17 suggests that the regression model with Corporate Social Responsibility as a predictor significantly explains the variability in the dependent variable Performance of Kenyan food and beverage manufacturing firms. The F-statistic of 133.374 and the very small significance level ($p < 0.001$) support the significance of the relationship.

Table 4.17: ANOVA Summary for Regression Model of Corporate Social Responsibility on the Performance of Food and Beverage Manufacturing Firms in Kenya

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.336	1	46.336	133.374	.000[b]
	Residual	48.637	140	.347		
	Total	94.973	141			

a. Dependent Variable: Performance
b. Predictors: (Constant), Corporate Social Responsibility

According to table 4.18, the regression equation for this model is;

$Y = ß_0 + ß_1X_1 + ε_i$

$Y = 1.894 + 0.587X_1 + ε_i$

The constant term (intercept) has an unstandardized coefficient of 1.894. When all predictor variables are set to zero, it represents the value of the dependent variable that is anticipated. The predictor variable Corporate Social Responsibility has an unstandardized coefficient of 0.587. Assuming all other variables remain constant, it indicates the change

in the dependent variable resulting from an increase of one unit in the predictor variable. The t-value for the constant term is 9.184, showing that the intercept is significantly different from zero, while the t-value for corporate social responsibility is 11.549, showing that there is a highly significant correlation between corporate social responsibility and performance of Kenyan food and beverage manufacturing companies. There is a highly significant correlation between the constant and corporate social responsibility, as indicated by the very modest significance levels for both variables (p 0.001).

According to the regression study, CSR significantly and favourably affects the performance of Kenyan companies that produce food and beverages. The research's conclusions are compared to those of Mbugua (2012), who concluded that businesses who adopt CSR have a stronger competitive edge. Gichuru and Arani (2015) found a positive correlation between corporate social responsibility and the organizational performance of the food and beverage manufacturing industry in Kenya. They came to this result in their study on Kenyan food and beverage manufacturing companies' organizational performance and green supply chain practices.

Table 4.18: Regression Coefficient of Corporate Social Responsibility on Performance of Food and Beverage Manufacturing Firms in Kenya

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	**t**	**Sig.**
1	(Constant)	1.894	.206		9.184	.000
	Corporate Social Responsibility	.587	.051	.698	11.549	.000

a. Dependent Variable: Performance

The study findings match with the results by Makoni (2016) who in her study corporate social responsibility and competitive advantage at the Nairobi Coca-Cola Bottling Company Ltd concluded that sound CSR activities have a direct impact on the company’s market share.

4.7.3 Influence of Green Packaging on Performance of Kenyan Food and Beverage Manufacturing Firms

Examining the relationship between green packaging and the success of Kenyan companies that manufacture food and beverages was the third particular goal of this study. For this particular purpose, the hypothesis to be tested was:

H_{03}: Green packaging has no significant relationship on performance of Kenyan food and beverage manufacturing firms.

A gauge of how well the regression model fits the data is the adjusted R Square. It shows how much of the variance in the dependent variable can be accounted for by the model's predictors (Field, 2013). According to Table 4.19's modified R Square value of 0.482, the predictor variable which in this case is green packaging may account for about 48.2% of the variance in the performance of Kenyan companies that manufacture food and beverages. Based on the adjusted R Square value of 0.482, it can be concluded that the predictor variable Green packaging explains approximately 48.2% of the variance in the dependent variable performance of Kenyan food and beverage manufacturing firms. The estimate's standard error of 0.59043 indicates that, on average, the model's anticipated values and the performance of Kenya's food and beverage manufacturing companies are separated by 0.59043 units on average.

Table 4.19: Regression Model Summary of Green Packaging on the Performance of Food and Beverage Manufacturing Firms in Kenya

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.697[a]	.486	.482	.59043

a. Predictors: (Constant), Green packaging
b. Dependent Variable: Performance

The regression sum of squares represents the variability explained by the predictor variable(s) in the regression model (Field, 2013). In this case, the regression Sum of Squares is 46.168. It indicates the amount of variability in the dependent variable

performance of Kenyan food and beverage manufacturing firms that can be attributed to the predictor variable Green packaging. The F-statistic is 132.437, suggesting that the regression model with Green packaging as a predictor is statistically significant. The ANOVA in Table 4.20 suggests that the regression model with Green packaging as a predictor significantly explains the variability in the dependent variable performance of Kenyan food and beverage manufacturing firms. The high F-statistic and very small significance level ($p < 0.001$) support the significance of the relationship between the predictor variable and the dependent variable.

Table 4.20: ANOVA Summary for Regression Model of Green Packaging on the Performance of Food and Beverage Manufacturing Firms in Kenya

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.168	1	46.168	132.437	.000[b]
	Residual	48.805	140	.349		
	Total	**94.973**	**141**			

a. Dependent Variable: Performance
b. Predictors: (Constant), Green packaging

From the Table 4.21 below, the regression equation for this model is;

$$Y = ß_0 + ß_1X_1 + \varepsilon_i$$

$$Y = 2.075 + 0.582X_1 + \varepsilon_i$$

The first predictor variable's unstandardized coefficient is 2.075. This shows that the performance of food and beverage manufacturing enterprises in Kenya is predicted to grow by 2.075 units for every unit increase in the first predictor variable. The unstandardized coefficient for the second predictor variable is 0.582 which suggests that for every one-unit increase in the second predictor variable (assuming all other variables are held constant), the dependent variable performance of Kenyan food and beverage manufacturing firms is expected to increase by 0.582 units. The results of this study are in line with those of Chebichii, B. D., Namusonge, G. S., and Makokha (2022), who

concluded that the performance of Kenyan food and beverage manufacturing enterprises is influenced by the use of green packaging.

Table 4.21: Regression Coefficient of Green Packaging on Performance of Food and Beverage Manufacturing Firms in Kenya

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	**t**	**Sig.**
1	(Constant)	2.075	.192		10.832	.000
	Green packaging	.582	.051	.697	11.508	.000

a. Dependent Variable: Performance

The study's findings are consistent with a study on Green Supply Chain Management Practices and the Performance of Kenya's Food and Beverage Processing Sector conducted by Bor *et al* (2021). According to the study, green packaging significantly improves the productivity of Kenyan companies that produce food and beverages. According to the coefficient of determination (R2) value of 0.285, green packaging can be held responsible for 28.5% of the differences in performance of Kenya's food and beverage manufacturing companies. The regression coefficients realized indicated a positive significant relationship between green packaging and performance.

4.7.4 Influence of Reverse Logistics on Performance of Kenyan Food and Beverage Manufacturing Firms

The fourth specific objective of this study was to analyse the relationship between reverse logistics and performance of Kenyan food and beverage manufacturing firms. The hypothesis to test for this specific objective was:

H_{04}: Reverse logistics has no significant relationship on performance of Kenyan food and beverage manufacturing firms.

According to Table 4.22's R Square value of 0.497, the predictor variable Reverse logistics may account for about 49.7% of the variation in the performance of Kenyan companies that manufacture food and beverages. The modified R Square value of.494 shows that the predictor variable(s) may account for roughly 49.4% of the variance in the performance of the dependent variable of food and beverage manufacturing enterprises in Kenya. The R Square and adjusted R Square values suggest that the predictor variable Reverse Logistics explains a substantial portion of the variance in the dependent variable performance of Kenyan food and beverage manufacturing firms.

Table 4.22: Regression Model Summary of Reverse Logistics on the Performance of Food and Beverage Manufacturing Firms in Kenya

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.705[a]	.497	.494	.58393

a. Predictors: (Constant), Reverse Logistics
b. Dependent Variable: Performance

Reverse Logistics' highly significant correlation with Kenyan food and beverage manufacturing companies' performance is shown by the F-value of 138.533. The ANOVA Table 4.23 provides information about the variance explained by the regression model, the unexplained variance (residuals), and the overall significance of the model. The significant F-statistic ($p < 0.001$) suggests that the predictor variable Reverse Logistics significantly contributes to explaining the variance in the dependent variable performance of Kenyan food and beverage manufacturing firms.

Table 4.23: ANOVA Summary for Regression Model of Reverse Logistics on the Performance of Food and Beverage Manufacturing Firms in Kenya

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	47.236	1	47.236	138.533	.000[b]
	Residual	47.737	140	.341		
	Total	94.973	141			

a. Dependent Variable: Performance
b. Predictors: (Constant), Reverse Logistics

From Table 4.24 below, the regression equation for this model is;

$Y = ß_0 + ß_1X_1 + ε_i$

$Y = 1.690 + 0.620X_1 + ε_i$

The unstandardized coefficient for the first predictor variable is 1.690. This indicates that for every one-unit increase in the first predictor variable (assuming all other variables are held constant), the dependent variable performance of Kenyan food and beverage manufacturing firms is expected to increase by 1.690 units. The unstandardized coefficient for the second predictor variable is 0.620. This suggests that for every one-unit increase in the second predictor variable (assuming all other variables are held constant), the dependent variable performance of Kenyan food and beverage manufacturing firms is expected to increase by 0.620 units. The study's findings are compared to those of Nderitu (2016), who discovered that reverse logistics has a favorable impact on the performance of the food and beverage manufacturing industry in Kenya, raising organizational performance in terms of green supply chain practices.

Table 4.24: Regression Coefficient of Reverse logistics on Performance of Food and Beverage Manufacturing Firms in Kenya

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.690	.219		7.709	.000
	Reverse Logistics	.620	.053	.705	11.770	.000

a. Dependent Variable: Performance

The study's findings are consistent with a study by Kyalo and Makori (2020), who investigated the impact of reverse logistics on the performance of food and beverage manufacturing companies in Kenya. They discovered a significant positive correlation between these two variables at ($\beta = 0.647$, $p=0.000 <0.05$). The study concluded that the performance of Kenyan food and beverage manufacturing companies has a favourable association with the management of product returns, recycling, disposal, and product repackaging. There is a moderately beneficial association between reverse logistics and the performance of Kenyan food and beverage processing companies, according to research by Bor *et al*. (2021).

4.7.5 Overall Regression Model

From the Table 4.25, the model's R value is 0.826, indicating a moderately strong positive correlation between the predictors (Reverse Logistics, Green procurement, Green packaging, Corporate Social Responsibility) and the Performance of Kenyan food and Beverage manufacturing firms. According to the R Square value of 0.682, the predictors in the model can account for about 68.2% of the variability in the outcome variable. The number of predictors is considered while calculating the Adjusted R Square value, which is 0.672. Given the complexity of the model, it shows that the predictors account for about 67.2% of the variation in the outcome variable.

Table 4.25: Overall Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.826[a]	.682	.672	.46975

a. Predictors: (Constant), Reverse Logistics, Green procurement, Green packaging, Corporate Social Responsibility

From the Table 4.26 below, the value 0.000b indicates that the p-value is less than .001 (typically denoted as $p < 0.001$, indicating a highly significant relationship between the predictors and the dependent variable.

Table 4.26: ANOVA Summary for Overall Regression Model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64.742	4	16.186	73.350	.000[b]
	Residual	30.231	137	.221		
	Total	94.973	141			

a. Dependent Variable: Performance

b. Predictors: (Constant), Reverse Logistics, Green procurement, Green packaging, Corporate Social Responsibility

From the Table 4.27 below, the overall regression equation for this model is;

$$\text{Performance} = ß_0 + ß_1X_1 + ß_2X_2 + ß_3X_3 + ß_4X_4 + \varepsilon_i$$

$$\text{Performance} = 0.806 + 0.216X_1 + 0.190X2 + 0.222X_3 + 0.236X_4 + \varepsilon_i$$

For the constant term (intercept), the coefficient is 0.806. This indicates that when all predictors are set to zero, the expected value of the dependent variable is 0.806. All predictors (Green procurement, Corporate Social Responsibility, Green packaging, and Reverse Logistics) have statistically significant relationships with the dependent variable, as indicated by the p-values being less than the threshold of 0.05.

Table 4.27: Regression Coefficient of the Overall Regression Model

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.806	.214		3.765	.000
	Green procurement	.216	.075	.213	2.875	.005
	Corporate Social Responsibility	.190	.061	.226	3.099	.002
	Green packaging	.222	.058	.265	3.850	.000
	Reverse Logistics	.236	.061	.269	3.858	.000

a. Dependent Variable: Performance

4.8 Moderating effect of Organizational culture on the Relationship between Green Supply Chain Management Practices and Performance of Kenyan Food and Beverage Manufacturing Firms.

The goal of the study was to determine how organizational culture influenced the performance of Kenyan food and beverage manufacturing companies in relation to green supply chain practices. The moderating role of organizational culture was examined in relation to the performance of Kenyan food and beverage manufacturing companies and the four independent variables namely; Green procurement, Corporate Social Responsibility, Green Packaging and Reverse Logistics).

4.8.1 Moderating Effect of Organizational culture on the Relationship between Green Procurement and Performance of Kenyan Food and Beverage Manufacturing Firms

From Table 4.28 below, the "R" column represents the Pearson's correlation coefficient between the predictors and the outcome variable. For Model 1, the correlation coefficient is 0.701, indicating a moderate positive correlation between Green Procurement and the outcome variable. For Model 2, the correlation coefficient is 0.792, indicating a stronger positive correlation. The R Square value is 0.627 in model 2 which indicates that approximately 62.7% of the variability in the outcome variable can be explained by the

predictor(s). For Model 1 to Model 2, the R Square change is 0.136, indicating that the additional predictors (Organizational culture, GPxOC) account for an additional 13.6% of the variability in the outcome variable beyond what is explained by Green Procurement in Model 1. In both cases, the F Change values are highly significant ($p < 0.001$), indicating that the addition of predictors significantly improves the model fit.

Table 4.28: Regression Model Summary for the Moderating Effect of Organizational Culture on the Relationship between Green Procurement and Performance of Food and Beverage Manufacturing Firms in Kenya

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.701[a]	.491	.487	.58773	.491	134.949	1	140	.000
2	.792[b]	.627	.619	.50649	.136	25.255	2	138	.000

a. Predictors: (Constant), Green procurement
b. Predictors: (Constant), Green procurement, Organizational culture, GPxOC

From Table 4.29, the sum of squares for Regression is 46.614 which indicates the amount of variation in the dependent variable Performance of Kenyan food and Beverage Manufacturing firms explained by the predictors in the model. The significance value for Model 1 is .000b which suggests a very low p-value. This indicates a strong evidence to reject the null hypothesis and conclude that the regression model is statistically significant.

Table 4.29: ANOVA Summary for the Moderating Effect of Organizational Culture on the Relationship between Green procurement and Performance of Food and Beverage Manufacturing Firms in Kenya

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.614	1	46.614	134.949	.000[b]
	Residual	48.359	140	.345		
	Total	94.973	141			
2	Regression	59.571	3	19.857	77.406	.000[c]
	Residual	35.402	138	.257		
	Total	94.973	141			

a. Dependent Variable: Performance
b. Predictors: (Constant), Green procurement
c. Predictors: (Constant), Green procurement, Organizational culture, GPxOC

From table 4.30 below, it can be concluded that in both models, the constant term and the predictor variable "Green procurement" are highly significant (p-value < .001), indicating a strong relationship with the dependent variable. In the second model, the predictor variables "Organizational culture" and "GPxOC" are also statistically significant at a significance level of 0.05 (p-value < .05).

Table 4.30: Regression Coefficient for the Moderating Effect of Organizational Culture on the Relationship between Green Procurement and Performance of Food and Beverage Manufacturing Firms in Kenya

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.304	.255		5.125	.000
	Green procurement	.711	.061	.701	11.617	.000
2	(Constant)	.291	.055		5.291	.000
	Green procurement	.540	.227	.532	2.379	.019
	Organizational culture	.557	.233	.603	2.388	.018
	GPxOC	-.132	.057	-.231	-2.316	.022

a. Dependent Variable: Performance

4.8.2 Moderating Effect of Organizational Culture on the Relationship between Corporate Social Responsibility and Performance of Kenyan Food and Beverage Manufacturing Firms

A moderately positive correlation of 0.698 is shown for Model 1 in Table 4.31 between the predictor (Corporate Social Responsibility) and the dependent variable. For Model 2, the correlation coefficient is 0.786, indicating a stronger positive correlation. The R Square value in model 2 is 0.619, indicating that approximately 61.9% of the variability in the outcome variable can be explained by the predictors (Corporate Social Responsibility, Organizational culture, CSRxOC).

Table 4.31: Regression Model Summary for the Moderating Effect of Organizational Culture on the Relationship between Corporate Social Responsibility and Performance of Food and Beverage Manufacturing Firms in Kenya

				Std. Error	Change Statistics				
Model	R	R Square	Adjusted R Square	of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.698[a]	.488	.484	.58942	.488	133.374	1	140	.000
2	.786[b]	.619	.610	.51235	.131	23.642	2	138	.000

a. Predictors: (Constant), Corporate Social Responsibility
b. Predictors: (Constant), Corporate Social Responsibility, Organizational culture, CSRxOC

From Table 4.32, the sum of squares for regression in Model 1 is 46.336 which indicates the amount of variation in the Performance of Kenyan food and beverage manufacturing firms as explained by the predictors in this model. The sum of squares for regression in Model 2 is 58.748, indicating the amount of variation in the dependent variable explained by the predictors in this model. The change in the sum of squares for the regression indicates that Organizational culture has a positive moderating effect on the Relationship Between Corporate Social Responsibility and performance of Kenyan food and beverage manufacturing firms.

Table 4.32: ANOVA Summary for the Moderating Effect of Organizational Culture on the Relationship between Corporate Social Responsibility and Performance of Food and Beverage Manufacturing Firms in Kenya

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.336	1	46.336	133.374	.000[b]
	Residual	48.637	140	.347		
	Total	**94.973**	**141**			
2	Regression	58.748	3	19.583	74.600	.000[c]
	Residual	36.225	138	.263		
	Total	**94.973**	**141**			

a. Dependent Variable: Performance

b. Predictors: (Constant), Corporate Social Responsibility

c. Predictors: (Constant), Corporate Social Responsibility, Organizational culture, CSRxOC

For both models from Table 4.33, all the coefficient estimates, including the constant term and predictor variables, have significance values of .000 or .043. This suggests that all the coefficients are statistically significant at 0.05, indicating that these predictors have a significant impact on the dependent variable.

Table 4.33: Regression Coefficient for the Moderating Effect of Organizational Culture on the Relationship between Corporate Social Responsibility and Performance of Food and Beverage Manufacturing Firms in Kenya

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.894	.206		9.184	.000
	Corporate Social Responsibility	.587	.051	.698	11.549	.000
2	(Constant)	-.147	.038		-3.868	.000
	Corporate Social Responsibility	.674	.178	.801	3.778	.000
	Organizational culture	.777	.184	.841	4.226	.000
	CSRxOC	-.093	.046	-.726	-2.040	.043

a. Dependent Variable: Performance

4.8.3 Moderating Effect of Organizational culture on the Relationship Green Packaging and Performance of Kenyan Food and Beverage Manufacturing Firms

From Model 1 in Table 4.34, the correlation coefficient is 0.697, indicating a moderate positive correlation between the predictor (Green packaging) and the outcome variable. For Model 2, the correlation coefficient is 0.782, indicating a stronger positive correlation. The R Square value in model 2 is 0.611, indicating that approximately 61.1% of the variability in the outcome variable can be explained by the predictors (Green packaging, Organizational culture, GPGxOC). The "R Square Change" represents the change in the R Square value between the current model and the previous model. For Model 1 to Model 2, the R Square change is 0.125, indicating that the additional predictors (Organizational culture, GPGxOC) account for an additional 12.5% of the variability in the outcome variable beyond what is explained by the predictor (Green packaging) in Model 1.

Table 4.34: Regression Model Summary for the Moderating Effect of Organizational Culture on the Relationship between Green Packaging and Performance of Food and Beverage Manufacturing Firms in Kenya

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.697[a]	.486	.482	.59043	.486	132.437	1	140	.000
2	.782[b]	.611	.603	.51717	.125	22.234	2	138	.000

a. Predictors: (Constant), Green packaging
b. Predictors: (Constant), Green packaging, Organizational culture, GPGxOC

From Table 4.35, The sum of squares for regression in Model 1 is 46.168 which indicates the amount of variation in the Performance of Kenyan food and beverage manufacturing firms as explained by the predictors in this model. The sum of squares for regression in Model 2 is 58.062, indicating the amount of variation in the dependent variable explained by the predictors in this model. The change in the sum of squares for the regression indicates that Organizational culture has a moderating effect on the Relationship Between Green Packaging and performance of Kenyan food and beverage manufacturing firms.

Table 4.35: ANOVA Summary for the Moderating Effect of Organizational Culture on the Relationship between Green Packaging and Performance of Food and Beverage Manufacturing Firms in Kenya

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.168	1	46.168	132.437	.000[b]
	Residual	48.805	140	.349		
	Total	94.973	141			
2	Regression	58.062	3	19.354	72.360	.000[c]
	Residual	36.911	138	.267		
	Total	94.973	141			

a. Dependent Variable: Performance
b. Predictors: (Constant), Green packaging
c. Predictors: (Constant), Green packaging, Organizational culture, GPGxOC

For both models from Table 4.36, all the coefficient estimates, including the constant term and predictor variables, have significance values of .000 or .002. This suggests that all the coefficients are statistically significant at 0.05, indicating that these predictors have a significant impact on the dependent variable.

Table 4.36: Regression Coefficient for the Moderating Effect of Organizational Culture on the Relationship between Green Packaging and Performance of Food and Beverage Manufacturing Firms in Kenya

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.075	.192		10.832	.000
	Green packaging	.582	.051	.697	11.508	.000
2	(Constant)	.423	.124		3.411	.001
	Green packaging	.590	.190	.707	3.107	.002
	Organizational culture	.664	.175	.719	3.804	.000
	GPGxOC	-.169	.047	-.529	-3.596	.000

a. Dependent Variable: Performance

4.8.4 Moderating Effect of Organizational Culture on the Relationship between Reverse Logistics and Performance of Kenyan Food and Beverage Manufacturing Firms

From Table 4.37, the Model 1 correlation coefficient is 0.705, indicating a moderate positive correlation between the predictor (Reverse Logistics) and the outcome variable. For Model 2, the correlation coefficient is 0.790, indicating a stronger positive correlation. For Model 1, the R Square value is 0.497, indicating that approximately 49.7% of the variability in the outcome variable can be explained by the predictor (Reverse Logistics). For Model 2, the R Square value is 0.625, indicating that approximately 62.5% of the variability in the outcome variable can be explained by the predictors (Reverse Logistics, Organizational culture, RLxOC).

Table 4.37: Regression Model Summary for the Moderating Effect of Organizational Culture on the Relationship between Reverse Logistics and Performance of Kenyan Food and Beverage Manufacturing Firms

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.705[a]	.497	.494	.58393	.497	138.533	1	140	.000
2	.790[b]	.625	.617	.50812	.127	23.448	2	138	.000

a. Predictors: (Constant), Reverse Logistics
b. Predictors: (Constant), Reverse Logistics, Organizational culture, RLxOC

From Table 4.38, the sum of squares for regression in Model 1 is 47.236 which indicates the amount of variation in the Performance of Kenyan food and beverage manufacturing firms as explained by the predictors in this model. The sum of squares for regression in Model 2 is 59.344, indicating the amount of variation in the dependent variable explained by the predictors in this model. The change in the sum of squares for the regression indicates that Organizational culture has a moderating effect on the Relationship Between Reverse Logistics and performance of Kenyan food and beverage manufacturing firms.

Table 4.38: ANOVA Summary for the Moderating Effect of Organizational Culture on the Relationship between Reverse Logistics and Performance of Food and Beverage Manufacturing Firms in Kenya

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	47.236	1	47.236	138.533	.000[b]
	Residual	47.737	140	.341		
	Total	**94.973**	**141**			
2	Regression	59.344	3	19.781	76.617	.000[c]
	Residual	35.629	138	.258		
	Total	**94.973**	**141**			

a. Dependent Variable: Performance

b. Predictors: (Constant), Reverse Logistics

c. Predictors: (Constant), Reverse Logistics, Organizational culture, RLxOC

For both models from Table 4.39, all the coefficient estimates, including the constant term and predictor variables, have significance values of .000 or .022. This suggests that all the coefficients are statistically significant at 0.05, indicating that these predictors have a significant impact on the dependent variable.

Table 4.39: Regression Coefficient for the Moderating Effect of Organizational Culture on the Relationship between Reverse Logistics and Performance of Food and Beverage Manufacturing Firms in Kenya

		Unstandardized Coefficients		Standardized Coefficients		
Model		**B**	**Std. Error**	**Beta**	**t**	**Sig.**
1	(Constant)	1.690	.219		7.709	.000
	Reverse Logistics	.620	.053	.705	11.770	.000
2	(Constant)	-.640	.270		-2.310	.022
	Reverse Logistics	.821	.210	.935	3.903	.000
	Organizational culture	.892	.214	.965	4.162	.000
	RLxOC	-.123	.053	-.962	-2.322	.022

a. Dependent Variable: Performance

4.8.5 Overall Moderation

The study examined the overall moderating effect of organizational culture on the relationship between green Supply chain management practices and performance of Kenyan food and beverage manufacturing firms.

4.8.6 Moderating Effect of Organizational Culture on the Relationship between Green Supply Chain Management Practices and Performance of Kenyan Food and Beverage Manufacturing Firms

Model 2's correlation coefficient, which can be seen in Table 4.40 below, is 0.864, indicating a slightly stronger positive correlation. This demonstrates that organizational culture has a moderating impact on the relationship between the performance of Kenyan food and beverage manufacturing companies and green supply chain practices. For Model 1, the R Square value is 0.682, indicating that the predictors can account for around 68.2% of the variability in the outcome variable. For Model 2, the R Square value is 0.747, indicating that the predictors can account for about 74.7% of the variability in the outcome variable. The addition of predictors considerably improves the model fit in both situations, as seen by the F Change values, which are highly significant (p 0.001) in both cases.

Table 4.40: Regression Model Summary for the Moderating Effect of Organizational Culture on the Relationship between Green Supply Chain Management Practices and Performance of Food and Beverage Manufacturing Firms in Kenya

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.826[a]	.682	.672	.46975	.682	73.350	4	137	.000
2	.864[b]	.747	.730	.42684	.065	6.786	5	132	.000

a. Predictors: (Constant), Reverse Logistics, Green procurement, Green packaging, Corporate Social Responsibility

b. Predictors: (Constant), Reverse Logistics, Green procurement, Green packaging, Corporate Social Responsibility, Organizational culture, GPGxOC, CSRxOC, RLxOC, GPxOC

From Table 4.41, The sum of squares for regression in Model 1 is 64.742 which indicates the amount of variation in the Performance of Kenyan food and beverage manufacturing firms as explained by the predictors in this model. The sum of squares for regression in Model 2 is 70.924, indicating the amount of variation in the dependent variable explained by the predictors in this model. The change in the sum of squares for the regression indicates that Organizational culture has a moderating effect on the Relationship Between Green Supply Chain Management Practices and performance of Kenyan food and beverage manufacturing firms.

Table 4.41: ANOVA Summary for the Moderating Effect of Organizational Culture on the Relationship between Green Supply Chain Management Practices and Performance of Food and Beverage Manufacturing Firms in Kenya

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64.742	4	16.186	73.350	.000[b]
	Residual	30.231	137	.221		
	Total	94.973	141			
2	Regression	70.924	9	7.880	43.254	.000[c]
	Residual	24.049	132	.182		
	Total	94.973	141			

a. Dependent Variable: Performance
b. Predictors: (Constant), Reverse Logistics, Green procurement, Green packaging, Corporate Social Responsibility
c. Predictors: (Constant), Reverse Logistics, Green procurement, Green packaging, Corporate Social Responsibility, Organizational culture, GPGxOC, CSRxOC, RLxOC, GPxOC

For both models from Table 4.42, all the coefficient estimates, including the constant term and predictor variables, have significance values of .000 or .017. This suggests that all the coefficients are statistically significant at 0.05, indicating that these predictors have a significant impact on the dependent variable.

Table 4.42: Regression Coefficient for the Moderating Effect of Organizational Culture on the Relationship between Green Supply Chain Management Practices and Performance of Food and Beverage Manufacturing Firms in Kenya

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.806	.214		3.765	.000
	Green procurement	.216	.075	.213	2.875	.005
	Corporate Social Responsibility	.190	.061	.226	3.099	.002
	Green packaging	.222	.058	.265	3.850	.000
	Reverse Logistics	.236	.061	.269	3.858	.000
2	(Constant)	-1.573	.612		-2.570	.011
	Green procurement	-.251	.092	-.247	-2.728	.007
	Corporate Social Responsibility	.671	.212	.798	3.157	.002
	Green packaging	.118	.052	.241	.2.269	.002
	Reverse Logistics	.822	.237	.935	3.469	.001
	Organizational culture	.776	.215	.839	3.599	.000
	GPxOC	.133	.058	.959	2.293	.023
	CSRxOC	-.142	.059	-1.105	-2.419	.017
	GPGxOC	.173	.059	.103	2.932	.004
	RLxOC	-.168	.065	-1.311	-2.593	.011

a. Dependent Variable: Performance

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

The main conclusions of the study are summarized in this chapter, along with recommendations for action and ideas for additional research based on the study's findings.

5.2 Summary

The overall objective of this study was to establish the relationship between Green Supply Chain Management Practices and performance of Kenyan food and beverage manufacturing firms. The specific goals of the study were to ascertain how Kenyan food and beverage manufacturing companies performed in relation to green procurement, corporate social responsibility, green packaging, and reverse logistics. Lastly, the study was to establish how the Organizational culture moderated the association between Green Supply Chain Management Practices and performance of Kenyan food and beverage manufacturing firms.

5.2.1 Green Procurement and Performance of Kenyan Food and Beverage Manufacturing Firms

In this study, Green Procurement was measured using Green procurement policies, Participation in green procurement workshops and Supplier involvement. It was established that most of the Kenyan food and Beverage Manufacturing firms have policies that they follow when procuring and producing goods. This in a way contributes to producing environmentally friendly goods. The firms have also designed their processes in a way that reduces waste. For cases where manufacturing firms outsource some goods from other firms, some firms make efforts to confirm that the suppliers conform to producing goods that do not cause negative harm to the environment. It was noted that not

all firms support their staff to attend seminars or workshops on green procurement sensitization. Kenyan Food and beverage manufacturing firms are increasingly recognizing the importance of environmental sustainability. They are acknowledging the impact of their operations on the environment and are taking steps to minimize their ecological footprint. From the study, it was noted that implementing green procurement improves firm performance.

5.2.2 Corporate Social Responsibility and Performance of Kenyan Food and Beverage Manufacturing Firms

From the study, most Kenyan food and beverage manufacturing firms have a policy on CSR and actively participate in CSR activities. This indicates that these firms are conscious of their social and environmental responsibilities and have made a formal commitment to addressing them. The study shows that firms participate in projects that are environmentally friendly which suggests that they actively engage in initiatives that promote sustainability, such as reducing waste, conserving energy, or implementing eco-friendly manufacturing processes. The study noted not all food and beverage manufacturing firms visit suppliers to confirm the production of eco-friendly goods.

It was noted that firms participate in CSR with the aim of improving their reputation. This suggests that they recognize the value of CSR in enhancing their brand image and building trust among stakeholders. The study pointed that Kenyan food and beverage manufacturing firms implement CSR initiatives and policies actively engage in environmentally friendly projects, visit suppliers to ensure eco-friendly production, and aim to enhance their reputation.

5.2.3 Green Packaging and Performance of Kenyan Food and Beverage Manufacturing Firms

Varied feedback on whether firms uses re-usable packaging materials were given. This shows that not all food and beverage manufacturing firms use reusable packaging. The

study also noted that not all food and beverage manufacturing firms that uses durable packaging materials that allow recyclability. Most of the firms use packages that are eco-friendly. Though not implemented by all food and beverage manufacturing firms, the packaging materials used are bio-degradable. Firms uses packages that ensure safety. The study also noted that firms can improve their performance by implementing green packaging.

5.2.4 Reverse Logistics and Performance of Kenyan Food and Beverage Manufacturing Firms

The study noted that most of the firms has integrated manufacturing, transportation and flow of information to effectively respond to customer's requirements. The products produced by food and Beverage manufacturing firms are recyclable. Firms encourages suppliers to use returnable packaging materials. From the analysis, not all food and beverage manufacturing firms engage suppliers whose products can be recycled. It was also noted that not all firms package their products on returnable packaging materials. Generally, from the study, it was noted that implementing reverse logistics improve firm's performance.

5.2.5 Organizational Culture and Performance of Kenyan Food and Beverage Manufacturing Firms

The study established that most of the employees working in Kenyan food and beverage manufacturing firms understand their organization vision and Mission. This shows commitment by the organizational employees. The study noted that Structural adjustments are carried out by firms to adapt to changes in the market. This ensures sustainability by Kenyan food and beverage manufacturing firms. It was established that not all Strategic managers in food and beverage manufacturing firms review their strategies to effectively respond to environmental changes. Study also concluded that not all firms engage in research and innovation. From the study, it was noted that majority of the firms have put in place effective systems, policies, and guidelines that directs all activities in the firm. In

conclusion, the study noted that organizational culture has an influence on firm performance.

5.2.6 Performance of Kenyan Food and Beverage Manufacturing Firms

The study established that by adopting Green Supply Chain Practices, food and beverage manufacturing firms are able to maximize their profit margins. By implementing Green Supply Chain Practices, firms have experienced reduction on overall cost of manufacturing at the same time increase the volume of sales. The study noted that by implementing Green Supply Chain Practices, firm's products gained more acceptance by customers. Lastly, adopting Green Supply Chain Management Practices leads to improvement in performance of food and beverage manufacturing firms.

5.3 Conclusion

Based on the study summary, the study made the following conclusions.

5.3.1 Green Procurement and Performance of Kenyan Food and Beverage Manufacturing Firms

From the summary, Kenyan food and beverage manufacturing firms have policies in place to guide the procurement and development of environmentally friendly goods. These policies indicate a commitment to sustainable practices and demonstrate a recognition of the importance of minimizing environmental impact. The firms' processes are also designed to reduce waste generation, further highlighting their efforts to operate in an environmentally responsible manner. By minimizing waste, these firms can improve resource efficiency and reduce their ecological footprint. Additionally, the study acknowledges that the firms have minimized the purchase of goods that are hazardous and difficult to dispose of. This action reflects a conscious decision to prioritize the use of safer and more sustainable alternatives.

While it is noted that not all staff members regularly attend seminars or workshops on green procurement, the study emphasizes that implementing green procurement practices improves firm performance. This suggests that although there may be room for improvement in terms of staff training and awareness, the positive impact of green procurement on overall firm performance is still evident. Overall, the conclusion highlights the potential benefits of adopting green procurement practices within the food and beverage manufacturing industry in Kenya. By incorporating environmentally friendly goods, reducing waste, and minimizing the use of hazardous materials, these firms can enhance their performance while contributing to sustainability and the preservation of the environment.

5.3.2 Corporate Social Responsibility and Performance of Kenyan Food and Beverage Manufacturing Firms

The study noted that Kenyan food and beverage manufacturing firms have a policy on corporate social responsibility, which indicates their commitment to addressing social and environmental concerns. These firms actively participate in community projects, demonstrating their engagement in giving back to society. Additionally, they also participate in projects with an environmental focus, highlighting their concern for sustainable practices and the preservation of the environment. While it is acknowledged that not all firms participate in the production of goods by their suppliers, this does not diminish the overall significance of their engagement in corporate social responsibility activities. Participating in community projects, despite not directly influencing production, still contributes to the firm's overall social impact and highlights their commitment to societal well-being.

Contrary to the statement that participating in community projects improves the reputation of the firm, it is important to note that reputation is influenced by various factors and cannot solely be attributed to community involvement. However, engaging in corporate social responsibility initiatives can positively contribute to the firm's reputation by demonstrating a genuine commitment to social and environmental values. Importantly,

the conclusion emphasizes that implementing corporate social responsibility practices improves the performance of food and beverage manufacturing firms. By integrating socially responsible actions into their business strategies, these firms can enhance their relationships with stakeholders, foster goodwill in the community, and strengthen their overall brand image. Moreover, corporate social responsibility can also lead to increased employee satisfaction, customer loyalty, and long-term profitability.

5.3.3 Green Packaging and Performance of Kenyan Food and Beverage Manufacturing Firms

From the study summary it is evident that not all Kenyan food and beverage manufacturing firms utilize reusable packaging materials or opt for durable packaging materials that allow for recyclability. Additionally, not all firms prioritize the use of bio-degradable packaging materials. However, it is crucial to note that many firms do consider the environmental impact of their packaging choices and strive to minimize negative harm to the environment. One of the primary concerns for food and beverage manufacturing firms is ensuring the safety of their products during transportation and storage. Therefore, packaging materials that guarantee product safety are often prioritized. While these materials may not always align with sustainability goals, it is essential for firms to strike a balance between safety and environmental considerations.

Implementing green packaging practices has numerous benefits for food and beverage manufacturing firms. By adopting reusable and recyclable packaging materials, firms can reduce waste generation and lower their carbon footprint. This not only helps protect the environment but also enhances the firm's overall performance and reputation. Moreover, using bio-degradable packaging materials can contribute to reducing the long-term impact on the environment. These materials break down naturally and do not contribute to pollution or harm ecosystems. While not all firms currently embrace bio-degradable packaging, there is a growing awareness of its importance, and more companies are likely to adopt these practices in the future.

5.3.4 Reverse Logistics and Performance of Kenyan Food and Beverage Manufacturing Firms

From the study, it can be concluded that Kenyan food and beverage manufacturing firms have demonstrated an integration of manufacturing, transportation, and information flow to effectively respond to customer requirements. This holistic approach allows them to optimize their operations and meet the diverse needs of their customers in a timely and efficient manner. Furthermore, these firms in Kenya have recognized the importance of sustainable packaging and have taken steps to design products that can be recycled. This proactive approach demonstrates their commitment to minimizing environmental impact and promoting a circular economy. By designing products with recyclability in mind, they contribute to reducing waste generation and conserving valuable resources.

Additionally, these firms in Kenya play a crucial role in promoting sustainable practices by encouraging suppliers to use returnable packaging materials. By doing so, they help create a closed-loop system where packaging materials can be reused, reducing the reliance on single-use packaging and minimizing waste.

However, it is important to note that not all Kenyan food and beverage manufacturing firms engage suppliers whose products can be recycled, and some firms still package their products in non-returnable packaging materials. This highlights the need for further awareness and collaboration within the industry to promote sustainable practices throughout the supply chain.

Implementing reverse logistics is a valuable strategy that can significantly improve the performance of food and beverage manufacturing firms. By efficiently managing the return and reuse of packaging materials, firms can reduce costs, minimize waste, and enhance overall sustainability. Embracing reverse logistics allows these firms to optimize their operations and contribute to a more efficient and environmentally responsible supply chain.

5.3.5 Organizational Culture and Performance of Kenyan Food and Beverage Manufacturing Firms

From the study analysis, it can be concluded that the majority of employees in Kenyan food and beverage manufacturing firms have a clear understanding of their firm's Vision and Mission. This indicates effective communication and alignment of goals within the organization, which can contribute to overall productivity and performance. Structural adjustments are crucial in Kenyan food and beverage manufacturing firms to adapt to changes in the market. The ability to respond and adapt to market dynamics is essential for firms to remain competitive and sustain growth. By implementing necessary structural adjustments, firms can optimize their operations and meet the evolving demands of the market. Strategies in Kenyan food and beverage manufacturing firms are regularly reviewed to effectively respond to environmental changes. The dynamic nature of the business environment necessitates continuous evaluation and adaptation of strategies. By staying agile and responsive, firms can seize opportunities, mitigate risks, and maintain their competitive edge.

Investment in research and innovation is a key aspect of Kenyan food and beverage manufacturing firms. By allocating resources to research and development, firms can drive product improvement, process efficiency, and technological advancements. This investment not only enhances competitiveness but also contributes to the growth and sustainability of the firm. Effective systems, policies, and guidelines are established in Kenyan food and beverage manufacturing firms. These frameworks ensure consistency, quality control, and adherence to regulatory standards. By implementing such systems, firms can streamline their operations, enhance efficiency, and maintain product integrity. Organizational or firm culture plays a significant role in the performance of Kenyan food and beverage manufacturing firms. A positive and conducive culture fosters employee engagement, teamwork, and innovation. It also influences the way employees approach their work and interact with customers and stakeholders. A strong and supportive culture can contribute to improved performance and overall success of the firm.

5.3.6 Performance of Kenyan Food and Beverage Manufacturing Firms

From the study findings, it can be concluded that Kenyan food and beverage manufacturing firms have realized various benefits by adopting Green Supply Chain Management Practices (GSCMP) practices. Implementing GSCP has enabled these firms to increase their profit margins by reducing costs and improving operational efficiency. One of the key advantages of GSCP for Kenyan food and beverage manufacturing firms is the reduction in overall manufacturing costs. By incorporating sustainable practices throughout the supply chain, such as optimizing transportation routes, minimizing waste, and improving energy efficiency, firms can achieve cost savings. These cost reductions contribute to increased profitability and improved financial performance.

Furthermore, the implementation of GSCM in Kenyan food and beverage manufacturing firms has led to increased sales volumes. Consumers are increasingly demanding environmentally friendly and sustainable products. By aligning their operations with GSCM principles, firms can enhance their brand reputation, attract environmentally conscious customers, and gain a competitive edge in the market. This increased acceptance and demand for their products ultimately leads to higher sales volumes.

5.4 Recommendations

Based on the study findings and conclusions, the study made the following recommendations.

5.4.1 Green Procurement and Performance of Kenyan Food and Beverage Manufacturing Firms

From the study findings, not all Kenyan food and beverage manufacturing firms make regular visits to supplier's premises to confirm compliance with the production of environmentally friendly goods. The study therefore recommends that Kenyan food and beverage manufacturing firms should make regular visits to supplier's premises to confirm compliance with the production of environmentally friendly goods. By conducting regular

visits to suppliers, firms can ensure that their suppliers align with sustainable production practices. This helps promote transparency, accountability, and encourages suppliers to adopt environmentally friendly processes. The benefits include a more sustainable supply chain, reduced environmental impact, and improved brand reputation for the firms. With regard to Staff attending seminars/workshops on green procurement, the study recommends sending of staff members to seminars and workshops focused on green procurement to allow them to stay updated on the latest trends and practices in sustainability. The staff will learn about innovative approaches, best practices, and emerging technologies related to environmentally friendly procurement. This knowledge can be applied within the firm's operations and supply chain, leading to more sustainable sourcing decisions and improved environmental performance.

The development of clear policies that promote sustainable practices at both government and organizational levels is crucial. These policies should include guidelines for sustainable sourcing and effective waste management. Engaging with suppliers who prioritize environmental sustainability is also vital; firms should establish criteria to evaluate suppliers based on their ecological practices. Furthermore, implementing training programs for employees on the benefits and methods of green procurement can foster a culture of sustainability within the organization.

Investing in technology that supports green procurement, such as supply chain management software, can help firms track the environmental impact of their products and services. Additionally, developing and adopting sustainability metrics will enable firms to measure the effectiveness of their procurement decisions and identify areas for improvement. To increase consumer demand for green products, launching awareness campaigns that educate the public on the importance of sustainable sourcing is recommended.

In terms of performance improvement, firms should benchmark best practices from leading organizations both locally and internationally to adapt successful strategies. Promoting investment in research and development will foster innovation in sustainable

products and processes. Encouraging cross-industry collaboration can also facilitate knowledge sharing and resource pooling. It is important for firms to adhere to local and international environmental regulations, which not only enhance corporate reputation but also contribute to better performance. Engaging employees through initiatives like green teams can create a proactive approach to sustainability within the workplace. Finally, regular evaluation of both environmental and financial performance related to green procurement strategies will allow firms to assess their effectiveness and make necessary adjustments. By adopting these recommendations, Kenyan food and beverage manufacturers can significantly improve their sustainability efforts and overall business performance.

5.4.2 Corporate Social Responsibility and Performance of Kenyan Food and Beverage Manufacturing Firms

Food and beverage manufacturing firms should amplify participation in the production of goods by suppliers: By actively participating in the production process with their suppliers, Kenyan food and beverage manufacturing firms can have better control over the sustainability aspects of the products they source. This collaboration facilitates closer alignment with the firm's environmental goals, ensuring that suppliers adhere to sustainable practices. The benefits include increased supply chain visibility, enhanced quality control, and the ability to influence and drive sustainable production practices.

To enhance the effectiveness of Corporate Social Responsibility (CSR) initiatives and overall performance in Kenyan food and beverage manufacturing firms, firms should develop comprehensive CSR strategies that align with their business objectives and local community needs, ensuring that initiatives are relevant and impactful. Engaging stakeholders such as employees, customers, suppliers, and local communities through regular consultations can help identify pressing social issues and foster a sense of ownership among those involved.

Furthermore, firms should focus on transparency and accountability in their CSR efforts by regularly reporting on their activities and outcomes. This can build trust with stakeholders and demonstrate a genuine commitment to social responsibility. Implementing training programs for employees on the importance of CSR can also enhance awareness and involvement, leading to more meaningful contributions to community initiatives. Additionally, partnerships with local NGOs and community organizations can amplify the impact of CSR programs, allowing firms to leverage existing expertise and resources. Investing in sustainable practices, such as eco-friendly production methods and fair labor practices, can also enhance a firm's reputation while positively influencing performance.

To measure the effectiveness of CSR initiatives, firms should establish clear metrics and key performance indicators that assess both social impact and business outcomes. This evaluation process can inform future strategies and demonstrate the tangible benefits of CSR investments. By adopting these recommendations, Kenyan food and beverage manufacturing firms can strengthen their CSR initiatives, ultimately leading to improved community relations, enhanced brand reputation, and greater overall performance.

5.4.3 Green Packaging and Performance of Kenyan Food and Beverage Manufacturing Firms

The study recommends use of reusable packaging materials; Adopting reusable packaging materials reduces waste generation and promotes a circular economy. By using containers, crates, or other packaging solutions that can be reused multiple times, firms can minimize their reliance on single-use materials. This practice not only reduces costs associated with packaging but also contributes to environmental conservation by reducing landfill waste and resource consumption. Choosing packaging materials that are durable and recyclable ensures that products can be packaged and transported safely while also being environmentally responsible. Durable materials protect products during transit, reducing the risk of damage or spoilage. Additionally, recyclable packaging materials can be

recovered and processed into new products, reducing the need for virgin materials and promoting a more sustainable packaging lifecycle.

The study recommends use of biodegradable packaging materials; Biodegradable packaging materials break down naturally over time, reducing their impact on the environment. By using biodegradable options, Kenyan food and beverage manufacturing firms can contribute to the reduction of plastic waste and pollution. Biodegradable packaging materials can decompose in composting facilities or natural environments, minimizing their long-term impact on ecosystems. Collaborating with suppliers that offer recyclable products enables Kenyan food and beverage manufacturing firms to align their supply chain with sustainable practices. This partnership promotes a closed-loop system where the products supplied by these suppliers can be recycled and reintroduced into the production cycle. This reduces waste, conserves resources, and demonstrates a commitment to sustainable sourcing and production.

Companies should invest in research and development to explore innovative packaging materials that are sustainable, biodegradable, or recyclable. By collaborating with packaging suppliers who specialize in environmentally friendly solutions, firms can significantly reduce their environmental footprint. Furthermore, firms should conduct a thorough assessment of their current packaging practices to identify areas for improvement and waste reduction, thereby enhancing efficiency.

Education and training programs for employees on the importance of sustainable packaging can foster a culture of environmental responsibility within the organization. In addition, engaging consumers through awareness campaigns about the benefits of green packaging can help build brand loyalty and encourage environmentally conscious purchasing decisions. Companies should also consider adopting standardized metrics to evaluate the performance of their packaging initiatives, enabling them to track progress and make informed decisions.

Collaborating with local communities and organizations to promote recycling and responsible disposal of packaging materials can further enhance the impact of green packaging efforts. Finally, firms should strive for transparency by publicly reporting their sustainability goals and achievements related to packaging, which can boost consumer trust and strengthen brand reputation. By implementing these recommendations, Kenyan food and beverage manufacturing firms can enhance their sustainability initiatives, improve operational performance, and contribute positively to environmental conservation.

5.4.4 Reverse Logistics and Performance of Kenyan Food and Beverage Manufacturing Firms

From the study findings, it was noted that not all food and beverage manufacturing firms that package their products on returnable packaging materials. The study therefore recommends that firms should implement use of returnable packaging materials such as pallets or crates, to reduce packaging waste and associated costs. Returnable packaging can be used multiple times before being returned to the supplier for reuse. This practice minimizes the need for disposable packaging, enhances supply chain efficiency, and reduces the environmental impact of packaging materials.

Companies should develop a comprehensive reverse logistics strategy that integrates seamlessly with their supply chain operations. This strategy should include clear processes for the collection, sorting, and refurbishment of returned products, ensuring efficiency and minimizing waste. Investing in technology, such as tracking systems and data analytics, can provide valuable insights into return patterns and help optimize logistics operations.

Training employees on reverse logistics practices is essential to foster a culture of sustainability and efficiency within the organization. Additionally, firms should establish partnerships with local recycling facilities and organizations that can assist in processing returned products, thereby promoting circular economy practices. Engaging consumers

through educational campaigns about the importance of returning products and proper disposal methods can also enhance participation in reverse logistics initiatives.

Companies should adopt metrics to evaluate the effectiveness of their reverse logistics operations, focusing on key performance indicators such as return rates, recovery rates, and cost savings. Regular assessments can help identify areas for improvement and drive continuous innovation in reverse logistics processes. By implementing these recommendations, Kenyan food and beverage manufacturing firms can improve their reverse logistics practices, reduce environmental impact, and enhance overall operational performance, leading to greater sustainability and competitiveness in the market.

5.4.5 Organizational Culture and Performance of Kenyan Food and Beverage Manufacturing Firms

The food and beverage manufacturing firms are encouraged to regularly review strategies to effectively respond to environmental changes: Environmental changes and evolving consumer preferences require firms to continually reassess their strategies. By regularly reviewing and updating their strategies, Kenyan food and beverage manufacturing firms can ensure that they stay responsive to emerging environmental trends and market demands. This flexibility enables firms to adapt their operations, adopt sustainable practices, and maintain a competitive advantage.

Food and beverage manufacturing firms are encouraged to Invest in research and innovation: Allocating resources to research and innovation fosters the development of sustainable practices, processes, and products. By investing in research and innovation, Kenyan food and beverage manufacturing firms can discover new ways to reduce their environmental footprint, improve efficiency, and enhance product quality. This investment can lead to the introduction of innovative technologies, packaging solutions, and production methods that drive sustainability and competitiveness in the market. Firms should prioritize the development of a positive organizational culture that fosters collaboration, inclusivity, and innovation. This can be achieved by implementing clear

communication channels that encourage employee feedback and participation in decision-making processes, thus promoting a sense of ownership and commitment.

Investing in employee development programs is crucial, as it not only enhances skills and competencies but also signals that the organization values its workforce. Regular training and workshops can help cultivate a culture of continuous improvement and adaptability, essential in a rapidly changing industry. Additionally, recognizing and rewarding employees for their contributions and achievements can reinforce positive behaviors and motivate staff to align their efforts with organizational goals.

To strengthen organizational culture, firms should also emphasize corporate social responsibility and sustainability initiatives, as these values resonate with both employees and consumers. Encouraging team involvement in community outreach or sustainability projects can enhance camaraderie and instill a shared sense of purpose. Finally, conducting regular assessments of organizational culture through surveys or focus groups can provide valuable insights into employee perceptions and areas for improvement. By implementing these recommendations, Kenyan food and beverage manufacturing firms can create a dynamic and supportive organizational culture that drives performance, innovation, and overall business success.

5.5 Areas of Further Research

The study only focused on Kenyan food and beverage manufacturing firms. Although the sector was selected as it was the largest sector according to Kenya Association of Manufacturers (KAM) out of the total 14 sectors, this study recommends further research in other sectors.

The study was limited to four variables; Green procurement, Corporate Social Responsibility, Green packaging and Reverse logistics. The study used Organizational culture as a moderating variable. The study recommends that similar studies to be

conducted with inclusion of other green supply chain Management Practices variables and with a different moderating variable.

The study recommends Conduction of a comparative study to analyze the performance of food and beverage manufacturing firms that have adopted Green Supply Chain Management Practices (GSCMP) practices versus those that have not. This analysis can provide valuable insights into the specific benefits and impact of GSCP on the performance indicators of firms in the industry.

Other relevant areas of research include but not limited to an examination of the impact of technological advancements and automation on productivity and efficiency within these firms could provide insights into optimizing operations. In addition, studying the influence of supply chain management practices, particularly in relation to sourcing local ingredients, could highlight ways to enhance sustainability and reduce costs. Investigating consumer preferences and behavior in the context of health trends and local versus imported products would also be valuable, as it can inform marketing strategies and product development. Lastly, a comparative analysis of regulatory challenges and compliance across different regions within Kenya could identify barriers to growth and opportunities for policy improvements. Exploring the role of workforce training and development on innovation and competitiveness in this sector could offer practical recommendations for enhancing human capital.

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APPENDICES

Appendix I: List of Kenyan Food and Beverage Manufacturing Firms

SN	FIRM
1	Afrimac Nut Company
2	Agro Chemicals & Food Co.
3	Al Noor Feisal & Co Ltd
4	Alliance One Tobacco Kenya Ltd
5	Al-Mahra Industries Ltd
6	Almasi Beverages Ltd
7	Alpha fine foods Ltd
8	Alpine Coolers Ltd
9	APT Commodities Ltd
10	Arax Mills Ltd
11	Azaavi collections
12	Bakemark Ltd
13	Bakers Corner Ltd
14	Bakex Millers Ltd
15	Bdelo Ltd
16	Belfast Millers Ltd
17	Bidco Africa Ltd
18	Bio food Products Ltd
19	Bloc Enterprises Ltd
20	Blueplastics and water Co.Ltd
21	Brava Food Industries Ltd
22	British American Tobacco Kenya Plc
23	Broadway Bakery Ltd
24	Brookside Dairy Ltd
25	Butali Sugar Mills Ltd
26	C. Dormans Ltd
27	C.Czarnikow Sugar (EA) Ltd
28	Candy Kenya Ltd
29	Capel Food Ingredients
30	Capwell Industries Ltd
31	Carojim Cookery Enterprise
32	Caterina Bakery Ltd

33 Centrofood Industries Ltd
34 Coastal Bottlers Ltd
35 Coca-Cola Central East and West Africa Ltd
36 CoffTea Agencies
37 Confini Ltd
38 Cornbelt Flour Mill
39 Crofts Ltd
40 Crown Beverages Ltd
41 Danone Nutricia Africa and Overseas
42 Del monte Kenya Ltd
43 Deylin Ultimate Springs Ltd
44 Diamond Industries Ltd
45 Doinyo Lessos Creameries Ltd
46 DPL Festive Ltd
47 East African Breweries Ltd
48 East African Sea Food Ltd
49 Eastern Produce Kenya Ltd (Kakuzi)
50 Edible Oil Products Ltd
51 Eldoret Grains Ltd
52 Elekea Ltd
53 Equator Bottlers Ltd
54 Europack Industries Ltd
55 Farmers Choice Ltd
56 Foods by Likii
57 Frigoken Ltd
58 FRM EA Packers Ltd
59 Giloil Company Ltd
60 Githunguri Dairy Farmers Co-Operative Society
61 Glacier Food Industries Ltd
62 Glacier Products Ltd
63 Global Tea and Commodities (K) Ltd
64 Gold Crown Foods (EPZ) Ltd
65 Golden Africa Kenya
66 Gonas Best Ltd
67 Grains Industries Ltd
68 Green Forest Foods Ltd
69 Halisi Maize Mills Ltd

70	Happy Cow Ltd
71	Health U Two Thousand Ltd
72	Honey Care Africa
73	Isinya Feeds Ltd (Former Sigma Supplies Ltd)
74	Italian Gelati and food Products Ltd
75	James Finlay Kenya Ltd
76	Jetlak Foods Ltd
77	Jjasm Mini-Distillery
78	Jungle Group Holdings Ltd
79	Kabianga Dairy Ltd
80	Kamili Packers Ltd
81	Kapa Oil Refineries Ltd
82	Karirana Estate Ltd
83	Kenafric Bakery
84	Kenafric industries Ltd
85	Kenbrest Ltd
86	Kenchic Ltd
87	Kenya Highland Seed Co. Ltd
88	Kenya Nut Company Ltd
89	Kenya Sweets Ltd
90	Kenya Tea Development Agency
91	Kenya Tea packers Ltd
92	Kenya Wine Agencies Ltd
93	Kevian Kenya Ltd
94	Kibos Dairy Farm Produce
95	Kibos Sugar and allied industries
96	Kigelia fresh produce Ltd
97	Kilimanjaro Biscuits Ltd
98	Kina Loaf Bakery Ltd
99	Kinangop Dairy Ltd
100	Kirinyaga Flour Mills
101	Kitui Flour Mills
102	Koba waters Ltd
103	Krish commodities Ltd
104	Kulamawe Poultry Industries Ltd
105	Kwale International Sugar Company Ltd
106	L.A.B International Kenya Ltd

107 Mafuko Industries Ltd
108 Malachite Ltd
109 Mama Millers Ltd
110 Mamboleo Distillers Ltd
111 Manji food Inductries Ltd
112 Mars Wrigley Confectionery Kenya Ltd
113 Melvin Marsh International Ltd
114 Menengai Oil Refineries Ltd
115 Midrow Kenya Ltd
116 Milly Fruit Processors Ltd
117 Mini Bakers (Nbi) Ltd
118 Mjengo Ltd
119 Mombasa Maize Millers Ltd
120 Morani Ltd
121 Mulsons Impex Ltd
122 Mwachaka Group Ltd
123 Mwakawa Investment Ltd
124 Mzuri Sweets Ltd
125 Nairobi Bottlers Ltd
126 Nairobi Flour Mills Ltd
127 Nairobi Java House
128 Nestle Kenya Ltd
129 Njoro Canning Factory (Kenya) Ltd
130 Norda industries Ltd
131 Okerio Nyangau Bakery
132 Olenguruone Natural Water Ltd
133 Olivado EPZ Ltd
134 Orchard Juice Ltd
135 Palmhouse Diaries Ltd
136 Patco Indusries Ltd
137 Pearly LLP
138 Pembe Flour Mills Ltd
139 Peshwood Enterprises Ltd
140 Pradip Enterprises (E.A) Ltd
141 Premier Food Industries Ltd
142 Pride Industries Ltd
143 Promasidor (Kenya) Ltd

144	Propack Kenya Ltd
145	Pwani Oil Products Ltd
146	Rafiki Millers Ltd
147	Razco Ltd
148	Re-Suns Spices Ltd
149	Royal Swiss Bakery Ltd
150	Salim Wazarani Kenya Company
151	Salwa Kenya Limited
152	Sameer Agriculture and Livestock (Kenya) Ltd
153	Savannah Brands Company
154	SBC Kenya Ltd
155	Scrumptios Eats Ltd
156	Selecta Kenya & Co. KG
157	Shake and Cream
158	Shree Sai Industries
159	Sky Foods Ltd
160	Slikridge Ltd
161	Spice World Ltd
162	Sunbake Enterprises Ltd
163	Sunny Processors Ltd
164	Supa Snacks Ltd
165	Toggen Milk
166	Toggen Milk
167	Top Foods (EA) Ltd
168	Tropical Heat Ltd
169	Unga Group Ltd
170	Upfield Kenya Ltd
171	Ustawi Grain Millers ltd
172	Weetabix East Africa

Appendix II: Questionnaire

This questionnaire is intended to assist the researcher to gather some information on his PhD Thesis titled ***"Green Supply Chain Management Practices and performance of Food and Beverage Manufacturing firms in Kenya".*** Please complete the following section by ticking (√) the right choice or writing down your answer where necessary. The information you will provide will only be used for academic purposes and will be treated with strict confidentiality.

Part A: General Information

1. Firm's Category

Alcoholic Beverages & Spirits ( ) Bakers & Millers ( ) Cocoa, Chocolate and Sugar Confectionery ( ) Dairy Products ( ) Juices / Waters / Carbonated Soft Drinks ( ) Slaughtering and Preservation of Meat ( ) Tobacco ( ) Vegetable Oils ( )

2. Please indicate your position in the firm.

Top level management ( ) Middle level management ( ) lower level management ( )

Part B: Green procurement Related Statements

3. The following are some of the green procurement related statements. Please indicate to what level you agree with the following statements by ticking (√) the appropriate opinion based on the following attributes.

	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.1	Firm has policies that guides procurement and development of environmentally friendly goods					

3.2	Firm's processes are designed to reduce wastage.					
3.3	The firm regularly visits the supplier's premises to confirm compliance with production of environmentally friendly goods.					
3.4	Firm's Staff regularly attends a seminar/workshop on green procurement.					
3.5	The firm has minimized purchase of goods that are hazardous and difficult to dispose.					
3.6	Implementing green procurement improves firm performance					

3.7. What other suggestions would you give relating to green procurement that improves the performance of Kenyan food and beverage manufacturing firms ?

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Part C: Corporate Social Responsibility Related Statements

4. The following are some of Corporate Social Responsibility related statements. Please indicate to what level you agree with the following statements by ticking (√) the appropriate opinion based on the following attributes.

	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
4.1	Firm has a policy on corporate social responsibility					
4.2	Firm participate in community projects					
4.3	Firm participate in projects that have a concern with the environment					

4.4	Firm participate in production of goods by the suppliers					
4.5	Participating in community project improves the reputation of the firm					
4.6	Implementing corporate social responsibility improves the performance of food and beverage manufacturing firms					

4.7. What other suggestions would you give relating to corporate social responsibility that improves the performance of Kenyan food and beverage manufacturing firms?

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Part D: Green packaging Related Statements

5. The following are some of Green packaging related statements. Please indicate to what level you agree with the following statements by ticking (√) the appropriate opinion based on the following attributes.

	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
5.1	The firm uses re-usable packaging materials.					
5.2	The firm uses durable packaging materials that allow recyclability.					
5.3	The firm uses packaging materials that do not cause negative harm to the environment.					
5.4	The firm uses bio-degradable packaging materials.					
5.5	The firm uses Packages that ensures safety					

5.6	By implementing green packaging, the firm is able to improve performance					

5.7. What other suggestions would you give relating to Green packaging that improves the performance of Kenyan food and beverage manufacturing firms?

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Part E: Reverse Logistics Related Statements

6. The following are some of Reverse logistics related statements. Please indicate to what level you agree with the following statements by ticking (√) the appropriate opinion based on the following attributes.

	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
6.1	The firm has integrated manufacturing, transportation and flow of information to effectively respond to customer's requirements					
6.2	The firm designs products that can be recycled					
6.3	The firm encourages suppliers to use returnable packaging materials.					
6.4	The firm engages suppliers whose products can be recycled					
6.5	The firm packages its products on returnable packaging materials					
6.6	By implementing reverse logistics, firm is able to improve its performance					

6.7. What other suggestions would you give relating to reverse logistics that improves the performance of Kenyan food and beverage manufacturing firms?

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Part F: Organizational culture Related Statements

7. The following are some of organizational culture related statements. Please indicate to what level you agree with the following statements by ticking (√) the appropriate opinion based on the following attributes.

	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
7.1	I understand the Vision and Mission of my firm/organization.					
7.2	Structural adjustments are carried out by firms to adapt to changes in the market					
7.3	The firm's Strategies are reviewed from time to time to effectively respond to environmental changes					
7.4	The firm invest in research and innovation					
7.5	There exists established effective systems, policies, and guidelines in the firm.					
7.6	Organizational /firm culture has an influence on firm performance					

7.7 What other suggestions would you give relating to organizational/firm culture that improves the performance of Kenyan food and beverage manufacturing firms?

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Part G: Performance of food and beverage manufacturing firms Related Statements

8. The following are some Performance of food and beverage manufacturing firm's related statements. Please indicate to what level you agree with the following statements by ticking (√) the appropriate opinion based on the following attributes.

	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
8.1	By adopting Green Supply Chain Management Practices firm is able to increase its profit margins					
8.2	Firm has experienced reduction on overall cost of manufacturing by implementing Green Supply Chain Practices.					
8.3	Firm has increased the sales volumes after implementing Green Supply Chain Practices.					
8.4	The quality of goods produced have improved as a result of adopting Green Supply Chain Management Practices hence increasing acceptance by customers.					
8.5	By adopting Green Supply Chain Practices, firm is able to increase exploit new markets.					
8.6	Adopting Green Supply Chain Management Practices leads to improvement in performance of food and beverage manufacturing firms					

8.7 What other suggestions would you give to improve performance of Kenyan food and beverage manufacturing firms?

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Thank you very much for your time