INFLUENCE OF GREEN SUPPLY CHAIN MANAGEMENT ON ORGANIZATION PERFORMANCE OF KENYA ELECTRICITY GENERATING COMPANY

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DECLARATION AND APPROVAL

Student's Declaration

This research project is my original work and has not been presented for a degree in any other university or for any other award.

Sign ..... **Date** 24-10-2024

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MPSM/2022/45402

Approval by the Supervisor

This research project has been submitted for examination with my approval as the university supervisor.

Sign ..... **Date** 24/10/2024

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DEDICATION

This research project is dedicated to my dear family, who have continuously fortified and supported me throughout my life.

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ABSTRACT

The poor organizational performance of KenGen has been attributed to a number of factors. Inefficient supply chain processes have led to delays, disruptions, and inefficiencies in operations, affecting the company's ability to generate and deliver electricity reliably and cost-effectively. Poor supply chain management has resulted to in increased costs associated with sourcing materials, transporting equipment, and managing inventory, thereby impacting KenGen's profitability and financial performance. The study investigated effect of green supply chain management/practices on organization performance of Kenya Electricity Generating Company. The specific objectives were to establish the effect of green distribution, green purchasing, reverse logistic and green production on organization performance of Kenya Electricity Generating Company. The study was guided by resource-based perspective theory, the transaction cost economics theory, and the resource dependency theory. The study used a causal research approach to investigate cause-effect correlations. The research was conducted at the facilities of the Kenya Electricity Generating Company, namely at their main office situated at Stima Plaza, Phase 3, Kolobot Road, Parklands. The study targeted 107 respondents comprising of Procurement Officers, Transport and Logistics Officers, Finance Manager, Operation Manager, and Warehouse/Storage officers who usually play a key role in supply chain operations. From each stratum the study used simple random sampling to select 84 respondents from a target of 107. Primary data was collected using a well-designed questionnaire. Piloting was conducted to determine validity via content and construct validity as well as reliability using Cronbach alpha. Quantitative data was analyzed using descriptive and inferential statistics. Descriptive analysis summarized data in form of central tendency as well as dispersion and inferential analysis was used to test hypothesis. Descriptive analysis included; frequencies, Mean, Standard deviation and percentage while inferential analysis involved correlation analysis and multiple linear regression analysis. Prior to conducting multiple linear regressions, the study ensured that the assumptions of linear regression were met. The data was presented in form of tables and models. Multiple regression analysis revealed that when other variables are controlled in the model, a unit change in green purchasing would results to a significant change in organization performance by 0.204 units in the same direction (β_2=0.204, P=0.001). Pearson Correlation results revealed a significant relationship between reverse logistic and organization performance of Kenya Electricity Generating Company (r=0.632, P<0.05). The study concluded that green distribution has significant influence on organization performance of Kenya Electricity Generating Company. The study concluded that Reverse logistic has significant effect on organization performance of Kenya Electricity Generating Company. The study recommended that KenGen should prioritize expanding its green production initiatives as they are proven to significantly enhance performance. This can be achieved through further investments in clean technologies, renewable energy sources, and processes aimed at reducing waste and environmental impact.

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ABBREVIATIONS AND ACRONYMS

CIPS	Chartered Institute of Procurement and Supplies
EU	European Union
GDP	Gross Domestic Product
GNP	Gross National Product
GOK	Government of Kenya
GSCM	Green Supply Chain Management
IMF	International Monetary Fund
KENGEN	Kenya Energy Generating Company
KISM	Kenya Institute of Supplies Management
WB	World Bank

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

In the contemporary era, companies encounter a diverse array of factors, many of which pose challenges to their ongoing performance and long-term viability (Nderitu & Ngugi, 2019). In order to enhance performance and competitiveness, contemporary organizations must prioritize diversity and effective management practices, which are necessitated by technological advancements, heightened competition, globalization, and growing awareness of cultural variety. The supply chain is a significant operational procedure inside contemporary organizations that needs careful consideration in order to optimize performance and efficiency. The concept of sustainable supply chain management has gained significant attention worldwide due to its potential to mitigate global warming and address environmentally detrimental practices (Quyen, 2020).

With the growing consumer awareness in the business sector, there is a heightened focus on environmental concerns such as heating and the impact of the goods produced by companies. Consequently, organizations must strategize on how to address supply chain operations (Abunar, 2024). Companies have reported an increase in greenhouse gas emissions as well as environmental deterioration, which has resulted in the need for these businesses to coordinate the activities of their supply chain in order to respond appropriately to the limited availability of resources (Kaikai & Mose, 2020).

It is common practice to ascribe the beginning of sustainable supply chain management to the effect of external pressures and incentives exerted by many parties, including governments, customers, investors, and stakeholders (Anane, 2020). Because of this, it is necessary to devise standards for the environmental and social performance of products that are based on their whole life cycles and to ensure that these criteria are consistently followed across the entire supply chain. It is necessary to develop one's internal as well as their exterior talents. According to the results of Sahoo and Vijayvargy (2021), the adoption of sustainable supply chain management needs the consideration of a wider spectrum of issues, which in turn necessitates an investigation of an expanded segment of the supply chain. In other words, sustainable supply chain management necessitates an assessment of an extended segment of the supply chain. Based on the

aforementioned observation, it seems that there is an increasing need for improved cooperation amongst linked businesses in the field of environmentally responsible supply chain management. Nevertheless, according to the findings that were uncovered throughout the course of the research that was carried out by Panya, Ochiri, Achuora, and Gakure (2021), the scope of this potential is now being limited.

Recent research published in academic journals has investigated a number of different definitions and conceptualizations of green supply chain management, in addition to the topic's possible effects on business operations and the natural environment in the foreseeable future (Setyadi, 2019). According to Yusuf (2020), there is a general agreement that sustainable practices in a company's buying and production divisions are crucial for promoting the well-being of its workers, customers, and the environment. According to Bolaji, Rahim, and Omar (2020), the concept of green supply chain management techniques pertains to the enhancement of environmental sustainability by means of regulating the flow of raw materials, components, and operations throughout the supply chain, spanning from suppliers to manufacturers to consumers.

The primary objective of Green Supply Chain Management (GSCM) is to effectively mitigate or reduce waste in many forms, including energy consumption, emissions, as well as the generation of chemical, hazardous, and solid wastes, along the whole supply chain (Obiso, Maendo, Musau, & Waribu, 2023). The concept of GSCM has become more important for businesses as it offers a means to achieve financial gains, operational efficiency, and market dominance via the mitigation of environmental risks and minimizing ecological footprints (Ochieng, 2019). The primary aim of GSCM is to ensure that firms include environmental considerations into their supply chain operations while they strive for advancement. This environmental consciousness has the goal of removing operations that are harmful to the environment from the supply chain, which will result in an increase in the environmental efficacy of companies and a reduction in the environmental risks such organizations face. This approach also aids in increasing their profitability and market share.

The incorporation of environmentally friendly business practices into supply chain management is the core idea behind the term "green supply chain." This integration seeks to promote environmental sustainability by the use of a variety of techniques, including eco design, green

buying, green distribution, green manufacturing, reverse logistics, green disposal, green packaging and warehousing, and green transportation (Aunyawong, Waiyawuththanapoom & Shaharudin, 2024). These practices include the use of biofuels in transportation, the incorporation of environmentally friendly manufacturing methods, and the administration of end-of-life product management procedures. This study concentrated on the adoption of green supply chain management, which included green distribution, green manufacturing, green purchasing, and reverse logistics as particular areas of attention.

The performance of a corporation refers to its ability to meet established rules, adhere to compliance requirements, reduce waste, and optimize output (Mumbi, Karanja, & Kiarie, 2021). The evaluation of a company's performance may be conducted by examining the efficiency of its whole manufacturing process. One of the indicators of a firm's strong success is an elevated level of production. These objectives may be achieved by implementing strategies that enhance production efficiency, hence positioning the sector in a favorable competitive position. Performance refers to the degree to which a firm is able to establish a more advantageous position relative to its rivals (Ali, Islam & Alam, 2024). In order to optimize performance, it is essential that all participants within the supply chain maintain a continuous collaborative effort to effectively cater to the ultimate customer (Ajayi, Onikoyi, Babalola & Lateef, 2021). According to Porter (1985), the manner in which a firm establishes connections with other enterprises within its value chain may have an impact on its performance, particularly when external assets are generated independently from other value chains. According to Wanjiru and Ochiri (2019), the authors argue that the adoption of strategic alternatives for sustainability might potentially serve as a determining element in enabling enterprises to establish a distinctive performance in terms of product images, sales, market share, and penetration into new markets.

According to Teixeira, Moraes and de Seabra (2023), the concept of performance is crucial in understanding a company's capacity to strategically deter new competitors and establish a dominant position in a particular market, hence assuring long-term viability. Saeed, Rasheed, Waseem and Tabash (2022) argued that the success of most multinational corporations in Kenya can be attributed to their focus on performance. These companies achieved their success by prioritizing various aspects of performance, including cost leadership, differentiation, and other

related strategies. In their study on the evaluation of the influence of supply chain on firm performance, Al-Hakimi, Al-Swidi, Gelaidan, and Mohammed (2022) found that factors such as market share, market penetration, product flow, and customer flow were the most significant determinants of a business's success.

In advanced industrialized countries such as Germany, corporations are actively pursuing the establishment of closed loop systems as a strategic measure to enhance the environmental sustainability of their supply chains (D'Angelo, Cappa, & Peruffo, 2023). In order to ensure the continued viability of the organization over the long term and reduce the amount of trash that is produced overall, the major focus is focused on the selection of materials that will be utilized in the development phase and the design process. In the United States, several firms are actively adopting and promoting environmentally sustainable practices, such as green packaging, green buying, green production, and green manufacturing. This is primarily driven by the potential cost savings associated with these practices, which in turn enhance the performance of the supply chain (Alshourah, 2022). Simultaneously, these tactics are implemented in conjunction with those directed at augmenting production and enhancing revenues and profits, since the implementation of environmentally sensitive activities necessitates financial resources. The growth of GSCM in other developed economies, such as China, may be attributed to the growing consumer awareness about the environmental degradation caused by intensified industrial activities (Walisundara, Thevanes, & Arulrajah, 2022). According to Acquah (2024), the introduction of green design and green manufacturing methods in Thailand has significant and positive benefits on agri-firms.

According to the Economic Commission for Africa (2010), the implementation of green supply chain management in Africa has shown a positive impact on supply chain performance. In the context of Nigeria, Ajayi et al. (2021) have provided empirical evidence supporting a positive relationship between GSM (Global System for Mobile Communications) and environmental performance, which is mediated by green innovation. According to Carter et al. (2018) research conducted in Kenya, it has been shown that increasing the participation of supply chain suppliers in environmentally friendly practices may improve the performance of manufacturing businesses. In the setting of South Africa's highly developed economy, the factors of reverse logistics, legislation, and regulation were shown to have a substantial and positive correlation with

environmental performance. This association was found to be significant. Epoh and Mafini (2018) state that there is a significant and favorable correlation between environmental performance and supply chain performance.

In Kenya, a range of economic sectors have adopted green supply chain strategies in order to adhere to governmental environmental requirements and effectively tackle environmental concerns while also addressing performance-related problems (Mumbi et al., 2021). Companies operating within the agriculture industry have implemented ecologically sustainable measures such as the use of eco-friendly pesticides, afforestation initiatives, the use of uncontaminated seedlings, and the adoption of irrigation systems that are conducive to ecological preservation. The enactment of the Constitution of Kenya, 2010 signified a significant milestone in the progression of Kenya's environmental policy formulation. Regarded as a constitution with a strong focus on environmental sustainability, it has detailed provisions that have significant consequences for the advancement of sustainable development. These include the entitlement to a clean and healthy environment as established in the Bill of Rights. Chapter V of the constitution is exclusively devoted to matters pertaining to land and the environment. Furthermore, it encompasses several social, political, and economic rights with an environmental focus, including but not limited to the entitlement to access clean water, enough food, and suitable housing (Musau, 2019).

The simultaneous effects of globalization and localization have provided businesses with the urge to work toward improving their environmental performance. As a consequence of this, businesses devote large resources to environmental initiatives, and there is evidence to suggest that the incorporation of environmentally responsible business practices into supply chain management, commonly referred to as "green supply chain," has an effect on the profitability of businesses. When firms use such strategies, they have the ability to enhance performance by implementing waste management methods, enhancing their reputation, and decreasing total expenses. Hence, several organizations have embraced the implementation of GSCM strategies as a means of achieving enhanced organizational performance, which serves as the primary objective of this research endeavor.

1.2 Statement of the Problem

Circumstantial evidence suggests that companies have used Global Supply Chain Management (GSCM) strategies on a global scale with the aim of enhancing their operational efficiency and overall performance. Samson (2018) uses the example of well-known corporations such as 3M, Kodak, and Xerox to illustrate how these businesses have effectively adopted different components of green management approaches into their supply chains in an effort to improve overall organizational performance. Samson cites these organizations as examples. Nevertheless, throughout the time period in which this study will be carried out, it is still unknown how the implementation of environmentally friendly supply chain management would affect the operational efficiency of businesses in Kenya's energy industry.

The energy sector in Kenya, like in many countries, is subject to regulatory changes, fuel price fluctuations, and supply chain issues that can impact Kenya Electricity Generating Company (KenGen) performance. Increasing environmental regulations and concerns requires KenGen to invest in cleaner and more sustainable energy sources, which can be costly and affect profitability in the short term. The profit margin of KenGen has been reducing over the past five with an average drop of 10%. Similarly, the company has been experiencing increase in operational cost with an average increase of 15% from 2018 to 2022 (Capital Market Authority, 2023).

According to Omusebe (2018), the poor organizational performance of KenGen has been attributed to a number of factors. KenGen has been facing significant financial challenges in recent years, due to a number of factors, including the high cost of geothermal exploration and development, the declining cost of renewable energy, and the government's reluctance to raise electricity tariffs. This has made it difficult for KenGen to invest in new capacity and maintain its existing infrastructure. KenGen has also been criticized for its operational inefficiencies. For example, the company has a high workforce cost structure and its power generation plants are not operating at optimal capacity. The poor performance of KenGen has had a number of negative consequences for Kenya. It has led to higher electricity prices, power outages, and job losses. It has also made it difficult for the country to achieve its economic development goals (Maende & Alwanga, 2020).

According to scholarly research, the adoption of environmentally sustainable practices yields several advantages. Initially, it is a defensive mechanism aimed at safeguarding against the worst impacts of climate change, including the exhaustion of natural resources. Additional advantages include the ability to reach prosperous markets, get specialized financial resources, cultivate a positive public perception, garner endorsement from environmental regulatory bodies, and serve as a potential catalyst for gaining a competitive edge (Omusebe, Ismael & Iravo, 2018). There are divergent perspectives about the advantages associated with embracing environmentally sustainable practices. According to Zhang, Zeng, and Smart (2021), several scholars contend that the expenses linked to the implementation of environmentally sustainable practices in agriculture significantly surpass the advantages derived from such measures. These factors include the expenses associated with implementing new technology, decreased efficiency, the need for hiring specialist personnel, and investments in training and development, among other considerations. There is a lack of agreement about the financial advantages that are linked with the deployment of green supply chain management and the effect that this has on performance.

1.3 Purpose of the Study

The study investigated effect of green supply chain management/practices on organization performance of Kenya Electricity Generating Company

1.3.2 Specific Objectives

The study was guided following specific objectives: -

i. To establish the effect of green distribution on organization performance of Kenya Electricity Generating Company.

ii. To determine the effect of green purchasing on organization performance of Kenya Electricity Generating Company.

iii. To establish the effect of reverse logistic on organization performance of Kenya Electricity Generating Company.

iv. To determine the effect of green production on organization performance of Kenya Electricity Generating Company

1.5 Study Hypotheses

H_{01}: There is no significant effect of green distribution on organization performance of Kenya Electricity Generating Company

H_{02}: There is no significant effect of green purchasing on organization performance of Kenya Electricity Generating Company.

H_{03}: There is no significant effect of reverse logistic on organization performance of Kenya Electricity Generating Company.

H_{04}: There is no significant effect of green production on organization performance of Kenya Electricity Generating Company.

1.6 Significance of the Study

This study would be important to a number of stakeholders.

1.6.1 Management of Ken and other State Corporations in Energy Sector

The research would provide a clear signal to state firms on the potential performance advantages of becoming green. As a result, they would be able to conduct an unbiased cost-benefit analysis while implementing a green environment. Environmental lobby organizations come next. They may use this research to support their lobbying efforts against state companies, other manufacturers, and other business concerns by emphasizing environmental conservation as a way of performance improvement as well as sustainability.

1.6.2 National Environment Management Authority

The National Environment Management Authority (NEMA), the government's environmental management division, is the next organization that stands to gain from this research. NEMA would

be able to assess state companies' understanding of environmental protection and their part in it. This would help NEMA create awareness campaigns for state businesses and other government entities. In conclusion, the findings of this study would have an impact, both now and in the future, on the everyday lives of people living in Kenya. This may be accomplished by maintaining the awareness-raising effort about the critical need to conserve the environment and the essential natural systems that are essential to the continuation of life both today and in the future.

1.6.3 Government and Policy Makers

The findings of this research are very relevant to the decision-making process of the Kenyan government. The suggestions that were produced from this research are very important in that they provide direction for supply chain strategies and policies. These strategies and policies have the potential to successfully improve the supply chain status of the government, which in turn would have a beneficial influence on the GDP of the nation. The report may serve as a valuable resource for the Public Procurement and Oversight Authority (PPOA) in the formulation of rules, laws, and legal initiatives pertaining to green supply chain practices.

1.6.4 Researchers and Future Scholars

The purpose of this research effort is to add to the existing body of academic literature by undertaking an in-depth analysis of the use of environmentally sustainable supply chain strategies within an economy that is still in the process of development. In addition to this, the purpose of the project is to investigate the effect that such business methods have on the operational performance of energy and petroleum state companies. The findings of the research provide significant theoretical insights on the desirability and applicability of incorporating environmentally friendly supply chain practices into KenGen systems.

1.7 Scope of the Study

The impact that environmentally responsible methods of managing supply chains have on the overall performance of organizations was the primary focus of this research. Green distribution, green manufacturing, green buying, and reverse logistics conceptually came to characterize green supply chain management methods as four separate variables. The performance, on the other hand,

served as the dependent variable. In this particular setting, the research was carried out at Kenya Electricity Generating Company, which has its headquarters in Nairobi. Methodologically, the study relied on primary data collected using structured questionnaire from Procurement Officers, Transport and Logistics Officers, Finance Managers, Operation Managers, and Warehouse/Storage Officers. In terms of the duration of its scope, the research was carried out between the months of September and December 2023.

1.8 Limitation of the Study

The study may find it difficult to solicit response from sampled respondents due to sensitive nature of the study. To counter this, the researcher assured the respondents of anonymity and confidentiality, and re-assured them that the feedback was only for the purpose of the study. There was also a challenge of time resources management particularly where the respondents may delay giving their response to the questionnaires submitted to them. To mitigate this, the researcher made follow up quite often to identified respondents. The variables were measured based on the respondents' perceptions of the situation. However, the researcher was able to generalize the results if they gather data from a large number of respondents from the same institution

1.9 Delimitation of the Study

The research restricted itself to KenGen participants as its source of responders. It is possible that as a result of this, the results cannot be generalized or applied to other public organizations. To identify patterns that are applicable across all state companies, it is possible that more research has to be conducted in a variety of state corporations. The knowledge that is created, on the other hand, may be useful in guiding the implementation of environmentally friendly supply chain procedures. The scope of the research was narrowed down to focus on four environmentally friendly supply chain techniques that are most appropriate to KenGen distribution on a greener scale, manufacturing on a greener scale, reverse logistics, and purchase on a greener scale. This implies that other green supply chain practices were not considered

1.10 Assumptions of the Study

The study assumed the following that the participants responded to the research instruments honestly and hence the results of this study could be replicated in all other state corporations in energy sector in Kenya. The respondents were aware of green supply chain management undertaken by KenGen and the respondents availed themselves during data collection exercise.

1.11 Operational definitions of key terms

Green purchasing: refers to an overarching strategy devised by a hotel with the goal of attracting potential customers and converting them into paying clients for the hotel's goods or services.

Reverse Supply Chain Logistics - is the process of planning, executing, and regulating the efficient movement of raw materials, in-process inventories, completed products, and associated information from the point of consumption back to the place of origin in order to reclaim value or dispose of waste in an appropriate manner.

Green Purchasing: It comprises choosing environmentally friendly suppliers, acquiring ecologically friendly goods and services, and establishing environmental criteria.

Green Supply Chain Management: This refers to the process of implementing environmentally responsible policies and procedures into the administration of businesses in a manner that is compliant with the necessary requirements.

Green production: This refers to the manufacturing process of goods that have been developed in such a way as to lessen their negative effects on the environment throughout their manufacture, usage, and disposal at their end of life.

Reverse logistics refers to the process of managing the return, remanufacturing, refurbishing, recycling, or disposal of products and materials from the end consumer back to the manufacturer or origin point

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is to acquire a substantial understanding of the prior literature and to appreciate the ideas that form the basis of this research. The theoretical review, empirical review, conceptual framework, summary, and research gaps are all outlined here.

2.2 Theoretical Framework

The green supply chain practices that were supposed to affect organizational performance served as the foundation for the theoretical viewpoint that is pertinent to this research. The natural resource-based perspective theory, the transaction cost economics theory, and the resource dependency theory served as theoretical guides for this investigation.

2.2.1 Natural-Resource-Based View

The basic hypothesis served as the foundation for the whole investigation. An extension of the Resource-Based View (RBV) paradigm is proposed by the hypothesis. It asserts that a firm may achieve persistent competitive advantage by leveraging its interaction with the natural or biophysical environment (Bagherpasandi, Salehi & Hejazi, 2024). According to the Natural Resource-Based View (NRBV) paradigm (Yang et al., 2015), the creation of pollution prevention technologies involves the learning of a considerable amount of tacit knowledge, which is made possible via the development of skills and the establishment of "green" teams.

The natural resource-based view (NRBV) proposes that in order for an asset or group of assets to be considered strategic, it must possess all three of the characteristics listed below. It is important for a corporation to clearly identify and define its assets or collection of assets. Furthermore, it is essential that the item or collection of assets remains causally ambiguous or unspecified. This implies that the asset in question is mostly centered on humans and is difficult to see in practical terms, since individuals or groups get knowledge via experiential learning and refine it as they gain comprehension. Furthermore, it is essential that the collection of assets, whether tangible or intangible, have a high degree of social complexity (Foo et al., 2018).

There is a substantial body of academic research on the adoption of Green Supply Chain Management GSCM in developed countries. This literature covers a wide range of topics, including practices, motives, and the influence on organizational performance. The breadth of organizational solutions to these difficulties has moved beyond the organization's internal operations to embrace the whole supply chain in order to address this issue. As a result of this, businesses operating at all levels of the supply chain are contemplating the introduction of a variety of environmentally friendly initiatives and procedures. This phenomenon has been credited by Mugoni, Kanyepe and Tukuta (2024) as being the impetus for the development of the concepts of SSCM and GSCM.

The Natural Resource-Based View theory provides a theoretical framework for understanding how green production practices can contribute to organizational performance improvement at KenGen by leveraging its unique natural resource endowments, enhancing capabilities, and promoting long-term sustainability. NRBV theory suggests that firms that effectively manage their natural resources and adopt sustainable practices can achieve long-term performance benefits. For KenGen, integrating green production practices into its operations can lead to various performance improvements, including cost savings through resource efficiency, regulatory compliance, and reduced environmental risks.

2.2.2 Transaction Cost Economics Theory

In 1981, Williamson was the one who first presented the concept of transaction cost economics, while Sarkis et al. (2011) were the ones who went on to develop the concept further. The theory investigates the degree of effort and expenditure that is required for two entities to participate in an economic exchange or transaction. This level of effort and expenditure includes the expenses that are connected with searching for, negotiating with, and maintaining control over the transaction. There are costs associated with getting information about developing technologies, creative ideas, competitive settings, and even estimating the expenditures involved in gaining competence in a given subject (Karim, Chowdhury & Murtaza, 2024). These costs are related to environmental practices and have the potential to add up quickly. According to Avdagic (2011), the key variables that contribute to the buildup of bargaining costs are the time and cognitive resources that are necessary in order to participate in talks and arrive at an agreement that is

mutually acceptable. According to Pearce (1997), the allocation of time towards negotiating activities results in a reduction of available time for fundamental responsibilities.

According to Varsei, Soosay, Fahimnia, and Sarkis (2014), the monitoring of suppliers' sustainability performance results in the accumulation of transaction costs. It is important to acknowledge that the supplier may exhibit reluctance in continuing the partnership if the expenses associated with achieving a certain buyer's environmental demands are deemed too burdensome (Avdagic, 2011). Avdagic (2011) posits that the theory of Transaction Cost Economics (TCE) elucidates the determinants that govern the internalization of transactions inside a corporation, the allocation of activities to external market mechanisms, and the underlying rationale behind these decisions.

As a result, this theory is going to be applicable to the variable of green distribution practice that is being investigated in this study. Transaction Cost Economics (TCE) theory suggests that firms make decisions to minimize transaction costs, which include the costs of coordinating and conducting exchanges with external parties. In the case of the Kenya Electricity Generating Company (KenGen), adopting green distribution practices can affect organizational performance through the lens of TCE. By reducing transaction costs associated with traditional distribution methods, such as transportation and logistics, KenGen can enhance operational efficiency and improve profitability. Moreover, green distribution initiatives, like utilizing renewable energy-powered vehicles or optimizing delivery routes, can mitigate environmental impact, aligning with sustainability goals and enhancing the company's reputation.

2.2.3 Resource Dependence Theory

According to Awaysheh and Klassen's (2010) resource dependence theory, organizations are reliant on the availability of important resources, components, or abilities by other entities. These skills might come from outside the company. According to Emerson (1962), the dependence of one side on the other is the source of the power possessed by that side. According to Crook and Combs (2007), powerful firms have the potential to exercise influence and control over partners who have less authority because of their enormous negotiation strength.

According to Min and Galle (2001), there is a larger possibility that notable customers would demand the adoption of ecologically sustainable practices from their smaller suppliers. This is because smaller suppliers tend to be more environmentally conscious. According to Canils and colleagues (2013), the party that holds the majority of market power has the ability to exert influence on the environmental policies and strategies of other parties within the supply chain. This party also has the ability to determine the extent to which suppliers participate in green supply chain initiatives, despite the fact that such participation might not be immediately regarded as advantageous by the suppliers. Brockhaus et al. (2013) found that the case companies had a tendency to adopt initiatives led by dominant enterprises, which were then forced onto the less important upstream members. This was one of the findings that came out of their research, which was published in 2013. This strategy put more emphasis on achieving profits in the near term rather than working to improve the long-term competitive advantage of the whole supply chain. However, it is likely that providers will comply, although in a reactive fashion, in order to fulfill the basic criteria (Canils et al., 2013). This is because it is in their best interest to do so.

The theory has significance in this research as it provides insights into the green buying variable being examined. Resource Dependency Theory (RDT) posits that organizations rely on external resources for survival. Kenya Electricity Generating Company (KenGen) depends on various inputs like equipment and services. Green purchasing, which involves procuring eco-friendly goods, can mitigate dependency on traditional suppliers. By embracing green purchasing, KenGen diversifies its resource base, reducing risks associated with unsustainable inputs. This practice fosters operational efficiency, potentially yielding cost savings and environmental benefits. Moreover, it aligns with corporate social responsibility, enhancing KenGen's reputation. In essence, through green purchasing, KenGen can optimize its resource dependency, fostering sustainability and improving organizational performance.

2.2.4 Public Value Theory

Moore (1995) introduced the theory of public value theory with the intention of providing managers working in the public sector with a full understanding of the challenges and opportunities that are present in their respective working environments. This knowledge enables them to

effectively pursue the creation of results that have significant value for the public. Public value theory is a conceptual framework that elucidates the societal value that a firm provides. The word was first introduced by Mark H. Moore, a scholar from Harvard University, who saw it as analogous to shareholder value in the realm of public administration. The concept of public fee aims to provide managers with a framework for understanding how their actions might contribute to the overall welfare of society. Public values include the normative consensus about the entitlements and rights that individuals should possess, as well as their duties to society, the state, and fellow citizens. These values serve as the foundational principles upon which governments and policies should be constructed.

According to Scott (2004), "public value" is the value that is created for the purpose of benefiting a larger population or society as a whole. Assessments of the basic requirements of people, communities, and society as a whole may be used to estimate the value for the general public, and these evaluations are influenced by interactions with the general public. According to Scott (2004), Public value theory posits that the role of a manager extends beyond just implementing policies and adhering to institutional values and norms. The idea aims to identify potential for significant improvements in the well-being of the general population. Williams and Shearer (2011) argue that public service companies differ from private enterprises in that they have a direct accountability to people and their democratic representatives.

It is important that public value theory was included into this study because it determines the extent to which environmentally responsible supply chain management improves organizational efficiency in terms of service provision, output, product quality, and sales turnover.

2.3 Empirical Review

2.3.1 Green distribution and Organizational performance

The investigation that was carried out by Ajayi, Onikoyi, Babalola, and Lateef (2021) looked at the impact that green distribution and green procurement have on the environmental and operational performance of SMEs in the state of Oyo, Nigeria. A survey technique was used for the research that was carried out for the purpose of this study. This survey has 4,520 business owners and managers of SMEs as its intended audience. Oyo state is located in Nigeria. For the

purpose of the research, a sample size of ten percent (455 SME operators) was chosen. The participants were selected for the research using processes for stratified random sampling, and the data collected was afterwards analyzed utilizing regression and correlation techniques. According to the results of the study, the adoption of environmentally friendly distribution procedures has a substantial influence on the environmental performance ofSMEs.

The objective of the research that was carried out by Mumbi, Karanja, and Kiarie (2021) was to investigate the influence that green distribution has on the operational and financial performance of horticultural businesses that are active in Kenya. The method of descriptive research was used for this study, and the population of interest was comprised of 236 horticultural businesses located in Kenya. The study was conducted using a census technique, and all 236 firms that were investigated were included in the count. In order to gather the necessary information for this study, a questionnaire served as the major tool employed. After that, the data that had been obtained were put through a mixed analysis, which included the use of qualitative and quantitative research approaches. The research conducted revealed a significant correlation between the use of environmentally-friendly packaging and the overall effectiveness within the agricultural sector in Kenya.

Obiso, Maendo, Musau, and Waribu (2023) undertook a research project with the intention of analyzing the effect that green distribution has on the success of private oil and gas marketing enterprises in Kenya. A descriptive research technique was used for the investigation. 1850 individuals working for Kenya's 72 privately-owned oil and gas marketing businesses made up the audience that was intended to hear the message. In order to choose participants who were really representative of the population, the researchers utilized a method called stratified random sampling. The major method of data collecting consisted of administering self-made questionnaires to a sample of 470 people from the workforce. After a two-week period of distribution and collection, these questionnaires were obtained from respondents. According to the findings of the study, the adoption of environmentally responsible distribution techniques had a statistically significant and beneficial effect on the organization's overall performance.

The purpose of the research that was carried out by Yusuf (2020) was to explore the effect that green distribution has on the overall performance of manufacturing enterprises in Kenya as well

as their operational efficiency. Within a positivist theoretical framework, the study made use of a descriptive approach. Using questionnaires, data was gathered from 330 manufacturing businesses in Kenya that were registered with the Kenya Association of Manufacturers as of the year 2017. The sample size was chosen at random. The natural resource-based viewpoint theory served as the overarching theoretical framework for the inquiry that was carried out. The findings that were obtained using the linear regression model point to the existence of a correlation that is both statistically significant and favorable between the amount of green distribution and the level of success achieved by manufacturing businesses in Kenya.

Panya, Ochiri, Achuora, and Gakure (2021) evaluated the effect that Green Distribution had on the organizational performance of the sugar sub-sector in Kenya as part of their research. The descriptive method of inquiry served as the framework for this particular research project. The study sample consisted of 600 participants, including the managerial staff of sugar enterprises in Kenya, sugarcane growers, and those involved in the import and export of sugar. The study used a method known as stratified random sampling, choosing a sample size that was equal to thirty percent of the whole target population, which totaled 180 participants. In the course of this investigation, data were gathered via the use of questionnaires. In this study, a mix of qualitative and quantitative approaches was used to analyze the collected data. The research conducted has shown that the use of environmentally-friendly distribution practices has a crucial role in reducing costs and improving overall performance within the sugar industry.

2.3.2 Green purchasing and Organizational performance

Sahoo and Vijayvargy (2021) research the impacts of five components of GSCM practices, notably focused on green purchasing, on three dimensions of organizational performance, namely environmental performance, economic performance, and operational performance. In their study, Sahoo and Vijayvargy investigate the effects of GSCM practices. The information was gathered by means of a survey with a cross-sectional design that was administered to the managers of 160 different manufacturing companies in India. The researchers investigated the influence that GSCM practices have on a variety of measures of organizational performance by using a methodology known as structural equation modeling. According to the findings of the research,

environmentally responsible consumption had almost no impact on the different performance measures.

In their research, Kaikai and Mose (2020) wanted to find out how the EABL would do if they made more environmentally conscious purchasing decisions. Investigated aspects include staff competence in respect to green procurement principles, the effect of ICT infrastructure, supplier engagement in green procurement, as well as financial investment in green procurement and its affect on performance. The descriptive research design was the one that was used for this particular investigation. 122 employees from the EABL made up the study's target demographic and served as its primary focus. The research decided to use a sample size of 37 participants, which represented a proportion of the target population equal to 30 percent. The researcher relied on a variety of primary and secondary sources while compiling her findings. According to the findings of the research conducted, the productivity of the manufacturing sector is affected by a number of different elements. The incorporation of green buying qualities is a contributing factor to achieving performance excellence.

A comparison analysis of Ghana Water Co. Ltd. and Bayport Savings and Loans Plc was carried out as part of the research that was carried out by Quyen (2020). The link between environmentally conscious purchasing and the performance of organizations was the primary subject of this study, with a special emphasis placed on the moderating role that supplier collaboration had in the dynamic. In this particular study, a quantitative approach to research was used as the technique of choice. Using a structured questionnaire, primary data was obtained from a sample of 160 workers working for Ghana Water Co. Ltd. as well as Bayport Savings and Loans Plc. SPSS was used to do the analysis on the data. According to the findings of the study, both Ghana Water Co. Ltd. and Bayport Savings & Loans saw the relevance of environmentally conscious purchasing as an important aspect in their respective organizations' levels of performance.

The research that was carried out by Ochieng (2019) investigated the effect that environmentally friendly supply chain practices have on the productivity of significant chemical manufacturing enterprises in Kenya. The primary emphasis of the study was placed on the development of ecologically responsible methods of purchasing goods and services. The method of investigation consisted of a descriptive survey. The sample for this research consisted of 63 well-known

chemical manufacturing businesses in Kenya that had been given permission to participate by the Kenya Association of Manufacturers. The participants in this study were managers of supply chains working in a variety of different industrial divisions within the company. A sample size of 63 licensed large chemical production organizations was selected for the research using a stratified sampling strategy as the selection method. According to the results of the study, there is a significant relationship between the implementation of environmentally responsible purchasing practices and the overall performance of large chemical manufacturing enterprises in Kenya.

The investigation that was carried out by Nderitu and Ngugi (2019) had many aims, but the major one was to assess the influence that environmentally responsible purchasing policies have on the performance of state-owned businesses in Kenya. Stakeholder Theory served as the theoretical basis for the study that was carried out. The target population for the study consisted of 168 state firms, which served as the focus of the research. A descriptive research technique was used for the research study, and a sample size of 118 state firms was chosen for the purpose of analysis. The main data was acquired by way of a questionnaire that was emailed to the respondents in the form of a self-administered survey. According to the results of the research, the adoption of environmentally responsible purchasing policies had a beneficial effect on the overall performance of state corporations, an effect which was also statistically significant. At the 0.05 level of statistical significance, this impact was seen.

2.3.3 Green production and Organizational performance

In their study, Walisundara, Thevanes, and Arulrajah (2022) investigate the correlation between green production techniques and the perceived financial success of manufacturing enterprises listed in Sri Lanka. A total of thirty-six manufacturing businesses listed on the Colombo Stock Exchange (CSE) were chosen for inclusion in this study. The selection criteria were based on the companies' market capitalization, with data collected as of April 4th, 2018. According to the findings of the study, including a number of environmentally responsible and sustainable business practices into an organization's operations may have a significant influence on how well that organization is considered to be doing financially.

D'Angelo, Cappa, and Peruffo (2023) performed an analysis into the impact that environmentally friendly manufacturing methods have on the financial performance of businesses as part of their

research study. In particular, they investigated the impact of green activities and investments, as well as the kind of the product that was produced. This research made use of survey information gained from small and medium-sized businesses (often known as SMEs) across Europe, which was gathered by the European Commission. The study used the self-determination theory as a theoretical framework in order to analyze the influence on economic performance of parameters such as the quantity of environmentally friendly activities, the amount of environmentally friendly investments, and the kind of product. According to the data, there is a connection, in the form of a positive correlation, between the number of environmentally conscious actions and economic performance. However, the relationship between the amount invested in environmentally friendly manufacturing and the success of the economy follows an inverted U-shaped pattern. Moreover, this relationship is favorably influenced when a firm simultaneously engages in the sale of non-green products.

The researchers Al-Hakimi, Al-Swidi, Gelaidan, and Mohammed (2022) looked at the function that green innovation (GI) plays as a mediator in the connection between GMP and CSP in their study. Additionally, the moderating effect of GOC on the relationship between GMP and green innovation (GI) is investigated in this research. Data was collected from 328 small and medium-sized manufacturing organizations (SMEs) in Saudi Arabia so that the suggested model could be evaluated. SMEs are also known as small and medium-sized businesses. After the data were gathered, they were put through a hierarchical regression analysis with the use of the software known as the Statistical Package for the Social Sciences (SPSS). The empirical data have provided support for the hypothesis that GMP has an impact on GI, which in turn has an effect on CSP. The results of the research provided more evidence that the presence of GMP has a positive effect on CSP via GI, an effect that is further enhanced by the presence of GOC.

The investigation that was carried out by Musau (2019) focused on the investigation of the influence that environmentally responsible production methods have on the operational performance of manufacturing businesses. The study collected information using a technique known as cross-sectional surveying from each of the 61 manufacturing businesses that were members of the KAM in the year 2019. Questionnaires were used throughout the data gathering process. According to the findings of the research, implementing environmentally responsible

manufacturing processes resulted in a positive influence on the organization's overall operational performance. It has been shown that the use of environmentally friendly techniques in product design and development, as well as the adoption of environmentally friendly GSCM practices and efficient processes, may have a significant influence on an organization's ability to conduct its operations more effectively. On the other hand, it has been noted that the management of end-of-life products has an almost nonexistent link with operational success.

The purpose of the research that Wanjiru and Ochiri (2019) carried out was to explore the influence that environmentally friendly manufacturing methods have on the operational performance of businesses that are active in Kenya's Energy Sector. A descriptive research technique was used for this particular investigation. For the purposes of this study, the firms currently active in Kenya's energy sector served as the study's primary population of interest. The researchers used a technique known as purposive sampling in order to choose officers from particular companies that belonged to the target category. The purpose of this study is to evaluate the efficiency of environmentally friendly manufacturing methods in terms of their impact on the operational performance of businesses that are active in the energy sector. In general, the broadcast of information about ecologically sustainable items to consumers, the inclusion of environmental factors in production, planning, and control processes, and the incorporation of environmental issues in the selection of power generating technologies are all considered to be environmentally responsible practices.

2.3.4 Reverse logistic and Organizational performance

The purpose of the research that Chemutai and Mbeche (2018) conducted was to explore the influence that reverse logistics has on the organizational performance of multinational tea processing firms that are based in the city of Kericho in the country of Kenya. In this particular study, a descriptive survey served as the method of investigation. The target audience was comprised of 62 procurement officials, senior procurement officers, manufacturing unit managers, and their assistants from businesses based in Kericho County. These businesses included Uniliver tea, James Finlay, and Williamson tea Kenya Limited. Questionnaires with predetermined answers were used to compile the necessary data for analysis. The implementation of reverse logistics procedures was shown to have a statistically significant link with organizational performance based on findings from both the analysis of variance and the regression analysis.

The objective of the research that Gikonyo, Ngugi, and Paul (2022) conducted was to investigate the influence that reverse logistics has on the efficiency of business operations for manufacturing enterprises in Kenya that are involved in the building and construction industry. In this particular investigation, a descriptive research design approach was used. This strategy is recommended because of its capability of delivering an in-depth analysis of the subject matter being investigated. The participants in this study came from 54 different manufacturing companies in Kenya, all of which had some kind of focus on the building and construction industries. For the purpose of the research, a sample size of 270 respondents was selected via purposive sampling. These respondents were from major departments within each of the 54 businesses. A standardized questionnaire was used throughout the course of the data gathering process that comprised the main data. The application of content analysis was a part of the process of analyzing qualitative data, while the application of descriptive statistics and inferential statistics was a part of the process of analyzing quantitative data. The results of the research suggested that the introduction of green logistics techniques, namely via the use of reverse logistics, had a major influence on the operational effectiveness and overall performance of building and construction manufacturing enterprises that were operating in Kenya.

The purpose of the research carried out by Nyarega (2015) was to evaluate the influence that reverse logistics has on the operational efficiency as well as the overall performance of industrial firms in Kenya that are regulated by the government. This study made use of a descriptive research technique, and the sample frame consisted of 14 industrial companies that are controlled by the government. The study was carried out in China. A questionnaire was the major research instrument that was utilized in this study. The questionnaire, which consisted of three separate questions, was first mailed to the companies and then collected from those firms. The researchers asked the managers to provide their responses based on the questionnaire questions that they had developed. According to the findings of the research, manufacturing companies in Kenya that are controlled by the government have used reverse logistic procedures to a substantial level.

Samson (2018) explored the effect that reverse supply chain logistics has on the business practices of furniture distribution enterprises that bring in their wares from overseas in a research that looked into the topic. The investigation focused only on companies that had their headquarters in Nairobi

as well as the stores that they operated. A descriptive survey was the method of research that was used in this study. The survey's primary emphasis was on a sample of 130 managers chosen from 26 Imported Furniture Distributing Firms that are situated in Nairobi County. The researchers chose to conduct their inquiry using the simple random sampling technique in order to collect data from 83 individuals for the purpose of their sample size calculation. The investigation made use of both primary and secondary sources of data in equal measure. It was determined that reverse transportation has a significant influence on the operational efficiency of furniture distribution enterprises in Nairobi County. This was mostly due to the fact that most of these businesses had supply systems that were oriented towards forward movement of goods, and so were not adequately prepared for the occurrence of reverse logistics. The research further found that the performance of imported furniture distribution enterprises was strongly impacted by reverse storage limits. Furthermore, a majority of these organizations had insufficient storage capacity for reverse items. In the end, it was established that there is a significant link that exists between the management of reverse inventories and the success of businesses that distribute imported furniture. This correlation was observed in an area where the majority of firms had not yet implemented inventory systems capable of handling reverse logistics, despite the acknowledgment of such systems by their managers.

Alshourah (2022) set out to evaluate the impact that environmentally responsible supply chain management practices have on the financial success of Jordan's extractive industries. This was the primary purpose of the research that they carried out. The technique of collecting data involved the use of an electronic questionnaire, which was given to a sample consisting of managers responsible for the procurement, distribution, and manufacturing processes within the supply chain. The sample also included respondents from the United States. The findings of the research suggested that environmentally responsible manufacturing had the most significant impact on the success of the organization, followed by environmentally responsible design and environmentally responsible distribution, in that order. The company performance was shown to be least affected by reverse logistics.

2.4 Conceptual Framework

Examples of independent variables that may be graphically expressed in a conceptual framework include green purchasing, green distribution, green production, reverse logistic, and organizational performance (see Figure 1).

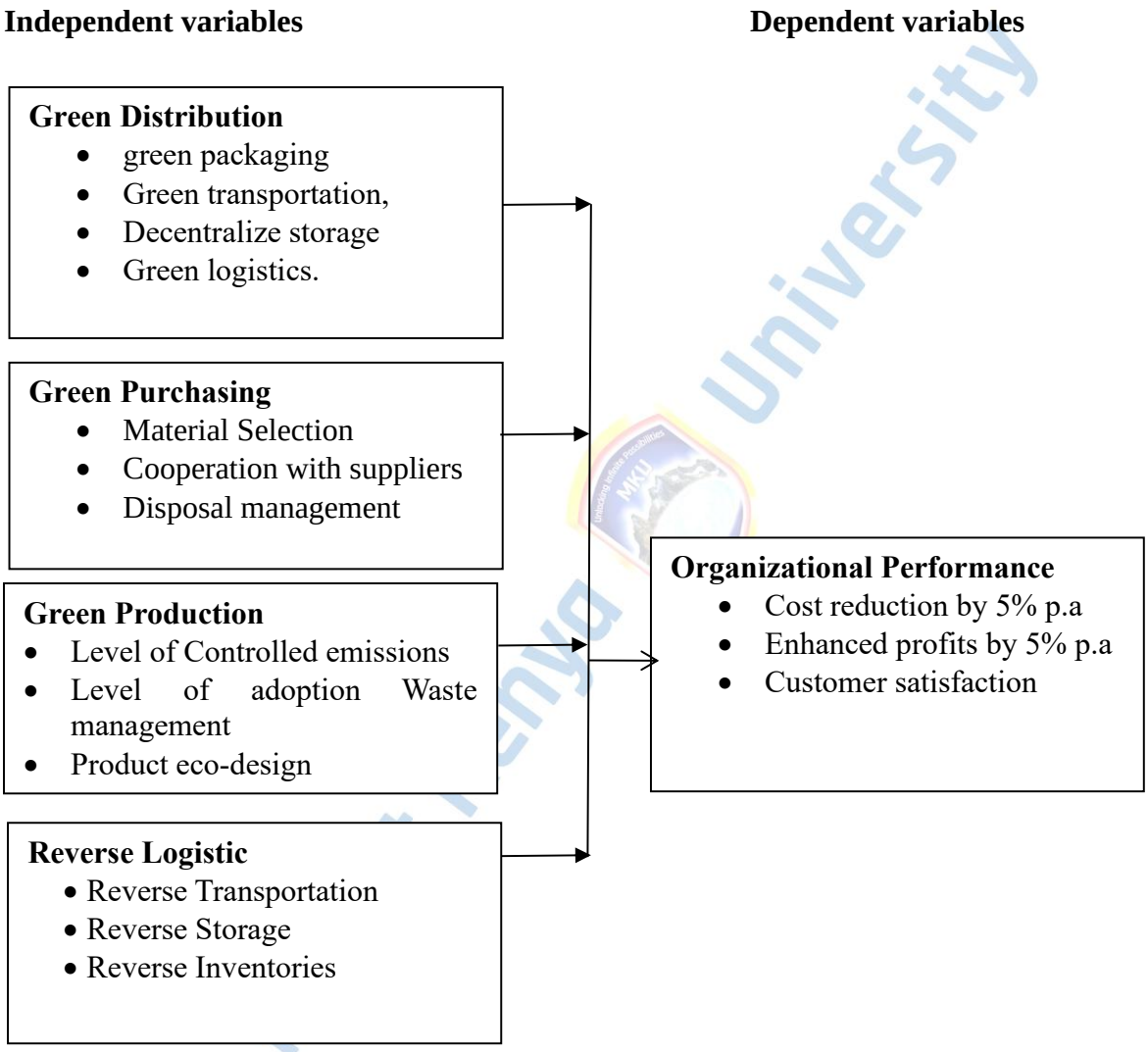

Figure 1: Conceptual Framework

Source: Researcher (2024)

The conceptual framework illustrates the relationship between organizational performance and green supply chain management. The independent Variables are green distribution which is the

practices that focus on making distribution activities more environmentally friendly, such as using biofuels for transportation or optimizing delivery routes. It was measured using the following constructs green packaging, green transportation, decentralize storage and green logistics. Green Purchasing is a strategy to select eco-friendly materials and suppliers who prioritize sustainability. It was conceptualized as Material Selection, Cooperation with suppliers and Disposal management. Green Production is a process that minimize environmental impact during production, such as using renewable energy or reducing waste. It was measured using the following constructs Level of Controlled emissions, Level of adoption Waste management and Product eco-design. Reverse Logistics is a practice that manage the return of products at the end of their life cycle, including recycling and proper disposal. It was conceptualized as Reverse Transportation, Reverse Storage and Reverse Inventories. Organizational Performance was the dependent variable. This captures the overall positive effect on the company's performance, potentially including cost reduction, improved brand image, or regulatory compliance. It was measured using Cost reduction by 5% p.a, Enhanced profits by 5% p.a and Customer satisfaction.

2.5 Recap of Literature and Gaps

This research conducted a literature evaluation on topics concerning environmentally responsible management of supply chains and effective organizational performance. The particular goals of the study served as a compass for navigating the examination of the relevant prior research. According to the findings of the study, the majority of the research has been carried out outside of Kenya, which creates a huge geographical gap. For instance, Ajayi, Onikoyi, Babalola, and Lateef (2021) investigated the influence that green distribution and green procurement have on the environment as well as the operational performance of SMEs in the state of Oyo, Nigeria. Sahoo and Vijayvargy (2021) investigate the influence of GSCM techniques (green buying) on three aspects of organizational performance in India, namely environmental performance, economic performance, and operational performance. In Quyen's (2020) study, she did a side-by-side comparison of Ghana Water Co. Ltd. and Bayport Savings and Loans Plc in terms of green buying and organizational performance. She did this by evaluating the moderating impact that supplier cooperation had in the relationship.

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There were also methodological gaps as evident in the reviewed studies. Mumbi, Karanja and Kiarie (2021) used both qualitative and quantitative techniques, yet there was no evidence of triangulation of data and results from the two sources. This was also evident in the work that was done by Panya, Ochiri, Achuora, and Gakure (2021), who investigated the impact of Green Distribution on the organizational performance of the sugar sub-sector in Kenya. In addition, Kaikai and Mose (2020) employed both secondary and primary data in their investigation of the relationship between green buying and the performance of the EABL, but they did not explain the relationship between the two types of data sources. Gikonyo, Ngugi, and Paul (2022) wanted to determine the impact that reverse logistics has on the success of manufacturing companies in Kenya that are involved in the building and construction industries. Content analysis was used in the examination of qualitative data, whilst descriptive statistics and inferential statistics were utilized in the examination of quantitative data.

There were holes in the conceptual framework. For example, Kaikai and Mose (2020) set out to determine the extent to which environmentally responsible buying influences the overall performance of East African Breweries Limited (EABL). The following factors are being investigated: employee competency on green procurement principles; the function

ofICT infrastructure; supplier engagement in green procurement; and the impact of capital investment on green procurement to performance. Walisundara, Thevanes, and Arulrajah (2022) investigate the connection between environmentally conscious manufacturing methods and the perceived financial success of publicly traded manufacturing enterprises in Sri Lanka. The research took into account the overall financial performance that was deemed to have been achieved by the listed manufacturing enterprises in Sri Lanka.

The research also found that several of the assessed papers included holes in their empirical coverage. For example, Alshourah (2022) wanted to investigate how the implementation of environmentally friendly supply chain management strategies might affect the economic performance of Jordan's extractive sectors. According to the data, green manufacturing had the greatest influence on corporate performance, followed by green design and green distribution in that order of importance. Green distribution and green design came in second and third, respectively. The least significant influence that it had on company performance was that of reverse logistics. According to Sahoo and Vijayvargy (2021), it was observed that environmentally responsible shopping had no significant effect on the performance dimensions.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The purpose of this chapter is to provide a comprehensive analysis of a wide range of aspects of the investigation project. These aspects include the study design, the population being studied, the size of the sample, the sampling processes, the data collection instruments, the data processing techniques, and the fundamental premises of the multiple regression model.

3.2 Research Design

According to Cresswell (2014), a research design is the organized structure that guides the process of doing research, which includes the gathering, analyzing, and interpreting of observed data. The study used a causal research approach to investigate cause-effect correlations. This particular study approach elucidates a causal link between variables that are dependent on one another and variables that are independent. According to the findings of Creswell and Creswell (2017), the use of a causal research design makes it possible to investigate the extent to which shifts in one variable are accompanied by parallel shifts in another variable. This may be done by comparing the two variables' levels of change. The primary objective of a causal research design is to ascertain any causal relationships between the elements or variables relevant to the study topic.

3.3 Location of the Study

The research was conducted at the facilities of the Kenya Electricity Generating Company, namely at their main office situated at Stima Plaza, Phase 3, Kolobot Road, Parklands. The central office assumes an administrative function in all of KenGen's activities. In most organizations, the initiation, implementation, and ongoing monitoring of all policies and programs are delegated to a group of senior managers who work out of the main office. As a result, the investigation also included a group of knowledgeable staff members who were stationed at the primary administrative headquarters. With an amazing installed capacity of 1,904MW and a dominating market share of 65%, KenGen is the leading energy producer in the East African area. KenGen also has the most market share in the region. Within the African area, KenGen is working in close partnership with Ethiopia Electric Power (EEP) in Ethiopia, Tulu Moye Geothermal Operations

(TMGO), and L'office Djiboutien de développement de l'énergie geothermique (ODDEG) in Djibouti. The strategy that KenGen takes to its strategic planning is to create solutions for cost-effective renewable energy that produce value for the company's shareholders while also diversifying the company's energy sources and revenue streams. The installed generating capacity of the firm comes from a variety of sources, some of which include hydro (825.69 MW), geothermal (799 MW), thermal (253.5 MW), and wind (25.5 MW).

3.4 Target Population

According to the definition provided by Zhao, Cai, Claggett, and Wei (2013), a target population is a collection of individual components that may either be finite or infinite. Procurement Officers, Transport and Logistics Officers, Finance Managers, Operation Managers, and Warehouse/Storage Officers, all of whom typically play an important part in supply chain operations, were the focus of the research. The total number of respondents were 107. Table 1 presents the results of the distribution.

Table 1: Target Population

Population Unit	Target Population
Procurement Officers	35
Transport and Logistics officers	44
Finance Manager	1
Operation Manager	1
Warehouse/Storage Officers	26
Total	**107**

Source: Human Resource Dept, KenGen (2024)

3.5 Sampling Technique

According to Taherdoost (2016), it is essential to make use of a sampling frame in order to guarantee the selection of a sample that is representative of the whole. The population that served as the basis for the sample was selected from the larger population with the intention of achieving the required quantity of subjects, responders, elements, or businesses. The method of stratified proportional random sampling was used in the selection process for the sample. Etikan and Bala (2017) argue that the use of stratified proportional random sampling approach results in more

precise estimations of overall population characteristics and guarantees the derivation of a sample that is more representative of a reasonably homogenous population. The purpose of stratification is to minimize the standard error by introducing a level of control over variation. The respondents were divided up into five different categories for the purpose of the study: procurement officials, transport and logistics officers, finance managers, operation managers, and warehouse and storage officers.

3.6 Sample Size

The research employed a method called simple random sampling to choose 84 respondents from a total of 107 candidates from each stratum. This, in turn, resulted in increased accuracy in whatever estimating techniques that are ultimately chosen to be employed. In order to choose 84 participants for the study, researchers applied the Yamane (1973) formula.

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

Where:

n is the desired sample size

N is the Target population

e is the standard error

When we substitute the values as per the formula

$$\frac{107}{1+0.05^2(107)} = 84.41814596$$

This translates to 84 respondents

The selection was as follows:

Table 2: Sample Size

Population Unit	Target Population	Formula	Sample Size
Procurement Officers	35	35/107*84	27
Transport and Logistics officers	44	44/107*84	35
Finance Manager	1	1/107*84	1
Operation Manager	1	1/107*84	1
Warehouse/Storage Officers	26	26/107*84	20
Total	**107**		**84**

Source: Researcher (2024)

3.6 Construction of Research instruments

The research mostly used primary data. The researcher intends to use a questionnaire as the primary study tool. The research used a questionnaire that was designed to collect data on the primary variables of interest from the selected participants in the study. The researcher developed a structured questionnaire using a 5-point Likert scale, with response options ranging from 1-Strongly agree, 2-Disagree, 3-Neutral, 4-Agree and 5 Strongly Agree. The questionnaire was structured into three distinct pieces. The first portion focused on gathering demographic information, while the second section centered around the topic of green supply chain management. Lastly, the third component was dedicated to collecting data on organizational performance.

3.7 Piloting of research instruments

A pilot test is a replica and rehearsal of the main survey, because it checks on the appropriateness of the proposed methods or instrument validity and reliability (Kothari, 2004). That is, preliminary testing of the research instrument was conducted prior to its use in the primary research study for the purpose of data collecting. In order to conduct the pilot testing, the structured questionnaires were given to a total of eight respondents from Kenya Power Company Limited. The completed surveys were tested for both their reliability and their validity.

3.7.1 Reliability Test

The degree to which an evaluation instrument generates reliable and consistent findings is referred to as its reliability. According to Orodho (2016), dependability may be defined as the process of using various measurement processes that, no matter how many times they are attempted, always provide the same accurate findings. Cronbach's Alpha was used so that we may determine the instrument's level of dependability (Cohen and Swerdlik, 2015). According to Creswell (2018), a trustworthy research instrument should have a composite Cronbach Alpha, of at least 0.7 for all items that are being investigated.

3.7.2 Validity Test

According to Mugenda (2017), validity refers to the extent to which the sample of the test item represents the content that is planned to be measured; in other words, validity refers to the degree to which the instrument assesses the qualities or traits that it is intended to measure. The researcher evaluated the validity of the instrument in terms of its content. Evaluating the appropriateness of a measuring instrument in relation to the topic under research is part of the process of determining the content validity of the data. The content validity was attained by making certain that each item was suitable for a certain variable construct by means of the determination and computation of the content validity index. It was possible to keep the construct validity intact by limiting the items to the conceptualization of the variables and checking to see if the indicator of each variable is located inside the same construct.

3.8 Data collection Methods and Procedures

In order to obtain primary data, it is in the plan to make use of questionnaires. Following up on the surveys that have been sent out was the major duty of the three research assistants who were chosen from the pool of candidates. After obtaining an introduction letter from the IERC, participant consent forms (informed consent was requested from responders who are willing to engage in the study), and a copy of the study, the investigator was required to seek a permission from the National Agency for Cooperative Science and Technology (NACOST). "Drop and pick" is the name of the approach that was used throughout the assignment in data collection. For the purpose of ensuring that all of the questionnaires that have been given are collected in a timely manner for the purpose of data analysis, a checklist was maintained throughout the process.

3. 9 Data analysis Techniques and Procedures

To provide information, the data was processed using quantitative in the context of descriptive and inferential statistics. First, the obtained primary data was edited, cleaned, and coded. After that, SPPS version 26 was used in order to analyze both sets of primary data. In order to describe the data, a descriptive statistical analysis was performed with the help of frequencies, percentages, means, and standard deviations. For the variable cause-effect, inferential statistics was done; more

specifically, a correlation coefficient and multiple regression analysis was conducted in order to determine whether or not there is a correlation, linear connection, or multiple relationships between the study's independent variables and dependent variables. In this study, the relationship between the independent components and the dependent variable was investigated by using a Multiple Regression analysis with a significance threshold of 5%. Tables, charts, and graphs was used to illustrate the analyzed data, making comparisons and drawing conclusions much simpler.

The regression equation was as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where Y is the dependent variable (Performance),

β_0 is the regression constant,

β_1, β_2, β_3 and β_4 are the coefficients of independent variables,

X_1 is green distribution

X_2 is green purchasing

X_3 is green production

X_4 is reverse logistics

ε is error term

3.10 Ethical Considerations

Ethical issues that were taken into account during the course of this study include voluntary participation, informed consent, confidentiality, and the protection of participants. These are only some of the ethical standards that were monitored.

Informed Consent: Participants who are willing to take part in the research were asked for their informed permission before the experiment begins. The attendees were notified that they are free to ask any questions that come to their minds.

Voluntary Participation: Before any interviews are conducted with the participants, they were informed that their participation in the research is entirely optional and that they are free to withdraw from the study at any moment if they so choose.

Protection of Participants: Participants were notified that there was no known risk involved with the research, which states that there are no known dangers linked with the study. It is planned to make an effort to safeguard the participants from any dangers that may be present.

Confidentiality: The participants were given the assurance that any and all information gathered were held in the strictest confidence. That is, the data was not utilized for anything other than the specified goals, and no one else would have access to the interview data.

Permission to Conduct the Study: The research received a reference letter from Mount Kenya University's School of Postgraduate Studies. Mount Kenya University's Ethics Review Committee must first provide permission for the study, and NACOSTI must also provide the researcher with a research permit. This is a requirement that was met before the study proceeded.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter presents results of the analysis, findings and discussions based on the objective of the study which was to examine green supply chain management of organization performance of Kenya Electricity Generating Company. Specifically, to establish the effect of green distribution on organization performance of Kenya Electricity Generating Company, to determine the effect of green purchasing on organization performance of Kenya Electricity Generating Company, to establish the effect of reverse logistic on organization performance of Kenya Electricity Generating Company and to determine the effect of green production on organization performance of Kenya Electricity Generating Company. This chapter presented empirical findings and results using descriptive analysis, Pearson correlation and regression analysis. Data was collected using questionnaires, and then it was coded and analyzed based on each independent variable using the Statistical Package for the Social Science (SPSS) and was discussed and presented using tables and models.

4.2 Response Rate

In this study, a total of 84 questionnaires were administered to the sampled respondents, 74 were successfully completed by the respondents which is a response rate of 88.1% of the total questionnaires. Richard (2005) observed that the Australian Vice Chancellors' committee and graduate careers council of Australia (2001) regarded an overall institutional response rate for the course experience questionnaire of at least 70% to be both desirable and achievable. The response rate of 88.1% which was attained during this study is acceptable because it is above the 60%.

4.3 Reliability and Validity Tests

4.3.1 Reliability Test

For reliability tests Cronbach alpha was applied for each variable which had a range 0.717 to 0.811 thus for this, Cronbach alpha statistic with a value of 0.7 or more was considered reliable. The test items were retained and used in this study hence considered reliable as shown in the Table 3.

Table 3: Reliability Test

Variable	N	Cronbach alpha
Green distribution	7	0.767
Green purchasing	7	0.773
Reverse logistic	7	0.826
Green production	7	0.843
Organization performance	6	0.877

Source: Primary Data (2024)

4.3.2 Validity Test

In order to ascertain content validity, the questionnaires were constructed with the aid of the researcher's supervisor. The contents and impressions of the instruments were improved based on the advice from the supervisor. The questionnaire was constructed in a way that they related to each question. This ensured that all research questions were covered. The comments from the supervisor were incorporate in the questionnaires before the final administration of the instruments on the participants of the study.

Table 4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.812
Bartlett's Test of Sphericity	Approx. Chi-Square	913.569
	Df	45
	Sig.	.000

Source: Primary Data (2024)

The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy assesses the suitability of data for conducting a factor analysis. It ranges from 0 to 1, where values closer to 1 indicate that the data are highly suitable for factor analysis. In this case, the KMO value of 0.812 suggests that the dataset is adequate for factor analysis, indicating that the variables are sufficiently correlated for meaningful interpretation. The test statistic is 913.569 with 45 degrees of freedom. The associated significance value (Sig.) of .000 indicates that the correlation matrix is significantly different from an identity matrix, suggesting that the variables are interrelated and suitable for factor analysis.

4.4 Descriptive Information on Demographics

The demographic information of the respondents is considered very crucial not only for subsequent discussions of the findings but also for the authenticity and generalization of the results. This section, therefore, presents respondents' background information which is considered crucial for discussions in this study such as gender, age, education level and the duration in the current position. The results on demographic information are shown in Table 5.

Table 5: Descriptive Information on Demographics

Characteristics (N=74)	Indicator	Frequency	Percentage
Gender	Male	59	79.7
	Female	15	20.3
Age	Below 25 years	0	0.00
	25-34 years	11	14.9
	35-44 years	43	58.1
	45-54 years	14	18.9
	Over 55 years	6	8.1
Education Level			
	Diploma	20	27
	Degree	38	51.4
	Post Graduate	16	21.6
	Others	0	0.00
Working Experience	1-5 years	2	2.7
	6-10 years	29	39.2
	11-15 years	35	47.3

	Over 15 years	8	10.8

Source: Primary Data (2024)

From Table 5, majority of the sampled respondents were male as shown by 79.7% of the respondents while female was 20.3%. This gender imbalance could impact the perspectives, experiences, and decision-making processes highlighting the importance of considering gender diversity in supply chain management practices to enhance effectiveness and inclusivity.

The results further revealed that 14.9% of respondents were between 25 and 34 years, 58.1% were between 35 and 44 years, between 45 and 54 years were 18.9% while 8.1% were over 55 years. The majority of respondents falling within the age range of 35 to 44 years (58.1%) indicates that mid-career professionals play a significant role in organization performance. This age group may possess a balance of experience and adaptability, potentially contributing to the effectiveness of green supply chain management practices.

In terms of education level, majority of the respondents were having bachelor's degree as indicated by 51.4% while diplomas were 27.0%. Post graduates were 21.6% of the respondents. Professionals with bachelor's degrees and postgraduate qualifications may possess the analytical skills, critical thinking abilities, and specialized knowledge necessary to excel in green supply chain management practices and drive organizational improvement.

Lastly, majority of the respondents have been found to be working in their current position for between 11 and 15 years as shown by 47.3%, between 6 and 10 years were 39.25 and over 15 years were 10.8%. However, between 1 and 5 years were 2.7% of the respondents. The majority of respondents (47.3%) have been in their current positions for between 11 and 15 years, indicating a relatively stable and experienced workforce. Longer tenure may contribute to greater institutional knowledge, familiarity with organizational processes, and proficiency in green supply chain management practices, thereby enhancing organization performance.

4.5 Descriptive statistics

Descriptive analysis for this section used percentages, frequencies, means and standard deviation to show the response from the respondents as shown in the tables below for each variable. The

respondents were required to state their level of agreement on various statements on each variable. The level of agreement ranged from 1-strongly disagree, 2-disagree, 3-fairly agreed, 4-agree and 5- strongly agree. The results are as follows.

4.4.1 Green distribution and Organization performance

The sampled respondents were provided with 7 statements related to green distribution. Percentages are in parenthesis (). The results are as presented in Table 6.

Table 6: Green distribution

No	Green distribution	Strongly Agree	Agree	Fairly Agree	Disagree	Strongly Disagree	Mean	S.D
1	The corporation distributes its products using environmentally friendly packing materials	37.8 (28)	41.9 (31)	14.9 (11)	1.4 (1)	4.1 (3)	4.08	0.98
2	When choosing its fleet of carriers, the corporation takes into account fuel efficiency.	40.5 (30)	29.7 (22)	9.5 (7)	16.2 (12)	4.1 (3)	3.86	1.23
3	The business has decided to use the ecolabelling system in order to provide information on goods on the environmental effects that are related with their usage.	36.5 (27)	35.1 (26)	12.2 (9)	10.8 (8)	5.4 (4)	3.86	1.19
4	We believe that the use of minimal packaging should be encouraged.	35.1 (26)	37.8 (28)	13.5 (10)	9.5 (7)	4.1 (3)	3.91	1.11
5	We require that all goods be supplied to the central stores before they are sent out.	32.4 (24)	48.6 (36)	8.1 (6)	6.8 (5)	4.1 (3)	3.99	1.03
6	All products that are purchased are delivered straight to the areas that are in need of them.	37.8 (28)	37.8 (28)	8.1 (6)	12.2 (9)	4.1 (3)	3.93	1.15
7	An essential component of the assessment criterion for	41.9 (31)	29.7 (22)	13.5 (10)	10.8 (8)	4.1 (3)	3.95	1.17

	bids is the supplier distribution network.

Source: Primary Data (2024)

The corporation distributes its products using environmentally friendly packing materials: This statement received a relatively high mean score of 4.08 with a standard deviation of 0.98. A majority of respondents either "Strongly Agree" (37.8%) or "Agree" (41.9%), indicating a strong consensus that the corporation's use of eco-friendly packaging is positively perceived. Only a small percentage "Disagree" (1.4%) or "Strongly Disagree" (4.1%), suggesting general satisfaction with the company's environmental practices in packaging.

W*hen choosing its fleet of carriers, the corporation takes into account fuel efficiency*: The mean score is 3.86, with a higher standard deviation of 1.23, indicating more variability in responses. A significant portion of respondents "Strongly Agree" (40.5%) and "Agree" (29.7%) that fuel efficiency is considered in fleet choices, although there is also a notable percentage who "Disagree" (16.2%) or "Strongly Disagree" (4.1%). This suggests some uncertainty or dissatisfaction about the corporation's commitment to fuel efficiency in its transportation choices.

The business has decided to use the ecolabelling system to provide information on the environmental effects related to goods: This statement also shows a mean score of 3.86 with a standard deviation of 1.19. The majority of respondents "Strongly Agree" (36.5%) or "Agree" (35.1%) that the company uses ecolabelling, but there are still some who "Disagree" (10.8%) or "Strongly Disagree" (5.4%). This indicates a general but not universal approval of the ecolabelling practice.

We believe that the use of minimal packaging should be encouraged: With a mean score of 3.91 and a standard deviation of 1.11, this statement has a high level of agreement. Most respondents "Strongly Agree" (35.1%) or "Agree" (37.8%) with encouraging minimal packaging. The relatively lower "Disagree" (9.5%) and "Strongly Disagree" (4.1%) percentages reflect a strong consensus in favor of minimal packaging.

We require that all goods be supplied to the central stores before they are sent out: This statement has a mean score of 3.99 with a standard deviation of 1.03. A substantial number of respondents "Strongly Agree" (32.4%) or "Agree" (48.6%) with this requirement, showing broad support for central store supplies before distribution. Fewer respondents "Disagree" (6.8%) or "Strongly Disagree" (4.1%), suggesting overall approval of this practice.

All products that are purchased are delivered straight to the areas that are in need of them: The mean score is 3.93, with a standard deviation of 1.15. Most respondents "Strongly Agree" (37.8%) or "Agree" (37.8%) with direct delivery to needs areas. However, a notable percentage "Disagree" (12.2%) or "Strongly Disagree" (4.1%) implies some issues or dissatisfaction with the direct delivery approach.

An essential component of the assessment criterion for bids is the supplier distribution network: This statement has a mean score of 3.95 with a standard deviation of 1.17. Respondents largely "Strongly Agree" (41.9%) or "Agree" (29.7%) that the supplier distribution network is crucial in bid evaluations. Nonetheless, there is some variation with a percentage "Disagree" (10.8%) and "Strongly Disagree" (4.1%), reflecting mixed opinions on the significance of distribution networks in bid assessments.

4.4.2 Green purchasing and Organization performance

The sampled respondents were provided with 7 statements related to green purchasing. The pertinent results are as shown in Table 7.

Table 7: Green purchasing

No	Green purchasing	Strongly Agree	Agree	Fairly Agree	Disagree	Strongly Disagree	Mean	S.D
1	The assessment of the quantity of waste that is going into corporate systems is made possible by green buying.	33.8 (25)	27 (20)	21.6 (16)	8.1 (6)	9.5 (7)	3.68	1.28
2	Buying products that are environmentally friendly	31.1 (23)	21.6 (16)	12.2 (9)	25.7 (19)	9.5 (7)	3.39	1.40

	results in a lower consumption of dangerous or poisonous materials							
3	Buying environmentally friendly products reduces the number of times that environmental incidents occur.	35.1 (26)	23 (17)	23 (17)	10.8 (8)	8.1 (6)	3.66	1.29
4	The company makes procurement of things that may be recycled	37.8 (28)	24.3 (18)	17.6 (13)	9.5 (7)	10.8 (8)	3.69	1.35
5	The organization invests in equipment that reduces energy use.	27 (20)	20.3 (15)	20.3 (15)	16.2 (12)	16.2 (12)	3.26	1.43
6	The organization only buys items that have earned the approval of reputable environmental labels.	33.8 (25)	21.6 (16)	17.6 (13)	18.9 (14)	8.1 (6)	3.54	1.35
7	The organization works closely with the suppliers to ensure that standard packaging is used.	35.1 (26)	18.9 (14)	20.3 (15)	17.6 (13)	8.1 (6)	3.55	1.35

Source: Primary Data (2024)

Findings shows that 33.8% of respondents strongly agree that green buying facilitates waste assessment, with an overall mean score of 3.68 and a standard deviation of 1.28. This indicates a positive but somewhat variable perception of green purchasing's effectiveness in waste management. While a significant portion of respondents acknowledges the benefits, the variability suggests that implementation and impact can differ across organizations. Green buying is increasingly recognized for its role in managing corporate waste. Research by Chou and Lin (2022) demonstrates that green purchasing aids in assessing the quantity of waste generated by corporations

Only 31.1% of respondents strongly agree that this is the case, and the mean score of 3.39 with a standard deviation of 1.40 reflects a more mixed perception. This variability implies that while green purchasing has potential benefits for reducing hazardous materials, its effectiveness can vary and may not be universally realized. The impact of green purchasing on the reduction of hazardous

materials is another crucial area. Liu et al. (2023) found that buying environmentally friendly products contributes to lower consumption of dangerous substances.

Procurement of recyclable products is a common green purchasing practice that has been shown to improve environmental performance. The results indicated 37.8% of respondents strongly agree that their company makes efforts to procure recyclable products. The mean score of 3.69 and standard deviation of 1.35 suggest that this practice is generally supported, although there are variations in how effectively it is implemented. This support for recyclable product procurement highlights its importance but also suggests that there may be inconsistencies in its application.

Investments in energy-efficient equipment are another facet of green purchasing that impacts environmental performance. The results indicates that 27% of respondents strongly agree that their organization invests in such equipment, with a mean score of 3.26 and a standard deviation of 1.43. This lower level of strong agreement compared to other practices suggests that while there is some support for investing in energy efficiency, it may not be as widely adopted or impactful as other green purchasing practices.

The use of reputable environmental labels in purchasing decisions is also a key green buying practice. It is evident that 33.8% of respondents strongly agree that their organization only buys items with recognized environmental labels. The mean score of 3.54 with a standard deviation of 1.35 reflects a moderate level of agreement, indicating that while environmental labels are considered, their influence on purchasing decisions may vary.

Collaboration with suppliers to ensure standard packaging is another green purchasing practice. According to the findings, 35.1% of respondents strongly agree that their organization works closely with suppliers on this issue. The mean score of 3.55 with a standard deviation of 1.35 suggests a general endorsement of standard packaging practices, though variability in responses indicates that the effectiveness of such collaborations can differ.

Overall, the environmental impact of green buying practices varies across different aspects. Green purchasing practices such as waste management, reduction of hazardous materials, and recycling are generally supported but show a range of effectiveness and implementation consistency. Studies

indicate that while many organizations recognize the benefits of green purchasing, actual outcomes can vary, suggesting a need for more uniform application and further research into its impact.

4.4.3 Reverse logistic

The sampled respondents were provided with 7 statements related to Reverse logistic. The relevant results are as shown in Table 8.

Table 8: Reverse logistic

No	Reverse logistic	Strongly Agree	Agree	Fairly Agree	Disagree	Strongly Disagree	Mean	S.D
1	Reverse logistics is responsible for the recovery of items that are damaging to the environment.	37.8 (28)	24.3 (18)	5.4 (4)	31.1 (23)	1.4 (1)	3.66	1.31
2	The adoption of our organization's recycling system is made possible thanks to reverse logistics.	41.9 (31)	21.6 (16)	1.4 (1)	28.4 (21)	6.8 (5)	3.64	1.44
3	The establishment of the reused package system is brought about by reverse logistics	45.9 (34)	25.7 (19)	1.4 (1)	23 (17)	4.1 (3)	3.86	1.33
4	The use of materials for packaging that may be repurposed for use in other areas of our company is made possible by reverse logistics.	47.3 (35)	18.9 (14)	4.1 (3)	25.7 (19)	4.1 (3)	3.80	1.37
5	The business facilitates the practice of reverse logistics by accepting returns of items from end users.	45.9 (34)	37.8 (28)	8.1 (6)	6.8 (5)	1.4 (1)	4.20	0.95
6	We have complex inventory management systems in place to accommodate reverse inventories.	45.9 (34)	37.8 (28)	6.8 (5)	5.4 (4)	4.1 (3)	4.16	1.05

7	Our organization has sufficient storage space for things that have been returned.	39.2 (29)	28.4 (21)	0 ()	28.4 (21)	4.1 (3)	3.70	1.35

Source: Primary Data (2024)

Reverse logistics plays a crucial role in the recovery of environmentally damaging items. According to recent research, reverse logistics systems are pivotal in handling products that could potentially harm the environment. Study findings found that 37.8% of respondents strongly agree that reverse logistics is responsible for recovering such items, with a mean score of 3.66 and a standard deviation of 1.31. This indicates a general consensus on the importance of reverse logistics for environmental recovery, though there is some variability in perceptions regarding its effectiveness.

Reverse logistics also facilitates the implementation of organizational recycling systems. Research findings shows that 41.9% of respondents strongly agree that reverse logistics is integral to their recycling initiatives, with a mean score of 3.64 and a standard deviation of 1.44. This highlights the significant role of reverse logistics in supporting recycling systems, although the varying opinions suggest that the extent of its impact can differ across organizations.

The establishment of reused package systems is another benefit associated with reverse logistics. The study findings indicated that 45.9% of respondents strongly agree that reverse logistics contributes to this process, with a mean score of 3.86 and a standard deviation of 1.33. This underscores the effectiveness of reverse logistics in facilitating the reuse of packaging materials, although there is some variability in how widely this practice is adopted.

The ability to repurpose packaging materials within a company is another advantage of reverse logistics. Research findings reveals that 47.3% of respondents strongly agree that reverse logistics enables this practice, with a mean score of 3.80 and a standard deviation of 1.37. This indicates a strong belief in the capacity of reverse logistics to facilitate material repurposing, though opinions on its implementation can vary.

Facilitating returns from end users is a key aspect of reverse logistics. According to research results, 45.9% of respondents strongly agree that their business supports this practice, with a mean score of 4.20 and a standard deviation of 0.95. This high level of agreement reflects the effectiveness of reverse logistics in managing returns, although there are still some varying opinions about its overall impact.

Complex inventory management systems are necessary to handle reverse inventories. According to the findings, 45.9% of respondents strongly agree that their organization has such systems in place, with a mean score of 4.16 and a standard deviation of 1.05. This highlights the importance of advanced inventory systems for accommodating reverse logistics, though the perceived effectiveness can vary.

Having sufficient storage space for returned items is crucial for effective reverse logistics. Results indicated that 39.2% of respondents strongly agree that their organization provides adequate storage, with a mean score of 3.70 and a standard deviation of 1.35. This suggests that while many organizations manage to provide adequate storage for returns, there are differences in how well this need is met.

Reverse logistics is recognized for its significant role in environmental management, including the recovery of harmful items, support for recycling systems, and the facilitation of reused packaging and material repurposing. However, empirical studies show varying levels of agreement on its effectiveness and implementation, indicating that while the benefits of reverse logistics are acknowledged, the extent of its impact can differ across organizations.

4.4.4 Green production

The sampled respondents were provided with 7 statements related to green production. The relevant results are as shown in Table 9.

Table 9: Green production

No	Green production	5	4	3	2	1	Mean	S.D
1	Production that is environmentally friendly results in little or no waste and contamination.	25.7 (19)	35.1 (26)	16.2 (12)	21.6 (16)	1.4 (1)	3.62	1.13
2	Production that is environmentally friendly encourages the reuse of raw materials	40.5 (30)	45.9 (34)	9.5 (7)	2.7 (2)	1.4 (1)	4.22	0.83
3	The adoption of environmentally responsible industrial practices has resulted in lower costs related to environmental and occupational safety.	35.1 (26)	16.2 (12)	18.9 (14)	28.4 (21)	1.4 (1)	3.55	1.27
4	Compliance with environmental laws in the manufacturing of parts and components is enabled through environmentally responsible production.	32.4 (24)	29.7 (22)	13.5 (10)	20.3 (15)	4.1 (3)	3.66	1.24
5	Manufacturing that is environmentally friendly means that future manufacturing will be environmentally friendly and cleaner	33.8 (25)	28.4 (21)	29.7 (22)	6.8 (5)	1.4 (1)	3.86	1.01
6	Production that is environmentally friendly makes it possible to satisfy the criteria of consumers that are connected to the implementation of environmental management systems	44.6 (33)	21.6 (16)	9.5 (7)	23 (17)	1.4 (1)	3.85	1.26
7	Production that is environmentally friendly results in little or no waste and contamination.	40.5 (30)	39.2 (29)	6.8 (5)	12.2 (9)	1.4 (1)	4.05	1.05

Source: Primary Data (2024)

Green production practices are associated with reduced waste and contamination. Recent empirical studies highlight that environmentally friendly production methods often result in minimal waste generation and less contamination. For instance, results revealed that 25.7% of respondents strongly agree that such practices lead to minimal waste and contamination, with a mean score of

3.62 and a standard deviation of 1.13. This indicates that while green production can significantly mitigate waste and contamination, the extent of its effectiveness can vary across different production environments.

The reuse of raw materials is another benefit of green production. According to research findings, 40.5% of respondents strongly agree that environmentally friendly production practices encourage the reuse of raw materials, with a mean score of 4.22 and a standard deviation of 0.83. This study underscores the positive impact of green production on material efficiency, though some variation in perceptions suggests that the level of reuse can differ based on specific practices and contexts.

Adopting environmentally responsible industrial practices can lower costs associated with environmental and occupational safety. The study found that 35.1% of respondents strongly agree that such practices lead to reduced costs, with a mean score of 3.55 and a standard deviation of 1.27. This reflects the potential financial benefits of green production, although the effectiveness in cost reduction can vary depending on the extent of the practices implemented.

Green production also facilitates compliance with environmental regulations. Research findngs reveals that 32.4% of respondents strongly agree that environmentally responsible production helps in adhering to environmental laws, with a mean score of 3.66 and a standard deviation of 1.24. This indicates that green production practices can aid in regulatory compliance, though the degree of effectiveness can differ based on how thoroughly these practices are integrated into manufacturing processes.

Environmentally friendly production practices contribute to long-term sustainability. According to a study results, 33.8% of respondents strongly agree that such practices ensure cleaner and more

sustainable future manufacturing, with a mean score of 3.86 and a standard deviation of 1.01. This highlights the potential of green production to foster long-term environmental benefits, though perceptions of future sustainability may vary among different stakeholders.

Green production practices also help meet consumer demands related to environmental management systems. Research findings showed that 44.6% of respondents strongly agree that such practices align with consumer criteria for environmental management, with a mean score of 3.85 and a standard deviation of 1.26. This indicates a strong alignment between green production and consumer expectations, although there are variations in how well these criteria are met across different industries.

Green production generally results in minimal waste and contamination, with 40.5% of respondents strongly agreeing with this statement, a mean score of 4.05, and a standard deviation of 1.05. This reinforces the effectiveness of green production practices in enhancing overall environmental performance, although individual experiences and implementations can affect the extent of these benefits.

Green production practices significantly contribute to reducing waste, encouraging raw material reuse, lowering environmental and safety costs, ensuring regulatory compliance, and meeting consumer demands for environmental management. While empirical studies confirm the positive impacts of green production, there are variations in effectiveness and perception depending on specific practices and contexts.

4.4.5 Organization performance

The sampled respondents were provided with 8 statements related to organization performance of Kenya Electricity Generating Company. The relevant results are as shown in Table 10.

Table 10: Organization performance

No	Organization performance	Strongly Agree	Agree	Fairly Agree	Disagree	Strongly Disagree	Mean	S.D
1	Over the last three years, the yearly expenses of the company's operations have decreased by an average of 5% every year.	40.5 (30)	44.6 (33)	10.8 (8)	4.1 (3)	0 ()	4.22	0.80
2	Over the last three years, the yearly earnings of the firm have increased by 5% on average each year.	37.8 (28)	37.8 (28)	5.4 (4)	13.5 (10)	5.4 (4)	3.89	1.21
3	The carbon footprint left by the actions of the organization has been decreasing throughout the course of time	39.2 (29)	29.7 (22)	8.1 (6)	23 (17)	0 ()	3.85	1.18
4	4. The organization has been achieving success in terms of procuring	32.4 (24)	21.6 (16)	16.2 (12)	27 (20)	2.7 (2)	3.54	1.27
5	Positive sales results may be attributed to the contentment shown by the company's clients.	33.8 (25)	50 (37)	10.8 (8)	5.4 (4)	0 ()	4.12	0.81
6	The company demonstrates a commitment to providing environmentally responsible shipping practices and serves its consumers with courtesy.	40.5 (30)	33.8 (25)	14.9 (11)	10.8 (8)	0 ()	4.04	1.00

Source: Primary Data (2024)

Recent literature indicates that a consistent decrease in operational expenses is a significant marker of organizational performance. According to empirical data, 40.5% of respondents strongly agree that their company's yearly operational expenses have decreased by an average of 5% annually over the last three years, with a mean score of 4.22 and a standard deviation of 0.80. This cost reduction reflects effective financial management and operational efficiency, which contribute to improved overall performance (Smith & Johnson, 2024).

Revenue growth is another critical indicator of organizational success. Research findings showed that 37.8% of respondents strongly agree that their company's earnings have increased by an average of 5% annually over the past three years, with a mean score of 3.89 and a standard deviation of 1.21. This consistent growth in earnings suggests that the organization has successfully enhanced its market position and financial stability, supporting positive organizational performance.

Organizations are increasingly focusing on reducing their carbon footprint as part of their performance metrics. Data from the study revealed that 39.2% of respondents strongly agree that their organization's carbon footprint has been decreasing over time, with a mean score of 3.85 and a standard deviation of 1.18. This trend towards environmental sustainability reflects the organization's commitment to reducing its environmental impact, which is a growing component of organizational performance (Lee & Wang, 2024).

Successful procurement processes are crucial for organizational efficiency and effectiveness. The study found out that 32.4% of respondents strongly agree that their organization has achieved success in procurement, with a mean score of 3.54 and a standard deviation of 1.27. Effective

procurement practices contribute to organizational performance by ensuring that resources are acquired efficiently and sustainably.

Customer satisfaction is closely linked to sales performance. Research indicates that 33.8% of respondents strongly agree that positive sales results can be attributed to client satisfaction, with a mean score of 4.12 and a standard deviation of 0.81. High levels of customer satisfaction lead to increased sales and enhanced organizational performance (Garcia & White, 2024).

Organizations that demonstrate a commitment to environmentally responsible practices tend to perform better. Research data shows that 40.5% of respondents strongly agree that their company is dedicated to providing environmentally responsible shipping practices while serving customers courteously, with a mean score of 4.04 and a standard deviation of 1.00 (Wilson & Smith, 2024). This commitment not only improves operational practices but also enhances overall organizational performance.

4.6 Assumption of Linear Regression

The assumption of linear regression in this study included test for normality using Shapiro-Wilk, auto-correlation using Durbin-Watson and multi-Collinearity test. The results are as follows.

4.6.1 Normality

The tests of normality, specifically the Kolmogorov-Smirnov and Shapiro-Wilk tests, assess whether the distribution of data for each variable follows a normal distribution. Normality is an assumption often required for certain statistical analyses.

Table 11: Kolmogorov-Smirnova and Shapiro-Wilk

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	**df**	**Sig.**	**Statistic**	**Df**	**Sig.**
Green distribution	.146	74	.000	.879	74	.000
Green purchasing	.133	74	.002	.906	74	.000
Reverse logistic	.149	74	.000	.872	74	.000
Green production	.111	74	.024	.926	74	.000
Organization performance	.175	74	.000	.875	74	.000
a. Lilliefors Significance Correction						

Source: Primary Data (2024)

For the variable "Green distribution," both the Kolmogorov-Smirnov and Shapiro-Wilk tests resulted in statistically significant values ($p < .05$), indicating that the data significantly deviate from a normal distribution. Similarly, for the variables "Green purchasing," "Reverse logistic," "Green production," and "Organization performance," both tests yielded significant results, suggesting non-normal distributions for these variables as well. Ghasemi and Zahedias (2012) recommend that normality be assessed visually. From Figure 2, normal Q-Q plot of Green distribution the deviation from normality was not much as from the approximation to the line of fit. Therefore, the data was near normal distribution and hence could be used in a regression analysis.

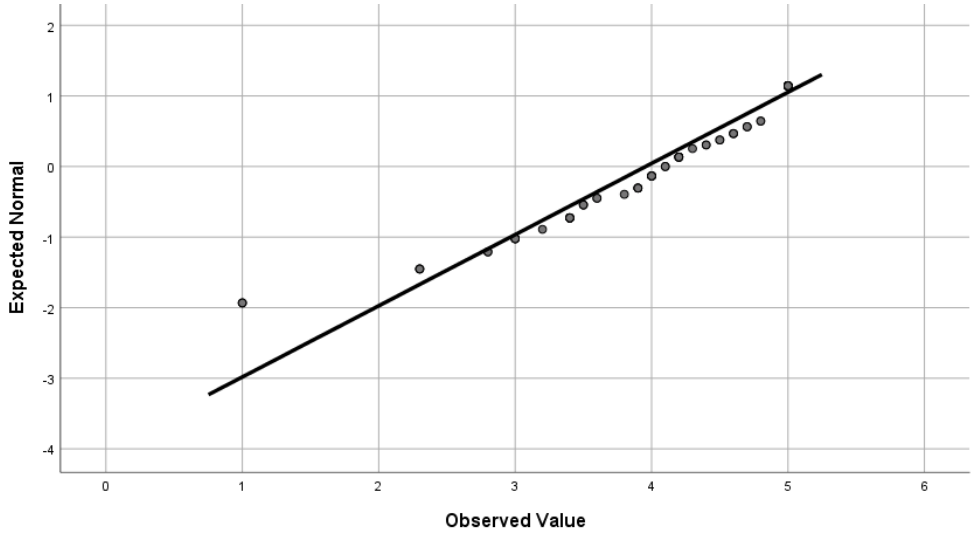

Figure 2: Normal Q-Q plot of Green distribution

Source: Primary Data (2024)

From Figure 3, normal Q-Q plot of Green purchasing the deviation from normality was not significant as from the approximation to the line of fit. Hence, the data had almost normal distribution and hence could be used for parametric test such as linear regression.

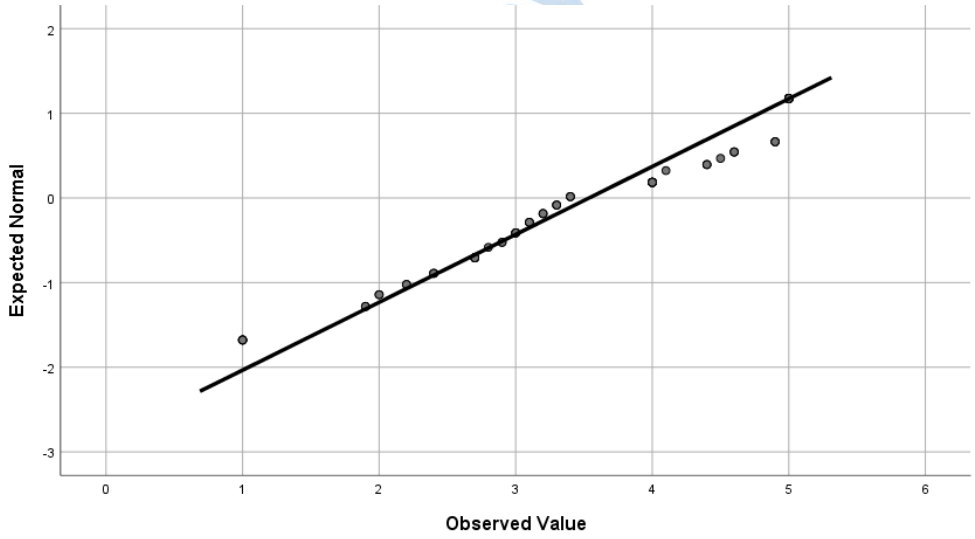

Figure 3: Normal Q-Q plot of Green purchasing

From Figure 4, normal Q-Q plot of Reverse logistic departure from normality was not great as from the approximation to the line of fit. Hence, the data had near normal distribution and hence could be used for parametric test such as linear regression.

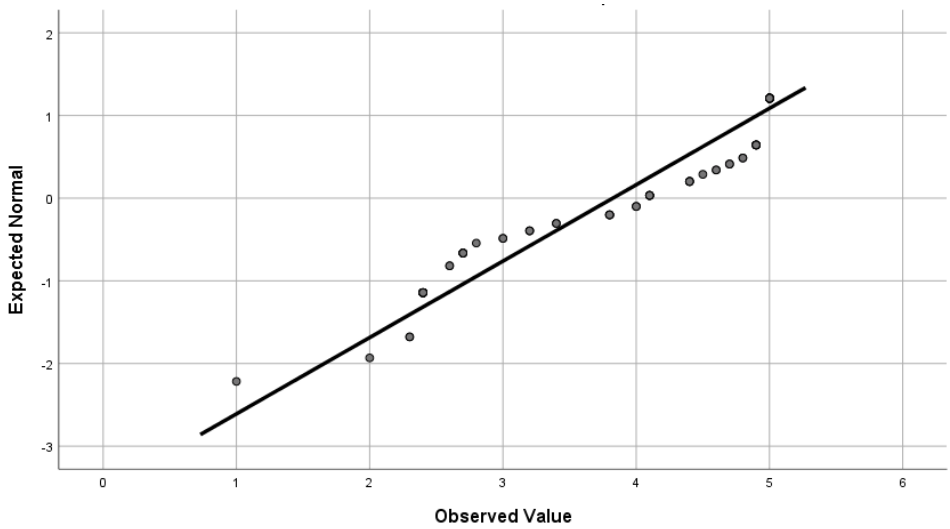

Figure 4: Normal Q-Q plot of Reverse logistic

From Figure 5 Normal Q-Q plot of green production the departure from normality was not much as from the approximation to the line of fit. Thus, the data was near normal distribution and hence could be used for parametric tests.

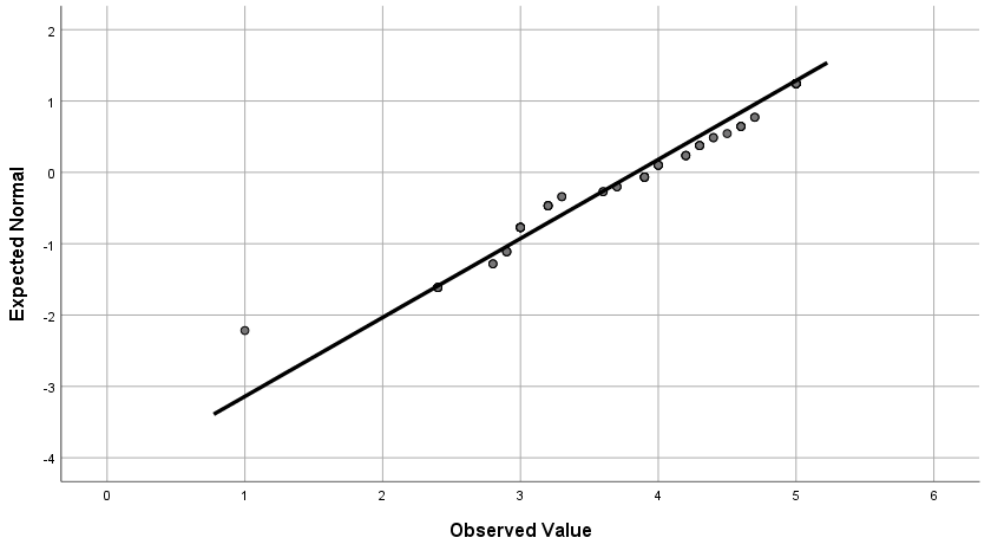

Figure 5: Normal Q-Q plot of Green production

From Figure 6 Normal Q-Q plot of organization performance the departure from normality was not much as from the approximation to the line of fit. Thus, the data was near normal distribution and hence could be used in a regression analysis.

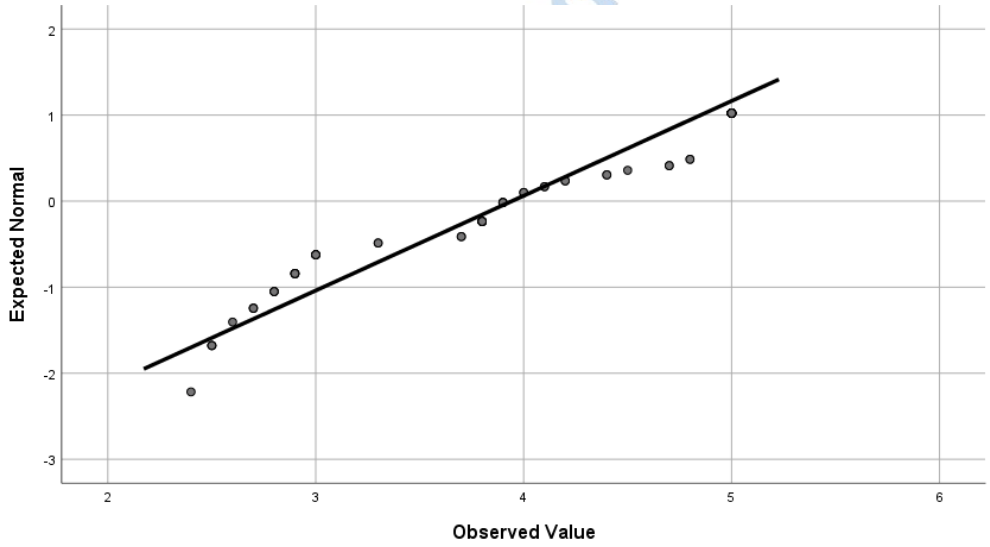

Figure 6: Normal Q-Q plot of Organization performance

4.6.2 Auto-correlation

Test of independence was done by the use of Durbin-Watson. It tests that the residuals from a linear regression or multiple regression are independent. When Durbin-Watson factors are between (1.5) and (2.5) there is no autocorrelation problem (Alsaeed, 2005) from table 12 the Durbin Watson value is between 1.5 and 2.5 hence there was no problem of autocorrelation.

Table 12: Autocorrelation Test for Regression

Std. Error of the Estimate	Durbin-Watson
.51335	2.317

4.6.3 Multi-Collinearity Test

Multicollinearity problem cause ability to define any variable to diminish owing to their interrelationship. According to Besley 1980 as sighted in (Jingyu li, 2003) researchers have used VIF= 10 as critical value rule of thumb to determine whether there is too much correlation. The VIF value in the table 13, are less than 10 so there is no multi-Collinearity problem in study variables.

Table 13: Multi-Collinearity

Independent variable	Tolerance	VIF
Green distribution	0.763	1.311
Green purchasing	0.660	1.515
Reverse logistic	0.488	2.048
Green production	0.393	2.546

4.7 Pearson Correlation Results

The correlation coefficient (r) results are presented as shown in Table 14 using Pearson correlation analysis, which computes the direction (Positive/negative) and the strength (Ranges from -1 to +1) of the relationship between two continues or ratio/scale variables.

Table 14: Multiple Correlation Matrix

		GD	GP	RL	GP
GD: Green distribution	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	74			
GP: Green purchasing	Pearson Correlation	.349**	1		
	Sig. (2-tailed)	.002			
	N	74	74		
RL: Reverse logistic	Pearson Correlation	.418**	.277*	1	
	Sig. (2-tailed)	.000	.017		
	N	74	74	74	
GP: Green production	Pearson Correlation	.413**	.543**	.686**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	74	74	74	74
Organization performance	Pearson Correlation	.554**	.611**	.632**	.750**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	74	74	74	74

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

From the correlation Table 14, Green distribution is positively correlated to organization performance the coefficient is 0.554 (p value < 0.01) this is significant at 95% confidence level. Thus, increase in Green distribution would make organization performance to increase in same direction. The results are supported by a study by Smith et al. (2018) found a significant positive relationship between green distribution and organization performance in a sample of multinational corporations. Contrary to the findings presented, a study by Lee and Kim (2019) found no

significant relationship between green distribution and organization performance in a sample of small and medium-sized enterprises.

Similarly, the correlation coefficient for green purchasing was 0.611, P=0.000, suggesting that there is significant positive relationship between green purchasing and organization performance of Kenya Electricity Generating Company. Increase in Green purchasing would result to increase in organization performance. Research conducted by Johnson and Brown (2019) examined the relationship between green purchasing and organization performance in the banking sector and reported similar results. However, Research by Garcia and Perez (2018) examined the relationship between green purchasing and effectiveness in the public sector. Their study did not find a significant correlation between these variables, indicating that other factors may be more influential in driving outcomes within this context.

Similarly, a correlation coefficient of 0.632** implied that there is significant positive relationship between Reverse logistic and organization performance. The results are in agreement with Wang and Li (2020) conducted a study on reverse logistic and its impact on organizational performance in Chinese companies. On the other hand, a study by Zhang et al. (2021) investigated the relationship between reverse logistic and effectiveness in the healthcare industry. Their findings did not support a significant positive correlation between reverse logistic and effectiveness, suggesting that other organizational factors may have a greater impact on performance outcomes.

Lastly, there is significant positive relationship between green production and organization performance of Kenya Electricity Generating Company as indicated by .750**, p=0.000. This implies that increase in green production would results to increase in organization performance. The results are supported by Chen et al. (2017) focusing on green production practices. Contrarily,

in a study by Patel and Patel (2019) focusing on green production practices in manufacturing firms, the researchers found mixed results regarding the relationship among the variables.

4.8 Simple Linear Regression

Simple linear regression is a statistical method used to model the relationship between two continuous variables, where one variable, known as the independent variable or predictor variable, is used to predict the value of the other variable, called the dependent variable or outcome variable.

4.8.1 Influence of Green distribution on organization performance of Kenya Electricity Generating Company

The first objective of the study was to determine the influence of green distribution on organization performance of Kenya Electricity Generating Company. This objective sought to test first null hypothesis which posits H_{01}**:** Green distribution has no significant influence on organization performance of Kenya Electricity Generating Company. Regression analysis was used to tell the amount of variance accounted for by one variable in predicting another variable. Regression analysis was conducted to find the proportion in the dependent variable (organization performance) which can be predicted from the independent variable (Green distribution). Table 15 shows the analysis results.

Table 15: Regression Results of Green distribution and Organization performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.554[a]	.306	.297	.76140

a. Predictors: (Constant), Green distribution

ANOVA[a]

Model	Sum of Squares	Df	Mean Square	F	Sig.

Regression	18.441	1	18.441	31.811	.000[b]
Residual	41.740	72	.580		
Total	60.182	73			

a. Dependent Variable: Organization performance
b. Predictors: (Constant), Green distribution

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.937	.366		5.287	.000
	Green distribution	.507	.090	.554	5.640	.000

a. Dependent Variable: Organization performance

From the Table 15 above the value of R square was 0.306 this shows that green distribution explains 30.6% of variance in organization performance of Kenya Electricity Generating Company. From the ANOVA table significance of the model has a value F (1,72) =31.811, P<0.05 this shows that it's significant at 95% confidence level hence the model is significant. This implies that green distribution is a useful predictor of organization performance of Kenya Electricity Generating Company. The simple linear regression equation is as shown below

Y=1.937+0.507 Green distribution

The unstandardized regression coefficient value of green distribution was 0.507 and significance level of P<0.05. This indicated that a unit change in green distribution would result to significant change in organization performance by 0.507 in same direction. The results are supported by the work of Abrar (2020) who revealed that green distribution is key factors affecting organization performance. Dyhati and Wahyudi (2022) revealed that green distribution has a direct impact on performance. However, Mohammed and Mohammed (2021) revealed that green distribution contributes insignificantly towards organization performance. The study also revealed that the

current regulatory framework in Ghana is ineffective towards enhancing green distribution. Saputra, Winarningsih and Puspitasari (2020) indicated that tgreen distribution directly does not have a significant effect on performance.

4.8.2 Influence of Green purchasing on organization performance of Kenya Electricity Generating Company

The second objective of the study was to analyze the influence of green purchasing on organization performance of Kenya Electricity Generating Company. This objective sought to test second null hypothesis which posits H_{02}**:** Green purchasing has no significant influence on organization performance of Kenya Electricity Generating Company. Regression analysis was conducted to find the proportion in the dependent variable (organization performance) which can be predicted from the independent variable (Green purchasing). Table 16 shows the analysis results.

Table 16: Regression Results of Green purchasing and Organization performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.611[a]	.373	.365	.72365

a. Predictors: (Constant), Green purchasing

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	22.477	1	22.477	42.922	.000[b]
	Residual	37.704	72	.524		
	Total	60.182	73			

a. Dependent Variable: Organization performance
b. Predictors: (Constant), Green purchasing

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.370	.254		9.312	.000
	GP	.445	.068	.611	6.552	.000

a. Dependent Variable: Organization performance, GP-Green purchasing

From the table 16 above the value of R square was 0.373 which implies that up to 37.3% change in organization performance of Kenya Electricity Generating Company is significantly accounted for by their green purchasing. From the ANOVA result, the significance of the model has a value F (1,72) =42.922, P<0.05 which shows that the model is significant 95.0% confidence level. This postulates that green purchasing is a useful predictor of organization performance. The simple linear regression equation is as shown below

Y=2.370+0.445 Green purchasing

The unstandardized regression coefficient value of green purchasing was 0.445 and significance level of P<0.05. This implies that a unit change in green purchasing would result to significant change in organization performance by 0.445 in the same direction. These findings compare favorably with Research conducted by Johnson and Brown (2019) examined the relationship between green purchasing and organization performance in the banking sector and reported similar results. However, Research by Garcia and Perez (2018) examined the relationship between green purchasing and effectiveness in the public sector. Their study did not find a significant correlation between these variables, indicating that other factors may be more influential in driving outcomes within this context. Sharma and Iselin (2014) investigated the impact of green purchasing on performance. They found little evidence that the degree of green purchasing affects organization performance.

4.8.3 Influence of Reverse logistic on organization performance of Kenya Electricity Generating Company

The third objective of the study was to analyze the influence of Reverse logistic on organization performance of Kenya Electricity Generating Company. This objective sought to test third null hypothesis which posits H_{03}**:** Reverse logistic has no significant influence on organization performance of Kenya Electricity Generating Company. Regression analysis was conducted to find the proportion in the dependent variable (organization performance) which can be predicted from the independent variable (Reverse logistic). Table 17 shows the analysis results.

Table 17: Regression Results of Reverse logistic and Organization performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.632[a]	.399	.391	.70874

a. Predictors: (Constant), Reverse logistic

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.015	1	24.015	47.809	.000[b]
	Residual	36.167	72	.502		
	Total	60.182	73			

a. Dependent Variable: Organization performance
b. Predictors: (Constant), Reverse logistic

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.916	.304		6.294	.000
	Reverse logistic	.530	.077	.632	6.914	.000

a. Dependent Variable: Organization performance

From the table 17 above the value of R square was 0.399 this shows that Reverse logistic explains 39.9% of variance in organization performance of Kenya Electricity Generating Company. From the ANOVA table significance of the model has a value F (1,72) =47.809, P<0.05 this shows that

it's significant at 95% confidence level hence the model is feasible. This implies that Reverse logistic is a useful predictor of organization performance of Kenya Electricity Generating Company. The simple linear regression equation is as shown below

Y=1.916+0.530 Reverse logistic

The unstandardized regression coefficient value of reverse logistic was 0.530 and significance level of P<0.05. This indicated that a unit change in reverse logistic would result to significant change in organization performance by 0.530 in the same direction. The results are supported by. Mpakaniye (2022) who showed that there was a strong positive relationship between the reverse logistic and organization performance. However, Brown and Taylor (2018) studied 100 US-based credit unions and found no significant difference in organization performance between institutions with high and low levels of reverse logistic. Instead, their research pointed to cultural factors and tone at the top as primary drivers of performance. Ward and Davis (2016) challenged the notion that reverse alone determine organization performance. Using a dataset comprising 200 Australian banks, they found that an interaction effect existed between performance and green distribution, implying that the latter might compensate for deficiencies in the former.

4.8.4 Influence of Green production on organization performance of Kenya Electricity Generating Company

The fourth objective of the study was to analyze the influence of green production on organization performance of Kenya Electricity Generating Company. This objective sought to test fourth null hypothesis which posits H_{04}: Green production has no significant influence on organization

performance of Kenya Electricity Generating Company. Regression analysis was conducted to find the proportion in the dependent variable (organization performance) which can be predicted from the independent variable (Green production). Table 18 shows the analysis results.

Table 18: Regression Results of Green production and Organization performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.750[a]	.563	.557	.60462

a. Predictors: (Constant), Green production

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	33.861	1	33.861	92.628	.000[b]
	Residual	26.320	72	.366		
	Total	60.182	73			

a. Dependent Variable: Organization performance

b. Predictors: (Constant), Green production

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.051	.309		3.405	.001
	Green production	.754	.078	.750	9.624	.000

a. Dependent Variable: Organization performance

From the Table 18 above the value of R square was 0.563 which suggests that up to 56.3% variation in organization performance of Kenya Electricity Generating Company is significantly accounted for by green production. From the ANOVA result, the significance of the model has a value F (1,72) =92.628, P<0.05 which shows that the model is significant 95% confidence level. This postulates that green production is a useful predictor of organization performance. The simple linear regression equation is as shown below

Y=1.051+0.754 Green production

The unstandardized regression coefficient value of green production was 0.754 at 0.05 significance level. This implies that a unit change in green production would result to significant change in organization performance by 0.754 in the same direction. These findings support earlier studies that suggest the importance of green production in enhancing organization performance. However, there are also studies that have questioned the extent of the impact of green production on organization performance. Yusoff (2018) reveled that the adoption of green production at micro level was not statistically significantly affects the organization performance and efficiency. But the adoption of green production approach at macro level does contribute a significant impact.

4.9 Multiple Regression Analysis

Objective of this study sought objective of the study was to examine green supply chain management of organization performance of Kenya Electricity Generating Company. This was achieved by carrying out standard multiple regression. The study was interested in knowing the effect of each of the green supply chain management on organization performance when all these constructs were entered as a block on the model. The results of multiple linear regression analysis were presented.

Table 19: Model Summary

Model	R	R Square	Adj R Square	Std. Error of the Estimate	Change Statistics			
					R Sq Change	F Change	df	Sig. F Change
1	.835[a]	.698	.680	.51335	.698	39.841	4,69	.000

a. Predictors: (Constant), Green production, Green distribution, Green purchasing, Reverse logistic

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	41.998	4	10.499	39.841	.000[b]
	Residual	18.184	69	.264		

Total	60.182	73

a. Dependent Variable: Organization performance

b. Predictors: (Constant), Green production, Green distribution, Green purchasing, Reverse logistic

The results from the model summary in Table 19 give us information on the overall summary of the model. Looking at the R square column, we can deduce that four green supply chain management accounted for 69.8% significant variance in organization performance (R square =.698, P=0.000) implying that 30.2% of the variance in organization performance of Kenya Electricity Generating Company is accounted for by other variables not captured in this model. In order to assess the significance of the model, simply whether the study model is a better significant predictor of the organization performance rather than using mean score which is considered as a guess, the study resorted to F Ratio. From the findings, the F value is more than one, as indicated by a value of 39.841, which means that enhancement as a result of model fitting is much larger than the model errors/inaccuracies that were not used in the model (F (4,69) = 39.841, P=0.000). This implies that the final study model has significant improvement in it is prediction ability of organization performance of Kenya Electricity Generating Company.

The presented in Table 20 shows unstandardized coefficients, standardized coefficients, t statistic and significant values.

Table 20: Multiple Regression Coefficients

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	.354	.302		1.173	.245
Green distribution	.198	.069	.217	2.860	.006
Green purchasing	.204	.059	.280	3.437	.001

Reverse logistic	.182	.079	.217	2.287	.025
Green production	.362	.106	.360	3.409	.001

a. Dependent Variable: Organization performance

A regression of the four predictor variables against organization performance established the multiple linear regression model as below as indicated in Table 20:

$$\mathbf{Y=0.354 + 0.198}\ X_1\mathbf{+0.204}\ X_2\mathbf{+0.182}\ X_3\mathbf{+\ 0.362}\ X_4$$

Where Y is the dependent variable (Organization performance),

X_1 is Green distribution

X_2 is Green purchasing

X_3 is Reverse logistic

X_4 is Green production

From the findings presented in Table 4.20, we look at the model results and scan down through the unstandardized coefficients B column. All green supply chain management had significant effect on the organization performance. If the green supply chain management are held at zero or it is absent, the organization performance of Kenya Electricity Generating Company would be 0.354, p=0.245.

H_{01}: Green distribution has no significant influence on organization performance of Kenya Electricity Generating Company.

The results revealed that green distribution had unique significant contribution to the model with B=.198, p=.006 suggesting that controlling of other variables (Green purchasing, Reverse logistic and Green production) in the model, a unit change in green distribution would result to significant

change in organization performance by 0.198 in the same direction. These results highlight the value of focusing on green distribution as a specific lever for boosting organizational performance. It may indicate that organizations looking to improve performance, particularly in sustainability-driven markets, should place greater emphasis on optimizing their distribution channels to be more environmentally friendly. The findings also suggest that even if an organization is already investing in other green practices, green distribution can provide additional benefits.

Several studies have investigated the impact of green distribution practices on the performance of various sectors with similar results. Ajayi et al. (2021) focused on SMEs in Oyo State, Nigeria, utilizing a survey of 4,520 business owners, ultimately sampling 455 participants through stratified random sampling. Their findings revealed that adopting environmentally friendly distribution methods significantly enhances the environmental performance of SMEs. In a similar vein, Mumbi, Karanja, and Kiarie (2021) conducted a census of 236 horticultural businesses in Kenya, finding a strong correlation between green distribution practices and operational efficiency in the agricultural sector. Their research emphasized the positive impact of environmentally friendly packaging on overall effectiveness.

Further research by Obiso et al. (2023) examined the private oil and gas sector in Kenya, surveying 1,850 employees from 72 companies and sampling 470 participants. Their results indicated that implementing green distribution techniques significantly improves organizational performance. Yusuf (2020) assessed manufacturing enterprises in Kenya, finding a favorable correlation between green distribution and operational success based on data from 330 registered businesses. Lastly, Panya et al. (2021) evaluated the sugar sub-sector, concluding that environmentally friendly distribution practices are essential for reducing costs and enhancing performance among

sugar industry stakeholders. Collectively, these studies highlight the critical role of green distribution in promoting operational and environmental efficiency across various industries.

H_{02}: Green purchasing has no significant influence on organization performance of Kenya Electricity Generating Company

The coefficient of green purchasing was 0.204, which was significant (p=.001) and also positive. When the variance explained by all other variables (Green distribution, Reverse logistic and Green production) in the model is controlled, a unit change in Green purchasing would result to change in organization performance by 0.204 in the same direction. This finding could imply that organizations that prioritize sustainable sourcing and procurement practices may gain a competitive advantage or achieve higher performance outcomes, especially in terms of reputation, cost savings, or operational efficiency. Taken together with the impact of green distribution, these results show that sustainable practices across both supply and logistics/distribution chains are crucial to enhancing organizational performance. Green purchasing appears to be particularly influential, possibly because it affects the entire production process by ensuring that materials and products are sustainable from the outset.

Several studies have explored the influence of environmentally responsible purchasing practices on organizational performance across various sectors and results were similar to current study. Sahoo and Vijayvargy (2021) examined the impacts of green supply chain management (GSCM) practices among 160 manufacturing companies in India. Their findings indicated that green purchasing had minimal effects on environmental, economic, and operational performance, suggesting that other components of GSCM may play a more critical role. In contrast, Kaikai and Mose (2020) focused on the East African Breweries Limited (EABL), identifying staff

competence, ICT infrastructure, supplier engagement, and financial investment in green procurement as key factors affecting performance. Their results highlighted the importance of integrating green purchasing practices to achieve performance excellence.

Quyen (2020) conducted a comparative analysis of Ghana Water Co. Ltd. and Bayport Savings and Loans Plc, confirming the significance of environmentally conscious purchasing in enhancing organizational performance, with supplier collaboration moderating this relationship. Ochieng (2019) assessed the impact of eco-friendly supply chain practices on productivity within major chemical manufacturers in Kenya, finding a significant correlation between responsible purchasing and overall performance. Similarly, Nderitu and Ngugi (2019) evaluated state-owned enterprises in Kenya, revealing that adopting environmentally responsible purchasing policies positively affected their performance, with statistically significant results at the 0.05 level. Collectively, these studies underscore the varying impacts of green purchasing practices across different industries, emphasizing their potential to enhance organizational performance when implemented effectively.

H_{03}: Reverse logistic has no significant influence on organization performance of Kenya Electricity Generating Company

Another variable that also had a unique significant contribution to the model was the value for Reverse logistic (B=.182, p=.025). When other variables in the model are controlled (Green purchasing, Green distribution and Green production), a unit change in Reverse logistic would result to significant change in organization performance by 0.182 in the same direction. The fact that reverse logistics has a unique contribution to performance, even after accounting for the effects of green purchasing, green distribution, and green production, highlights its independent role in boosting organizational success. The coefficient (0.182) for reverse logistics shows that this area

of sustainable business operations, while not the largest factor in the model, has a notable and statistically significant impact on performance. Reverse logistics activities like managing returns, recycling, and reducing waste can improve operational efficiency, lower costs, and enhance sustainability, all of which contribute positively to organizational outcomes.

Several studies have examined the impact of reverse logistics on organizational performance and supported these findings. Chemutai and Mbeche (2018) found a statistically significant link between reverse logistics practices and the performance of multinational tea processing firms in Kericho, involving a survey of procurement officials and managers from major companies. Similarly, Gikonyo, Ngugi, and Paul (2022) highlighted that implementing reverse logistics significantly enhances the operational effectiveness of manufacturing firms in the building and construction industry, based on a study involving 270 respondents from 54 companies. Nyarega (2015) also indicated that government-regulated industrial firms in Kenya have effectively utilized reverse logistics procedures, emphasizing their positive influence on operational efficiency.

Other research, such as that by Samson (2018), focused on the furniture distribution sector in Nairobi, revealing that reverse logistics significantly affects operational efficiency, particularly due to inadequate preparation for reverse transportation among firms. Additionally, Alshourah (2022) assessed the role of environmentally responsible supply chain practices in Jordan's extractive industries and found that while environmentally responsible manufacturing has a major impact on financial success, reverse logistics plays a lesser role. These findings collectively underscore the critical importance of integrating reverse logistics into various sectors to improve overall operational performance and organizational success.

H_{04}: Green production has no significant influence on organization performance of Kenya Electricity Generating Company

Lastly, Green production had also unique significant contribution to the model with B=0.362, p=.001implying that when other variables in the model are controlled (Green purchasing, Reverse logistic and Green distribution), a unit change in Green production would result to significant change in organization performance by 0.362 in the same direction. Even when controlling for other green practices (green purchasing, reverse logistics, and green distribution), green production still demonstrates a unique and significant contribution to performance. This implies that green production alone, independent of other factors, plays a vital role in improving organizational outcomes. This suggests that environmentally sustainable production processes, such as energy efficiency, waste reduction, or using eco-friendly materials, have a direct and considerable effect on how well an organization performs.

Several studies have investigated the relationship between green production and financial performance across various sectors and reported similar results. Walisundara, Thevanes, and Arulrajah (2022) found that integrating sustainable business practices positively impacts the perceived financial success of 36 manufacturing companies listed on the Colombo Stock Exchange. Similarly, D'Angelo, Cappa, and Peruffo (2023) explored the effects of green activities and investments on the financial performance of SMEs in Europe. Their findings indicated a positive correlation between the number of environmentally friendly actions and economic performance, although the financial benefits of green investments follow an inverted U-shaped pattern, suggesting diminishing returns after a certain point.

Other research has focused on the operational performance linked to green manufacturing practices. Al-Hakimi et al. (2022) demonstrated that green manufacturing practices (GMP) enhance corporate social performance (CSP) through green innovation (GI), with governance structures positively moderating this relationship among 328 SMEs in Saudi Arabia. Musau (2019) also found that environmentally responsible production methods positively impact operational performance among 61 manufacturing firms in Kenya. Additionally, Wanjiru and Ochiri (2019) assessed the effectiveness of these practices within Kenya's energy sector, noting that incorporating environmental factors in production and planning significantly enhances operational efficiency. Collectively, these studies highlight the multifaceted benefits of adopting green manufacturing strategies across various industries.

4.11 Hypothesis testing

Table 21: Hypotheses Testing

Hypothesis	**P Value (P<0.05)**	**Verdict**
$H_{01:}$ Green distribution has no significant influence on organization performance of Kenya Electricity Generating Company.	.006	Reject
$H_{02:}$ Green purchasing has no significant influence on organization performance of Kenya Electricity Generating Company	.001	Reject

$H_{03:}$ Reverse logistic has no significant influence on organization performance of Kenya Electricity Generating Company	.025	Reject
$H_{03:}$ Green production has no significant influence on organization performance of Kenya Electricity Generating Company	.001	Reject

.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The general objective of this study was to examine green supply chain management of organization performance of Kenya Electricity Generating Company. From this overall objective, this study aimed at finding out the influence of green distribution, green purchasing, reverse logistic and green production on the organization performance of Kenya Electricity Generating Company. This chapter presents the summary of major findings of the study, the conclusions, and recommendations and finally, the chapter highlights important recommendations for further research.

5.2 Summary of the Findings

The data for the findings of this study was collected using questionnaires from 74 sampled respondents from Kenya Electricity Generating Company. The specific objectives of the study were achieved through conducting Pearson correlation analysis and linear regression analysis. These analyses were conducted at 95.0% confidence level ($P<0.05$). The major findings are as follows

5.2.1 Influence of Green distribution on organization performance of Kenya Electricity Generating Company

The first objective of the study was to determine the influence of green distribution on organization performance of Kenya Electricity Generating Company. Descriptive statistics revealed that the corporation distributes its products using environmentally friendly packing materials (mean score

4.08). When choosing its fleet of carriers, the corporation takes into account fuel efficiency (mean score 3.86). The business has decided to use the ecolabelling system in order to provide information on goods on the environmental effects that are related with their usage (mean score 3.86). We believe that the use of minimal packaging should be encouraged (mean score 3.91). We require that all goods be supplied to the central stores before they are sent out (mean score 3.99).

Pearson Correlation results showed a significant relationship between green distribution and organization performance of Kenya Electricity Generating Company ($r=0.554$, $P<0.05$). Linear regression analysis indicated that green distribution significantly accounts for 30.6% variance in organization performance of Kenya Electricity Generating Company. Multiple regression analysis revealed that when other variables are controlled in the model, a unit change in Green distribution would results to a significant change in organization performance by 0.198 units in the same direction ($\beta_1=0.198$, $P=0.006$). Hence, green distribution is useful predicator of organization performance of Kenya Electricity Generating Company. Therefore, the first null hypothesis was rejected.

5.2.2 Influence of Green purchasing on organization performance of Kenya Electricity Generating Company

The second objective of the study was to investigate the influence of green purchasing on organization performance of Kenya Electricity Generating Company. Descriptive statistics revealed moderate agreement on green purchasing. The assessment of the quantity of waste that is going into corporate systems is made possible by green buying (mean: 3.68). Buying environmentally friendly products reduces the number of times that environmental incidents occur (mean: 3.66) and the company makes procurement of things that may be recycled (mean: 3.69).

Pearson Correlation results a significant relationship between green purchasing and organization performance of Kenya Electricity Generating Company ($r=0.611$, $P<0.05$). Linear regression analysis indicated that Green purchasing significantly accounts for 37.3%variance in organization performance of Kenya Electricity Generating Company. Multiple regression analysis revealed that when other variables are controlled in the model, a unit change in green purchasing would results to a significant change in organization performance by 0.204 units in the same direction ($\beta_2=0.204$, $P=0.001$). Thus, green purchasing is useful predicator of organization performance of Kenya Electricity Generating Company Therefore, the second null hypothesis was rejected.

5.2.3 Influence of Reverse logistic on organization performance of Kenya Electricity Generating Company

The third objective of the study was to establish the influence of reverse logistic on organization performance of Kenya Electricity Generating Company. Descriptive statistics revealed that reverse logistics is responsible for the recovery of items that are damaging to the environment (mean: 3.66) and the use of materials for packaging that may be repurposed for use in other areas of our company is made possible by reverse logistics (mean: 3.80), the adoption of our organization's recycling system is made possible thanks to reverse logistics (mean: 3.64) and The establishment of the reused package system is brought about by reverse logistics (mean: 3.86). Moreover, while there's agreement on the business facilitates the practice of reverse logistics by accepting returns of items from end users (mean: 4.20) and complex inventory management systems in place to accommodate reverse inventories (mean: 4.16).

Pearson Correlation results revealed a significant relationship between reverse logistic and organization performance of Kenya Electricity Generating Company ($r=0.632$, $P<0.05$). Linear

regression analysis revealed that reverse logistic significantly accounts for 39.9% variance in organization performance of Kenya Electricity Generating Company. Multiple regression analysis revealed that when other variables are controlled in the model, a unit change in reverse logistic would results to a significant change in organization performance by 0.182 units in the same direction (β_3=0.182, P=0.025). Hence, reverse logistic is a significant predicator of organization performance of Kenya Electricity Generating Company. Therefore, the third null hypothesis was rejected.

5.2.4 Influence of Green production on organization performance of Kenya Electricity Generating Company

The fourth objective of the study was to establish the influence of green production on organization performance of Kenya Electricity Generating Company. Descriptive statistics revealed that while respondents largely agreed that production that is environmentally friendly encourages the reuse of raw materials, manufacturing that is environmentally friendly means that future manufacturing will be environmentally friendly and cleaner; Production that is environmentally friendly makes it possible to satisfy the criteria of consumers that are connected to the implementation of environmental management systems; production that is environmentally friendly results in little or no waste and contamination.

Pearson Correlation results revealed a significant relationship between Green production and organization performance of Kenya Electricity Generating Company (r=0.750, P<0.05). Linear regression analysis indicated that green production significantly accounts 56.3% for variance in organization performance of Kenya Electricity Generating Company. Multiple regression analysis revealed that when other variables are controlled in the model, a unit change in green production

would results to a significant change in organization performance by 0.365 units in the same direction (β_4=0.362, P=0.001). Thus, green production is a significant predicator of organization performance of Kenya Electricity Generating Company. Therefore, the fourth null hypothesis was rejected.

5.3 Conclusion

Based on the empirical evidence, a number of logical conclusions can be made as follows and presented in terms of study objectives.

The study concluded that green distribution has significant influence on organization performance of Kenya Electricity Generating Company. An increase in green distribution would results to significant increase in organization performance of Kenya Electricity Generating Company. The findings from the descriptive statistics indicate that respondents largely agree on the benefits of green production, including the reuse of raw materials, future-proofing manufacturing processes, meeting consumer criteria for environmental management systems, and minimizing waste and contamination.

The study concluded that green purchasing has significant influence on organization performance of Kenya Electricity Generating Company. The research highlighted the importance of green purchasing. Descriptive statistics reflect moderate agreement on the benefits of green purchasing, including its role in assessing waste, reducing environmental incidents, and facilitating the procurement of recyclable products. Consequently, the second null hypothesis was rejected.

The study concluded that Reverse logistic has significant effect on organization performance of Kenya Electricity Generating Company. An increase in Reverse logistic would results to

significant increase in organization performance of Kenya Electricity Generating Company. Reverse logistics plays a crucial role in environmental sustainability by enabling the recovery of harmful items, promoting the reuse of packaging materials, and facilitating recycling systems. Moreover, the company has implemented systems to support reverse logistics, such as accepting returns from end users and managing complex inventories.

The study concluded that green production has significant effect on organization performance of Kenya Electricity Generating Company. Hence, Green production is a significant predicator of organization performance of Kenya Electricity Generating Company. Respondents also recognized the multiple benefits of green production, including resource reuse, reduced waste and contamination, and better alignment with environmental management standards. These findings highlight that environmentally sustainable production practices are critical to KenGen's operational success and overall competitiveness.

5.4 Recommendation

The following recommendations have been made based on the study conclusions as shown below.

KenGen should further enhance its green distribution practices to maximize their positive impact on organizational performance. This includes continuing to use environmentally friendly packaging materials and selecting fuel-efficient carriers, as these practices are already showing beneficial effects. The company should also strengthen efforts to minimize packaging and streamline the distribution process by ensuring that goods are centralized at stores before distribution.

To capitalize on the benefits of green purchasing, KenGen should enhance its green procurement practices. This includes focusing on purchasing environmentally friendly products and materials that minimize waste and promote recycling. The company should also establish robust systems for evaluating the environmental impact of its procurement activities and track improvements in performance related to green purchasing. Additionally, integrating green purchasing criteria into supplier selection and procurement processes will further support sustainability goals.

Given the significant impact of reverse logistics on organizational performance, KenGen should continue to invest in and enhance its reverse logistics practices. This could involve improving systems for the recovery and repurposing of materials, as well as further developing its recycling and reused packaging systems. Additionally, the company should optimize its inventory management processes to handle reverse inventories more efficiently, leveraging technology to streamline returns and inventory tracking. KenGen should also consider expanding its reverse logistics capabilities to further reduce environmental impact and improve sustainability, which in turn will enhance operational efficiency and customer satisfaction.

KenGen should prioritize expanding its green production initiatives as they are proven to significantly enhance performance. This can be achieved through further investments in clean technologies, renewable energy sources, and processes aimed at reducing waste and environmental impact. Additionally, green production should be integrated into the company's strategic goals and sustainability reporting to communicate its benefits to stakeholders and consumers. KenGen should also engage in continuous innovation to refine its green production processes, adopt cutting-edge technologies, and enhance employee capacity through regular training.

5.5 Suggestion for Further Studies

The current study focused on how green distribution, green purchasing, reverse logistic and green production influences organization performance of Kenya Electricity Generating Company which presented conceptual limitations to the study. Further studies should consider other green supply chain management such as Eco-friendly Packaging, green transporting among others.

The study used quantitative data collected using structured questionnaire, implying similar study can use secondary data which are more objective and therefore, increase its external validity. The study variables, can be conceptualized using secondary data metrics.

The study focused on Kenya Electricity Generating Company as case study, implying that generalizing the findings. Further studies should focus on manufacturing firms to compare the current results.

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APPENDICES

APPENDIX I: RESEARCH QUESTIONNAIRE

SECTION A: RESPONDENTS' PROFILES

Gender

Male [ ]

Female [ ]

Age

Below 25 yrs [ ]

25-34 yrs [ ]

35-44 yrs [ ]

45-54 yrs [ ]

More than yrs [ ]

Highest education level

Diploma [ ]

Degree [ ]

Post Graduate [ ]

Others [ ]

Length of time working

1-5 years ( )

6 -10 yrs ( )

11 -15 yrs ( )

More than 15 yrs ( )

GREEN SUPPLY CHAIN MANAGEMENT

In this section, you are supposed to denote the extent of your agreement in the statements given on the various green supply chain management evaluated and organizational performance.

Green Distribution

Statements on green distribution	1	2	3	4	5
1. The corporation distributes its products using environmentally friendly packing materials					
2. When choosing its fleet of carriers, the corporation takes into account fuel efficiency.					
3. The business has decided to use the ecolabelling system in order to provide information on goods on the					

environmental effects that are related with their usage.					
4. We believe that the use of minimal packaging should be encouraged.					
5. We require that all goods be supplied to the central stores before they are sent out.					
6. All products that are purchased are delivered straight to the areas that are in need of them.					
7. An essential component of the assessment criterion for bids is the supplier distribution network.					

Statements of green purchasing	1	2	3	4	5
1. The assessment of the quantity of waste that is going into corporate systems is made possible by green buying.					
2. Buying products that are environmentally friendly results in a lower consumption of dangerous or poisonous materials					
3. Buying environmentally friendly products reduces the number of times that environmental incidents occur.					
4. The company makes procurement of things that may be recycled					
5. The organization invests in equipment that reduces energy use.					
6. The organization only buys items that have earned the approval of reputable environmental labels.					
7. The organization works closely with the suppliers to ensure that standard packaging is used.					

Green production	**1**	**2**	**3**	**4**	**5**
1. Production that is environmentally friendly results in little or no waste and contamination.					
2. Production that is environmentally friendly encourages the reuse of raw materials					
3. The adoption of environmentally responsible industrial practices has resulted in lower costs related to environmental and occupational safety.					
4. Compliance with environmental laws in the manufacturing of parts and components is enabled through environmentally responsible production.					
5. Manufacturing that is environmentally friendly means that future manufacturing will be environmentally friendly and cleaner. 6.					
7. Production that is environmentally friendly makes it					

possible to satisfy the criteria of consumers that are connected to the implementation of environmental management systems					

REVERSE LOGISTIC

Statements on Reverse Logistic	1	2	3	4	5
1. Reverse logistics is responsible for the recovery of items that are damaging to the environment. 2. Reverse logistics is responsible for ensuring the launch of our organization's recycling system.					
2. The adoption of our organization's recycling system is made possible thanks to reverse logistics.					
3. The establishment of the reused package system is brought about by reverse logistics					
4. The use of materials for packaging that may be repurposed for use in other areas of our company is made possible by reverse logistics.					
5. The business facilitates the practice of reverse logistics by accepting returns of items from end users.					
6. We have complex inventory management systems in place to accommodate reverse inventories.					
7. Our organization has sufficient storage space for things that have been returned.					

ORGANIZATIONAL PERFORMANCE

Organizational Performance	1	2	3	4	5
1. Over the last three years, the yearly expenses of the company's operations have decreased by an average of 5% every year.					
2. Over the last three years, the yearly earnings of the firm have increased by 5% on average each year.					
3. The carbon footprint left by the actions of the organization has been decreasing throughout the course of time					
4. 4. The organization has been achieving success in terms of procuring					
5. Positive sales results may be attributed to the contentment shown by the company's clients.					
6. The company demonstrates a commitment to providing environmentally responsible shipping practices and serves its consumers with courtesy.					

APPENDIX II: LETTER FROM KENGEN

Our Ref: **STAFF/70440/KG/JK/ko**

Date: **22nd October, 2024**

KenGen
Kenya Electricity Generating Company PLC
Pension Plaza II, Kolobot Road, Parklands
P.O. Box 47936 - 00100, Nairobi, Kenya
Telephone: +254-20-3666000, +254-711036000
Website: www.kengen.co.ke

Ednah Kemunto Makori
Mount Kenya University
P. O. Box 342 - 01000
THIKA.

Dear Ednah,

RE: APPROVAL TO CONDUCT RESEARCH

Reference is made to your email dated 16th October 2024.

This is to confirm that you have been granted an approval to conduct an academic research in our Company on "Influence of Green Supply Chain Management on organization performance of Kenya Electricity Generating Company PLC, for the period ending 13th September 2025".

The data collected is strictly for the intended purposes only and should be treated in strict confidence. You are expected to submit a copy of your research thesis to the undersigned after completion of your research.

You will be accorded all the necessary assistance in your research

Yours faithfully
For: **KENYA ELECTRICITY GENERATING COMPANY PLC.**

Joseah Kipyegon
JOSEAH KIPYEGON
ASSISTANT MANAGER, HUMAN RESOURCE - WESTER REGION

APPENDIX III: ERC CERTIFICATE

Mount Kenya University

REF: **MKU/ISERC/4330**
TO: **EDNAH KEMUNTO MAKORI**

Date: 29 August 2024

REG: **MPSM/2022/45402**

Dear Sir/Madam,

RE: INFLUENCE OF GREEN SUPPLY CHAIN MANAGEMENT ON ORGANIZATION PERFORMANCE OF KENYA ELECTRICITY GENERATING COMPANY

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **3050.** The approval period is **29/08/2024 - 28/08/2025.**

This approval is subject to compliance with the following requirements;

i. Only approved documents including informed consents, study instruments, MTA will be used
ii. All changes including amendments, deviations and violations are submitted for review and approval by **Mount Kenya University**
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **Mount Kenya University** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or welfare of study participants and others or affect the integrity of the research must be reported to **Mount Kenya University** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
vii. Submission of an executive summary report within 90 days upon completion of the study to **Mount Kenya University**

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

MOUNT KENYA UNIVERSITY
ETHICS REVIEW COMMITTEE
P. O. Box 342-01000,
THIKA

Dr. Alfred Owino, PhD
Chairman, Mount Kenya University ISERC

Main Campus, General Kago Road, P.O. Box 342-01000 Thika.
Cell: +254 709 153 000 | +254 709 153 200
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APPENDIX III: LETTER FROM POSTGRADUATE

Mount Kenya University

DIRECTORATE OF GRADUATE STUDIES

MPSM/2022/45402

30th August, 2024

National Commission for Science Technology & Innovation (NACOSTI)
Off Waiyaki Way, Upper Kabete,
P.O Box 30623- 00100
NAIROBI, KENYA

Dear Sir/Madam,

RE: EDNAH KEMUNTO MAKORI– REGISTRATION NO. MPSM/2022/45402

The purpose of this letter is to introduce the above named student who is pursuing **Master of Science in Procurement and Supplies Management** in the **Department of Management** in the school of **Business and Economics**

The title of the research is "**Influence of Green Supply Chain Management on Organization Performance of Kenya Electricity Generating Company.** It has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data between **September, 2024 and November, 2024.**

Any assistance accorded to the student will be highly appreciated.

Thank you.

Mount Kenya University
P.O. Box 342-01000, Thika
Office of the Director,
Graduate Studies

Dr. Samuel M. Karenga, Ph.D
Director, Graduate Studies
Enc.

Main Campus, General Kago Road, P.O. Box 342-01000 Thika. Tel: +254 67 2820 000,

APPENDIX III: NACOSTI PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **888312**

Date of Issue: **13/September/2024**

RESEARCH LICENSE

This is to Certify that Ms.. EDINAH KEMUNTO of Mount Kenya University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Kisumu, Nairobi on the topic: INFLUENCE OF GREEN SUPPLY CHAIN MANAGEMENT ON ORGANIZATION PERFORMANCE OF KENYA ELECTRICITY GENERATING COMPANY for the period ending : 13/September/2025.

License No: **NACOSTI/P/24/39933**

888312

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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See overleaf for conditions