GREEN PRACTICES AND PERFORMANCE OF LOGISTICS FIRMS IN NAIROBI CITY COUNTY, KENYA

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DECLARATION

Declaration by Student

This project is my original work that has not been presented anywhere for the award of degree, and no part of the thesis should be copied without the consent of the author or Kenyatta University.

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Anne Muthini

D53/CTY/PT/28815/2019

Declaration by Supervisors

I attest that this thesis has been conducted under my guidance as the university supervisor.

Signature..... Date…….....

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DEDICATION

In dedication to my parents, Evans and Peninnah Muthini who have been my unwavering pillars of support and encouragement throughout my MBA journey.

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ABBREVIATIONS AND ACRONYMS

CBOs	Community-Based Organizations
CBK	Central Bank of Kenya
CB-SEM	Covariance-Based Structural Equation Modeling
GOK	Government of Kenya
KIFWA	Kenya International Freight and Warehousing Association
USA	United States of America
NACOSTI	National Commission for Science, Technology, and Innovation
UK	United Kingdom
NGOs	Non-Governmental Organizations
PLS-SEM	Partial Least Square Structural Equation Modeling
SPSS	Statistical Package for the Social Sciences

OPERATIONAL DEFINITION OF TERMS

Eco Design	refers to the process of integrating environmental considerations into the development of products, services, or systems throughout their entire lifecycle. It includes product remanufacturing, recyclability and environmental load assessment.
Green Packaging	Green packaging in logistic firms is characterized by the use of flexible materials and order-filling, that is, employing the proper packing size, to minimize waste. Use of quality materials, size of package and packaging style was used to assess it in this study.
Green Practices	Green practices of logistic firms are strategies and actions taken to minimize environmental impact while maintaining operational efficiency. These practices focus on reducing carbon emissions, optimizing resource utilization, and enhancing environmental stewardship across logistics activities. Eco design, green packaging, green warehousing, and

	reverse logistics were considered in this research.
Green Warehousing	Green warehousing refers to making changes that consume less energy, utilize green energy sources and resources, and produce less non-recyclable trash in storage operations in logistics firms. It was measured by proper storage, efficient distribution, and agile materials in this study.
Performance	In logistic firms, it refers to a collection of management and analytical procedures that guarantee activities and results are produced in a way that is successful and productive with respect to the firm's goals.Market share, operational efficiency, customer service, and profitability were used in measuring it in this study.
Reverse Logistics	Describes handling goods returned from users to producers for recycling, repair, disposal, or reuse. It was assessed with indicators such as waste control, lead time, and backward distribution.

ABSTRACT

The logistics sector plays a critical role in Kenya's economic growth, contributing significantly to GDP and employment. However, logistics firms in Nairobi City County continue to experience inconsistent performance, partly due to increasing environmental demands, inefficient operational processes, and the slow adoption of sustainable practices. Although global supply chains are progressively embracing green logistics, the extent to which such practices enhance firm performance in the Kenyan context remains insufficiently explored. This study therefore sought to examine the influence of green logistics practices—specifically eco-design, green packaging, green warehousing, and reverse logistics—on the performance of logistics firms in Nairobi City County. The specific objectives were: to determine the effect of eco-design on firm performance, to assess the influence of green packaging on firm performance, to evaluate how green warehousing practices affect firm performance and to examine the effect of reverse logistics on the performance of logistics firms. Guided by stakeholder theory, the resource-based view, and game theory, the study explains how environmental responsibility, internal resource capabilities, and strategic interactions with market and regulatory stakeholders shape firm performance outcomes. A descriptive research design was employed, and primary data were collected from managers of logistics firms registered with the Kenya International Freight and Warehousing Association (KIFWA). The findings revealed that eco-design significantly improved operational efficiency and overall firm performance by promoting lifecycle-oriented product and process optimization. Green packaging exhibited a positive and significant effect, largely by reducing waste, lowering cost pressures, and improving brand perception. Similarly, green warehousing practices enhanced performance through improved resource utilization and energy-efficient storage systems, while reverse logistics contributed to performance by enabling sustainable handling of returned products, waste reduction, and recovery of residual value. Based on these findings, the study recommends intensified adoption of green packaging initiatives, including the use of biodegradable, recyclable, and reusable materials, as well as optimizing design to minimize waste and environmental impact. Strengthening eco-design, warehousing efficiency, and reverse logistics systems can further enhance operational performance, reduce costs, and bolster the competitiveness of logistics firms within Nairobi City County. The study underscores the strategic value of green logistics as a pathway to both environmental sustainability and improved organizational outcomes.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Logistics has evolved into a globally expanding sector that significantly contributes to economic performance (Delmonicu, 2020). Efficient logistics systems enhance business operations, lower operational costs, and improve the movement of goods (Ristovska, Kozuharov & Petkovski, 2019). Globally, logistics accounts for approximately 12% of GDP, with an estimated annual expenditure of between USD 8 and 12 trillion (Ge, 2021). In 2018, global logistics spending was estimated at USD 9.6 trillion (Ritchie, 2020), and by 2023, transportation alone was projected to account for nearly 70% of global logistics expenditure, reaching USD 10.6 trillion (Henderson, 2020). These statistics demonstrate the growing magnitude of logistics activities and the corresponding environmental footprint created by transportation, warehousing, and material handling operations worldwide.

In developed economies such as the United Kingdom, the logistics sector is a major economic driver, contributing approximately 5% to national GDP and employing over 1.7 million people (Logistics UK, 2022). However, skill shortages, expanding distribution demands, and increasing urbanization have placed pressure on firms to adopt more efficient and environmentally responsible logistics systems (Barclays, 2022). Similarly, in India, logistics costs remain significantly high—amounting to nearly 13–14% of GDP compared to the global average of 8% (Kumar & Ramesh, 2019). Logistics firms in India continue to play a key role in employment creation, export facilitation, and business competitiveness, but concerns about carbon emissions,

waste generation, and inefficient packaging have pushed the sector toward greener and more sustainable practices (Sugam, 2024; Jeena, 2024).

While the global logistics industry is shifting toward sustainability, the Kenyan context—especially Nairobi City County—presents a unique and urgent need for green practices. Nairobi is the country's main commercial hub and hosts the highest concentration of logistics firms responsible for urban distribution, warehousing, e-commerce fulfilment, and transportation. Rapid population growth, increased urban congestion, poor waste management, and rising fuel consumption have amplified the environmental burden of logistics activities in the city. Issues such as excessive packaging waste, inefficient warehouse energy use, rising carbon emissions from delivery fleets, and limited adoption of eco-friendly materials have created operational inefficiencies and increased costs for logistics firms. Consequently, integrating green practices—such as eco-design, green packaging, green warehousing, and reverse logistics—has become essential for improving firm performance, enhancing regulatory compliance, reducing environmental harm, and strengthening competitiveness within Nairobi's increasingly sustainability-conscious market. Despite their growing importance, the extent to which these green practices influence the performance of logistics firms in Nairobi City County remains underexplored, creating a critical research gap that this study seeks to address.

In Nigeria, 2018 saw an estimated $584 million (250 billion naira) in value assigned to the logistics sector (Oyewo & Oyedokun, 2019). Nigeria placed 110th in the Logistics Performance Index in 2020 (Adewole & John, 2019). Nigeria's logistics sector faces major hurdles poor port operations, weak infrastructure, strict regulations, bad roads, unstable power, corruption, and heavy taxes (Omigie & Kubeyinjie, 2022). Yet, its

growth is vital for reducing costs, boosting trade, and linking global markets. By 2018, the industry hit $584 million, rising $117 million from the prior year (International Trade Administration, 2024).

In Kenya, in the previous 10 years, Kenya's logistics and infrastructure have boosted the economy by 0.5% yearly per capita GDP growth (Kenya Logistics Infrastructure, 2021). Competition from many forms of transportation, including road, rail, and air freight, is fierce among numerous privately owned logistics companies. With 7.9% of GDP coming from the logistics industry, it is a major contributor to the economy (KNBS, 2019). During the years 2013–2018, the industry accounted for 9.7% of growth. 2018 saw an increase in growth to 8.8%. 62.9% of the industry's total output was produced by road transportation, which saw a 5.7% increase in output. Kenya's airline has become a leading carrier and a vital entry point into Africa (Kuteyi & Winkler, 2022) Similar to numerous other economies, a significant percentage of logistics companies control Kenya's market (KNBS, 2022). According to a Kenya Central Bureau of Statistics poll from 2022, logistics companies account for 60% of all enterprises, 7% of Kenya's GDP, and 75% of all new jobs created in the country. Logistics companies need to be maintained throughout time due to their significant economic contribution. Logistics firms help reduce unemployment, grow markets, and support new entrepreneurs forming Kenya’s economic backbone (Koskei & Wanjala, 2023).

1.1.1 Performance

Performance broadly means meeting business goals using financial and non-financial metrics (Siagian & Tarigan, 2021). Organizational performance reflects the methods used to fulfill duties and targets (Kamau, 2021). How quickly an organization finishes

every step of production can be used to gauge its performance. One indication that a business is doing well is a boost in output. These might be accomplished by boosting and improving manufacturing, giving the sector a competitive edge (Mun & Jang, 2018). The good and rising level of the end outputs is another sign of how effectively operating is carried out. Utilizing operation performance measurements, it is possible to assess an item's or service's development from creation through completion (Maiyo, 2020).

Another component of organizational performance is how well an organization performs in comparison to its competitors (Jiputra, Tarigan & Siagian, 2020). Notably, although financial results are typically used to gauge an organization's success, other aspects such as client satisfaction, generating value, operational efficiency, and organizational development ability are also considered (Mohammed, 2019). Organizational performance is viewed through leadership, market efficiency, and financial results, measured by accounting and market indicators (Matui, 2019). The effectiveness and transformation of the supply chain has a noteworthy and favorable sinfluence on organizational performance. The opportunity to incorporate the tying inside the business cooperation and management through commercial and interpersonal networks is provided by it (Kiarie, 2019).

Customer retention is made easier by more precise and efficient transactions, which are made possible by advancements in technological innovation (Singh & Rastogi, 2019). This opens the door for better results across the board (Wasike, 2020). Das Nair and Dube (2019) cite productivity, share of the market, profitability, and reputation/position as key organizational performance indicators. Omanwa (2020) used organizational growth, operational effectiveness, customer satisfaction, and sales success to gauge

performance inside an organization. Organizational performance was evaluated by Mutua and Kirui (2020) in terms of outsourcing, information exchange, and customer relationship management. Laradi (2019) evaluated how well a business performed in terms of inventory turnover, order fulfillment quality, sales growth, customer attention, and customer satisfaction. This study measured organizational performance in terms of service delivery, cost saving, timeliness and customer satisfaction.

1.1.2 Green Practices

Green practices in this study is defined as a framework that boosts labor efficiency and competitiveness while reducing energy use and environmental effect (Mutua, 2021)Green practices are important because they involve organizing information and product flows in a way that is both environmentally friendly and meets or exceeds customer expectations from point of inception to consumption (Mutua, Odock & Litondo, 2020).

Green practices involve methods like eco-packaging, carbon tracking, efficient fuel use, route planning, and reverse logistics (Weng & Chen, 2019; Mutua, Odock, & Litondo, 2020). Its application covers all tasks associated with organizing information and goods in an environmentally friendly manner to meet customer demands (Karaman *et al*. 2020). Green purchasing practices include green production, transportation, packaging and reverse logistics (Sevgi & Yavuz, 2018). Green practices techniques, including responsive packaging, eco-design, green purchasing, and reverse logistics, were examined by Mogeni and Kiarie (2019). The study assessed green practices eco-design, packaging, warehousing, and reverse logistics following Mogeni and Kiarie (2016) for their impact on eco-friendly logistics.

Eco-design focuses on minimizing environmental harm throughout a product's life, from raw materials to return flow (Seroka-Stolk, 2019). Firms must ensure designs meet sustainability standards and support reuse or recycling (Blomsma & Brennan, 2019).Works of literature already in existence do a good job of illustrating the significance of the design method for environmental management. Reuse is a term that refers to both the usage of a product without refurbishing and a way to conserve resources (Korhman, Nuur & Feldmann, 2018). Recycling is a method of turning waste materials into usable ones by gathering, processing, and repurposing them into new goods (Barakat, 2021). It was measured in the study in terms of product remanufacturing, recyclability, and environmental load assessment.

Green packaging refers to environmentally friendly packaging (Amika & Cheng, 2018). Green packaging demonstrates the financial representation of customer-transferable and intrinsic environmental concerns. Green communication enhances a company's reputation and demonstrates its concern for both the public and the environment (Sibel & Bulent, 2019). Packaging has benefits for both consumers and enterprises. For instance, the surface of packaging can serve as a platform for the exchange of many kinds of information. This comprises details about the components of the product, the cost, usage statistics, and other data that is pertinent to consumers (Barakat, 2021). Additionally, it is included into marketing plans to increase the allure of products for consumers, which leads to a reduction in the amount of unsold inventory (Ebiesouwa, 2022). It was assessed with use of quality materials, size of package and packaging style in the study.

Green warehousing involves aligning financial, social, and environmental factors in managing eco-friendly storage operations (Kassou & Bourrekkadi, 2021). A

sustainable green warehouse is a mix of organizational and technological innovations created to raise storage process productivity while reducing environmental effects, upholding the highest social standards, and maximizing financial productivity. In this perspective, green storage starts with green construction (Gupta, Soni& Kumar, 2019). Green storing standards should be followed in the planning and construction of the structure where the storage was housed. Green buildings must be properly heat isolated, adequate for product storage needs, climatic appropriate, and utilize renewable and efficient electricity in the storage (Sibel & Bulent, 2019). The use of solar panels in green storage allows for the heating and cooling of the storage in addition to utilizing energy from renewable sources for operational machinery and equipment. The reduction of power consumption by choosing to store tools and equipment with automation systems for product movement during storage management is another crucial component of green storage (Dhaif, 2021). It was assessed with proper storage, efficient distribution and agile materials in the study.

Reverse logistics activitiesinclude all recovery procedures wherein a corporation benefits economically, either directly or indirectly. In comparison to forward distribution of a new product, it is a more difficult and expensive operation (OurdiTaghzouti&Bourrekkadi, 2021). Depending on the reason for the return, the process varies. The activities involve major expenses in addition to the advantages. For a variety of reasons, the charges could alter throughout the product return procedure (El-Amrani, 2022). Reverse logistics tasks could need to be updated throughout the return process, or they might need to be performed in ways that are not necessary while the product is brand-new (Dhaif, 2021). The gathering and ordering of return materials, distribution and shipping, processing and remanufacturing of products, and storage are all considered to be reverse logistics activities.Because it might cut down on waste

produced by dealing with and getting rid of used and returning goods by using a range of disposition choices, reverse logistics is a crucial part of green practices. Reverse logistics projects that are effectively run can boost earnings, cut expenses, and boost customer satisfaction, resulting in long-term growth and a competitive edge(Banihashemi, Fei & Chen, 2019). It was assessed with waste control, lead time and backward distribution in the study.

1.1.3 Logistics Firms in Nairobi County

The modern logistics industry in Kenya can be traced back to the Kenya-Uganda railway. Kenya has a single corridor with a linear longitudinal logistics structure. The Northern corridor is home to a lot of economic activity and a lot of towns (GOK, 2019). Kenya's advantageous position as a point of entry into Eastern Africa (Burundi, Rwanda, Uganda, and Southern Sudan) has given rise to a flourishing logistics sector via Mombasa port. Private logistics firms compete along this corridor alongside road, rail, and air transport. The sector adds 7.9% to GDP (KNBS, 2018).

According to the Kenya Economic Survey (2019), Kenyan logistics firms operating in Nairobi County are performing poorly, as seen by the drop in growth rate from 5.4% in 2011 to 4.3% in 2018. Logistics companies face a variety of difficulties, including inability to secure financing for their projects, limitations on adopting novel technologies, inefficient accounting practices, low efficiency, inability to compete with imports, strict regulatory policies, a lack of business expertise and connections with major corporations, gender inequality, information access restrictions, and subpar safety and health at work standards. A weak foundation for economic take-off and long-term growth results from these limitations not being sufficiently addressed (KNBS, 2019).

Such a drop-in performance causes unemployment in Kenya, which fuels social inequities and criminal activity (KNBS, 2019). Therefore, the ability of the owners to strategize or adopt advantageous techniques played a crucial part in establishing the survival and growth of logistics companies. Kenya rates companies with a turnover between KHz 70 million and KHz 1 billion and audited financial statements over the last three fiscal years (KPMG, 2019). Kenya Airways posted a Ksh38.26 billion loss in 2022, more than double its previous deficit. Since 2018, its expansion efforts left it burdened with massive debt, leading to ongoing bankruptcy (Wanjala, 2023).

1.2 Statement of the Problem

The logistics sector, which generates 10% of the nation's GDP and 10% of all formal employment, constitutes one of the most important sectors in the nation (Mutua, 2021). However, they face challenges in implementing green practices that significantly affect their performance. A study found that while about 63% of logistics companies acknowledge the benefits of green logistics, only 24% have fully integrated these practices into their operations (Odock, Mutua, Ndungu & Mwangi, 2024). The high costs associated with adopting eco-friendly measures, such as fuel efficiency and carbon emission assessments, deter many firms from pursuing sustainability initiatives, leading to a stagnation in performance improvement despite the potential benefits (Mutua, Odock & Litondo, 2020).

Furthermore, regulatory pressures exist to adopt greener practices, yet compliance remains low (Kiama, Karanja & Nyang'au, 2024). Approximately 40% of logistics firms report insufficient knowledge regarding environmental management systems, which hampers the effective implementation of green logistics strategies. This lack of understanding contributes to a reluctance to invest in necessary changes, ultimately

impacting their competitiveness and environmental footprint in a rapidly evolving market (Kiplimo&Wachiuri,2024).Numerous studies on green practices and performance have provided this study with research gaps. For instance, Mutua (2021) examined the impact of green packaging as a green logistics technique on performance in the setting of Kenyan logistics companies and discovered a favorably significant effect.

In an investigation on how green warehousing affects business effectiveness in Greece, Trivellas, Mallindetros, and Reklitis (2020) found no appreciable effects. In Kenya, Yusuf (2020) looked into the performance of manufacturing firms and green packaging companies, with a particular emphasis on manufacturing firms. The performance of registered automobile enterprises in Kenya was examined by Chrisostom and Monari (2018) using a correlational study design. Using stratified sampling, Rop, Shalle, and Nteere (2021) analyzed how green warehousing relates to performance in Kenya's state corporations.

Cross-sectional research was used by Wakulele, Odock, Chepkulei, and Kiswili (2018) to examine how eco-design impacted the output of manufacturing firms in Mombassa, Kenya. Ademulegun, Adebambo, and Alabi (2022) examined how eco-design impacted the performance of Nigerian Bottling Company (NBC) in Nigeria. In Indonesia, Sunati, Fahwsi, and Wahyudi (2022) used the convenience sampling approach to assess how eco-design affected the operational effectiveness of textile enterprises. This study aims to assess how green logistics impacts firm efficiency in Nairobi, addressing conceptual, contextual, and method gaps.

1.3 Objectives of the Study

The study objectives are divided into two which include general and specific objectives.

1.3.1 General Objective

The main objective of the study was to assess the influence of green practices on the performance of logistics firms in Nairobi City County, Kenya.

1.3.2 Specific Objectives

Having considered the general objective of the study, the study specifically sought to:

i. Examine the influence of eco-design on the performance of logistics firms in Nairobi City County, Kenya.
ii. Evaluate the influence of green packaging on the performance of logistics firms in Nairobi City County, Kenya.
iii. Determine the influence of green warehousing on the performance of logistics firms in Nairobi City County, Kenya.
iv. Assess the influence of reverse logistics on the performance of logistics firms in Nairobi City County, Kenya.

1.4 Research Questions

i. How does eco-design affect the performance of logistics firms in Nairobi City County, Kenya?
ii. What is the influence of green packaging on the performance of logistics firms in Nairobi City County, Kenya?
iii. To what extent does green warehousing affect the performance of logistics firms in Nairobi City County, Kenya?
iv. What is the influence ofreverse logistics on performance of logistics firms in Nairobi City County, Kenya?

1.5 Significance of the Study

The outcome of the investigation was beneficial to the management of logistics companies because they were able to enhance green practices while aiming for performance enhancements. They would receive adequate recommendations in light of performance relationships and green logistical methods. The society would also gain from this research since they were more aware of environmentally friendly logistics methods and performance correlations in the context of Kenyan logistics companies.

This investigation was crucial for policymakers, offering key recommendations on how green logistics impacts firm performance in Kenya. It would support in identifying any loopholes in current legislation, allowing for the creation of new regulations aimed at preserving the environment while fostering industrial development. The study would serve as a preamble by outlining the outcomes that can be anticipated if particular guidelines are adopted by the sector.

Additionally, researchers and academicians would find the study to be quite important as they were provided with areas to explore when carrying out further research, hence the aspect from which they would benefit from this study. By providing further details on the idea of green logistics, the study would contribute and would be a crucial informational resource for academics in the field and a direction for additional research. Notably, suggestions for further researchers were put down at the end of this research exercise.

1.6 Scope of the Study

This study examines how specific green logistics practices—eco-design, green packaging, green warehousing, and reverse logistics—affect the performance of logistics firms in Nairobi City County. These four practices were selected because they represent the most critical sustainability functions across the logistics value chain, from product design to end-of-life management. Eco-design and green packaging directly shape environmental efficiency at the product and transport-preparation stages, while green warehousing enhances resource conservation within storage operations. Reverse logistics closes the loop by enabling waste reduction, reuse, and recovery, which is increasingly essential under global and national sustainability pressures. Guided by stakeholder theory, the resource-based view, and game theory, the study evaluates how these practices jointly contribute to operational and competitive performance. From a population of 742 logistics firms, 75 were randomly sampled, targeting management-level respondents. Data were collected through structured questionnaires and analyzed using descriptive statistics, correlation analysis, and regression modeling.

1.7 Limitations of the Study

Although this study was carefully designed, several methodological limitations were encountered. First, fear of blackmail or victimization made some respondents reluctant to participate. To mitigate this, the researcher assured participants that the study was strictly for academic purposes and emphasized confidentiality and anonymity. Second, work-related commitments among logistics personnel limited their availability, potentially affecting the response rate. This was addressed by administering questionnaires during work hours, allowing flexible response time, and providing an online version of the tool for convenience. Beyond participation challenges, the study

was also constrained by reliance on self-reported data, which may be prone to social desirability bias, especially in areas related to green practices. Additionally, the cross-sectional design restricted the ability to capture changes in green practices and performance over time. Despite these limitations, measures taken by the researcher helped enhance data quality and reliability.

1.8 Organization of the Study

The project was divided into three parts, with the first outlining the research issue and background. In addition, the overall and particular goals, research questions, study scope, and significance are documented in this section. The second chapter documented the review of literature based on empirical and theoretical works with regards to the subject matter. In addition, the research gaps identified from previous research works and the conceptual framework waspresented. The third chapter showed the various approaches and procedures regarding the methodology of the study are documented in this section. Target population, research design, and sampling technique was discussed in this chapter. In addition to this, procedures for the collection of data and subsequent analysis as well as presentation was documented. Chapter four analyzed respondent data and presented results in tables. Chapter five summarized findings, gave conclusions, offered recommendations, and suggested future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews relevant empirical and theoretical literature, highlights research gaps, and presents a visual conceptual framework linking variables.

2.2 Theoretical Review

Resource-based theory, stakeholder theory, and game theory was considered to underpin the associations between the study constructs.

2.2.1 Stakeholders Theory

Freeman introduced Stakeholder Theory in 1984. According to stakeholders' theory, companies should produce externalities that affect a broad variety of parties, both internal and external to the company. It acknowledges that the company is dedicated to groups of people or individuals who, aside from shareholders, may be particularly impacted by the decisions it makes or who have a clear and binding legal relationship with it. It is concerned with creating value to all stakeholders of a firm, not just the shareholders. An organization is a biosphere of related interest groups (internal and external) which should gain value for its long-term existence and success. The way and manner by which these elements influence performances of firms is explained by stakeholder theory.

The principle of contract cost brings out a fairness concept emphasizing that involved parties bear the cost of doing business to how much of an impact they made. Hence, in view of this, stakeholder theory largely underpins the study. Donaldson and Preston (2010) indicated that the theory further rests on the preposition that every legitimate

individual or groups which take part in business activities benefits from such activities and that priorities are not obvious to all rightful stakeholders. Even though the theory may be seen to lower the management's focus on shareholders' value creation, this approach is viewed as a powerful one in understanding firms in their underlying environments (Oakley, 2011). The stakeholders are generally considered to be vital for the operations and well-being of firms.

Firms are not likely to meet all the demands arising from all stakeholder groups due to the varying interest of each group (Werker& Ahmed, 2008). As such, key focus of this theorylies of enabling management to have better understanding of stakeholders while strategically managing these groups. Notably, the managerial significance of stakeholders' management has since become prominent in literature relating to performance of firms, this is as stakeholders' treatment largely relates to the long-term sustainability and survival of organizations. Hence, the stakeholder theory underpins the variable performance. Various groups and stakeholders affect and are being affected by the operations of logistics firms in Nairobi, Kenya.

The stakeholder theory has been criticized since it implies that an organization's connections with stakeholders, both internal and external, define all of its fundamental interests, leaving relatively few. The firm's interests alter in response to a change in those relationships. These interests are only a reflection of the deep connections the organization has; they are by no means innate (Key, 1999). Stakeholder theory aligns with the study's aim, promoting ethical and effective company management in unstable settings.

2.2.2 Resource-Based Theory

Wernerfelt introduced resource-based theory in 1984, later expanded by Barney in 1991. This theory holds the proposition that companies are bundles of unique capabilities and resources whichareimperfectly mobile across other companies. Hence, one strategy or operation compatible to one firm may not be to another not the net firm. Thus, there is a need to adopt firm specific resources for purposes of achieving optimum performance. A firm's competitive advantage becomes sustainable if they have special resources and talents that are difficult to replicate and not easily substituted (Barney, 1991).

The RBV Framework was first applied byHart (1995) brought environmental social responsibility to the forefront of his research on corporate social responsibility. According to Hart (1995), some organizations' environmental social responsibility consists of a resource or competence that generates a sustainable competitive advantage. Rare, valuable, unique, and irreplaceable resources can offer lasting competitive edge (Barney, 1991).The RBV framework for corporate social responsibility was first applied by Hart (1995). He restricted his research to environmental social responsibility. Environmental social responsibility, according to Hart, can be a resource or capability that gives some kinds of businesses a long-term competitive edge. Therefore, this theory supports organizational performance.

VRIN resources valuable, rare, unique, and irreplaceable are seen as neither essential nor enough for sustaining advantage. They argue that the worth of a resource is too ambiguous to support a meaningful theory. Furthermore, it is not practical to define a resource. Since green logistics practices are resources, they should be developed to match the RBV's definition of precious, rare, and unique. One resource that fits nicely

into this approach is having the skills and knowledge necessary for green logistics. Given that it can increase organizational performance and competitiveness, it is a strategic resource. Performance within the organization is the dependent variable, and this is supported by the theory,so, rendering the theory applicable to the ongoing study.

2.2.3 Game Theory

Game theory, introduced by John Neumann in 1944, explains how joint logistics efforts like shared transport and order handling can cut costs and boost efficiency (Pan et al., 2012; Cruijssen et al., 2007). It studies decision-making among interdependent players, especially in conflict or cooperation scenarios (Xu et al., 2013; Dai & Chen, 2012). These agents could be any combination of persons, groups, or companies, or even all three. Game theory concepts provide a lexicon for organizing, deciphering, and understanding strategic dilemmas (Dai & Chen, 2012).

Granted these benefits, Muir's (2010) research indicates that horizontal collaboration is not commonly employed in logistics. A significant obstacle to the deployment of horizontal collaboration is the absence of a suitable paradigm for making decisions (Xu, 2013). In order to aid in decision-making, a cooperative game-theoretic methodology was applied to evaluate the effect that logistics efficiency on transportation had on organizational performance. Cooperation took place between companies that compete on an equal footing with one another and required the sharing of private information and logistical resources (Drechsel&Kimms, 2010). By reducing logistics expenses (Cruijssen, 2007), for example, or diminishing the influence of transportation on the environment (Pan, 2011), the goal was to boost logistics efficiency.

The cost of transportation was the main focus of the idea.Horizontal collaboration in logistics can save transportation costs by 10% or more, according to research that has

been published in the literature (Groothedd, 2005; Ergun, 2007; Pan, 2011). Given the magnitude of Kenya's industrial sector, it was a considerable share. According to the theory, interaction procedures must be exact, but in practice, they are frequently unclear. The theory frequently offers a large number of equilibria with no method to select one. The game theory hypotheses served as a guide for the inquiry of how logistics practices affect performance. Hence, this theory supports logistics practices which include green packaging, reverse logistics, green warehousing and eco design.

2.3 Empirical Review

The empirical review section focuses on examining existing studies and research findings related to green practices and their impact on organizational performance, particularly within the logistics sector. This section provides a critical analysis of how various green practices, including eco-design, green packaging, green warehousing, and reverse logistics, influence firm performance in different contexts. By reviewing empirical evidence from previous studies, the research seeks to identify patterns, similarities, and gaps in the literature, which will inform the current study.

2.3.1 Eco - Design and Performance of Logistics Firms

Wakulele, Odock, Chepkulei, and Kiswili (2018) investigated how eco design affected the productivity of manufacturing companies in Mombasa, Kenya. A cross-sectional survey research design was used for this investigation. It was directed at a group of Mombasa County manufacturing companies that were identified by the Kenya Association of Manufacturers which served as Target population. Utilizing questionnaires, information was gathered on a sample of 65 businesses. The use of descriptive and inferential statistics was made. Eco design was assessed by utilizing eco-labeling. As most manufacturing companies had thought about adopting eco-design

approaches, the data gathered showed that adoption was at the planning/implementation stage.

According to research, eco-design approaches have a favorable influence on the effectiveness of a company, with the financial and environmental performance areas seeing the most effects. The study suggested that in order to guarantee success, lessen failure-related anxiety, and promote environmental sustainability, manufacturing companies should receive adequate training and empowerment on how to apply Eco-design methods. The earlier study, which took place in Nairobi County, used a cross-sectional design. Hence, the present study utilized descriptive research design and take place in Nairobi County, thus demonstrating a methodological gap.

Ademulegun, Adebambo, and Alabi (2022) looked into how eco-design affected Nigerian Bottling Company's performance. The study used a quantitative approach, selecting 202 NBC staff involved in eco-design through simple random sampling. Data was collected via standardized questionnaires and analyzed using SPSS and PLS-SEM. Findings revealed moderate eco-design levels across supply, transport, production, usage, and disposal stages. The study suggested that in order to improve their performance, businesses should concentrate more on choosing low-impact materials and make an effort to use low-energy products. The aforementioned study took place in Nigeria and utilized a cross-sectional research design. Descriptive research approach was employed in this investigation and be done in Kenya, thereby indicating methodological and geographical gaps.

Sunati, Fahwsi, and Wahyudi (2022) evaluated the effects of eco design on the operational effectiveness of Indonesian textile companies. Descriptive research design was adopted. The textile industry's customers in Indonesia provided the data and served

as target population. Convenience sampling was the method employed for sampling. Out of 520 issued questionnaires, 394 were valid for analysis, yielding a 74% response rate. Data, collected through convenience sampling, was entered into Excel and analyzed using PLS-SEM. The study's conclusions showed that internal management of the environment and eco-design greatly influenced the performance of the organization. The investigation recommended that organizations should focus more on selecting minimally disruptive materials to improve their efficiency. The prior study, set in Indonesia, applied convenience sampling, while the current Kenyan study used random sampling highlighting both location and method gaps.

2.3.2 Green Packaging and Performance of Logistics Firms

Mogeni and Kiarie (2016) examined how reverse logistics affects supply chain outcomes in Kenyan multinationals, using descriptive and exploratory methods to assess corrective measures. While focusing on ten multinational institutions in Kenya, respondents were drawn from environment specialists, human resources officers, procurement as well as administrators and at least four senior officers were selected from each category. Census method of sampling was implemented. Green packaging was measured in terms of waste control and compliance with regulation.

Empirical findings indicate that green packaging had strong effects on performance ofmultinationalorganizations in Kenya. Descriptive and inferential statistics were utilized by the investigation. In order to evaluate their findings with this investigation and to conduct a comparison investigation for later initiatives in this field, the study recommended comparable research to that of other national groups.Apart from focusing on logistics firms, the current study additionally considered green

warehousing as one of the specific objectives which was isolated in the previous study thereby demonstrating a conceptual gap.

Yusuf (2020) investigated green packaging and manufacturing companies' performance for Kenya. Using a positivist and explanatory design, data was gathered through questionnaires from 330 randomly selected firms out of 943 registered manufacturers in Kenya (Kenya Association of Manufacturers, 2017). Green purchasing was assessed in terms of space utilization and waste control. Descriptive and inferential statistics were applied. Green packaging was found to significantly influence the performance of Kenyan manufacturing firms. The investigation recommended that it is important for the firms to adopt distribution channels which are characterized by low impact on the environment. The investigation was focused on businesses in the manufacturing sector of Kenya and in filling this gap; logistics firms in Nairobi Kenya was explored thereby depicting a conceptual gap.

Mutua (2021) examined the impact of green packaging on logistics firm performance in Kenya. Using a positivist, cross-sectional design, 300 firms were sampled from 892, with a 71% response rate. Data analyzed via CB-SEM showed green packaging positively influences operational effectiveness. It was advised that Kenyan logistics companies adopt eco-friendly procedures both internally and throughout the entire supply chain. The earlier study used a cross-sectional design, whereas the current one applied a descriptive approach, revealing a method gap.

Rop, Shalle and Nteere (2021) evaluated green packaging influence on performance of Kenya's commercial state Corporations. Based on ten Kenyan commercial state corporations (Kenya Seed Company, Kenya Airport Authority, Kenya Literature Bureau, Chemelil Sugar Company, Jomo Kenyatta Foundation, Kenya Ordinance

Factories Bureau, Kenya Railways Corporation, Kenya Broadcasting Corporations, East African Portland Cement Company as well as Kenya Electricity Generating Company), stratified sampling was employed and a sample size of 175 was arrived at Descriptive design was used and primary data based on both closed and open ended questions was collected.

The study evaluated green packaging using three criteria: suppliers' use of environmentally friendly procurement practices, technological product or material recycling, and usage of green raw materials. Descriptive and inferential tools showed green packaging strongly influenced Kenyan public firms' performance. The report urged manufacturers to adopt green purchasing per legal standards. Unlike the earlier public-sector focus, this study examined Nairobi logistics firms, revealing a conceptual shift.

2.3.3 Green Warehousing and Performance of Logistics Firms

Yusuf (2020) analyzed the effect of green warehousing on manufacturing companies' performance in Kenya. Explanatory research design was implemented. A positivist design guided data collection from 330 randomly selected firms out of 943 manufacturers listed by Kenya Association of Manufacturers (2017). Green warehousing was measured in terms of lifecycle assessment analysis.Empirical findings based on regression analysis indicated that green warehousing and performance have positive nexus for manufacturing companies in Kenya. The investigation indicated that it is keyfor the organizations to adopt distribution channels which are characterized by low impact on the environment. Descriptive and inferential methods were used to analyze data. The study advised firms to adopt eco-friendly distribution channels.

Though the study enriched green logistics research, its focus remained on Kenya's manufacturing firms.

To investigate the connections between green warehousing and company performance in Greece, Trivellas, Mallindetros, and Reklitis (2020) conducted a study. Descriptive method of design was employed.A uniform self-administered questionnaire that was completed in person during interviews, mostly with executives of businesses involved in the agri-food supply chain, was used to conduct the empirical research. Eight managers from the agri-food supply chain's processing businesses, retailers, and wholesalers tested the survey tool twice. 134 valid surveys were produced as a result of this approach. The use of descriptive statistics and various regression models was made. The findings indicated that logistics networking, transportation, and information exchange have the biggest effects on supply chains, businesses, and sustainable performance. Additionally, there was no connection found between green warehouse and logistics emissions and performance results. The study suggested that executives should look at green supply chain methods since they will improve performance and protect companies in a volatile market. The previous study took place in Greece and focused on agri-food chains while the recent study took place in Kenya and focus on logistic firms, thereby demonstrating contextual and conceptual gaps.

Rop, Shalle and Nteere (2021) assessed green warehousing and performance relationships in the context of Kenya's commercial state Corporations. Descriptive research design was adopted. Ten Kenyan commercial state firms including Kenya Railways, Airport Authority, and Electricity Generating Company formed the study's population. Stratified sampling yielded 175 respondents. Data, drawn from mixed-format questionnaires, was analyzed descriptively. The study urged manufacturers to

adopt green purchasing in line with legal standards. The study documented that green warehousing and performance of public corporations in Kenya had significant relationships. Unlike earlier research focused elsewhere, this study examined Nairobi logistics firms, revealing a conceptual distinction.

2.3.4 Reverse Logistics and Performance of Logistics Firms

Mogeni and Kiarie (2016) examined the effect of reverse logistics Practice on supply chains effectiveness with focus on Multinational Organizations in Kenya. Ten (10) multinational institutions in Kenya were considered based on environment specialists, human resources officers, procurement as well as administrators and at least four senior officers were selected from each category. This study used both qualitative and quantitative methods, relying mainly on questionnaires and census sampling, with data drawn from primary and secondary sources.

Descriptive statistics were used to illustrate the findings. Reverse logistics was measured in terms of backward distribution and lead time. It was reported that reverse logistics and performance had significant relationships with respect to Multinational Organizations in Kenya.In order to verify their findings with this investigation and to conduct a comparative analysis for potential future initiatives in this field, the study suggested conducting similar investigations with other national organizations. Prior study utilized descriptive and exploratory research approach while current investigation employed descriptive method of design thereby demonstrating a methodological gap.

Chrisostom and Monari (2018) explored how reverse logistics affects performance in Kenyan automotive firms. Using correlational design, they sampled 170 heads from a pool of 305, guided by Fischer's model. Primary data based on interviews and

questionnaires were collected where descriptive and inferential analysis was used in analyzing quantitative data.

It was reported that reverse logistics had positive correlation and noteworthy influence on effectiveness, based on correlation and regression analysis respectively. The study advised enhancing green logistics to boost firm performance, especially within the automotive sector. The study focused on Kenya, however despite being in a similar geographical location with the current investigation, correlational research approach was adopted whereas descriptive research approach was adopted in recent study, thus demonstrating a methodological gap.

Mutua (2021) assessed how reverse logistics impacts Kenyan logistics firms' performance. Using a cross-sectional survey, 300 firms were sampled from 892, with a 71% response rate. Structured questionnaires provided primary data, analyzed through CB-SEM. Results showed reverse logistics significantly improved operational efficiency. Additionally, the report recommends that in order to guarantee the sustainability of both the present and future generations, green logistics techniques should be promoted. This study focused on Nairobi-based logistics firms and introduced green warehousing as a predictor, marking a conceptual shift.

Rop*et al*. (2021) studied green logistics adoption effects on the performance with focus on Kenya's commercial state Corporations. Ten Kenyan commercial state corporations were sampled which were Kenya Seed Company, Kenya Airport Authority, Kenya Literature Bureau, Chemelil Sugar Company, Jomo Kenyatta Foundation, Kenya Ordinance Factories Bureau, Kenya Railways Corporation, Kenya Broadcasting Corporations, East African Portland Cement Company as well as Kenya Electricity Generating Company. Using stratified sampling, 175 respondents were selected. The

study applied a descriptive design, collecting primary data through mixed-format questions. Analysis involved both descriptive and inferential statistics. It recommended full adoption of green procurement aligned with legal standards. It was reported that reverse logistics had noteworthy effects on effectiveness of public corporations in Kenya. Rather than focus on public corporations, this study was on logistics firms in Nairobi, Kenya, thus showing a conceptual gap.

2.4 Summary of Literature Review and Research Gaps

Table 2.1: Summary of Literature Review and Research Gaps

Author/Year	Focus of the Study	Research findings/outcome	Research Gaps	Focus of the current study
Ademulegun, Adebambo, and Alabi (2022)	Looked into how eco-design affected Nig erian Bottling Company's (NBC) performance	The study's conclusions showed that the level of eco-design practices in the investigation area is moderate in terms of design for supplies, shipping, production, product use, and end-of-life practices.	The aforementioned study took place in Nigeria and utilized a cross-sectional research design, thereby demonstrating contextual and methodological gaps.	The current study utilized a descriptive research design and be done in Kenya.
Sunati, Fahwsi, and Wahyudi (2022)	Evaluated the effects of eco design on the operational effectiveness of	The study's conclusions showed that internal management of the environment and eco-	The aforementioned study used convenience sampling and	The recent study utilized simple random

	Indonesian textile companies.	design had a big impact on organizational performance.	Indonesia as its study environment, thereby showing methodological and geographical gaps	sampling and be done in Kenya.
Mutua (2021)	Reverse logistics practice effects on performance of logistics firms situated in Kenya.	The empirical findings revealed that reverse logistics had significant effect on performance of logistics firms in Kenya which was based on covariance-based structural equation modelling (CB-SEM).	Green warehousing was isolated, thereby indicating a conceptual gap	The context of the current study was logistics firms in Nairobi Kenya. Additionally, green warehousing was further considered as a predictor variable.
Rop, Shalle and Nteere (2021)	Green warehousing and performance relationships in the context of Kenya's commercial state Corporations.	The study documented that green warehousing and performance of public corporations in Kenya	The study was done in the context of Kenya's commercial state	This study differs from the previous research since it was centered on

		had significant relationships.	Corporations, thereby demonstrating a conceptual gap	logistics firms in Nairobi, Kenya.
Yusuf (2020)	Green packaging and manufacturing companies' performance relationships for Kenya	It was reported that green packaging had strong effect on performance of manufacturing companies in Kenya.	The study was focused on firms in the manufacturing sector of Kenya, thereby depicting a conceptual gap	Logistics firms in Nairobi Kenya was explored.
Wakulele, Odock, Chepkulei, and Kiswili (2018)	Investigated how eco design affected the productivity of manufacturing companies in Mombassa, Kenya.	According to research, eco-design approaches have a favorable influence on the effectiveness of a company, with the financial and environmental performance areas seeing the most effects.	The earlier study, which took place in Nairobi County, used a cross-sectional design, thereby indicating a methodological gap.	The present study utilized descriptive research design and take place in Nairobi County.
Chrisostom and Monari (2018)	Influence of green logistics management (reverse logistics) on registered automotive companies'	It was reported that reverse logistics had positive correlation and significant effect on performance	Despite being in a similar geographical location with the current study, correlational	Focus was logistics firms in Nairobi, Kenya

	performance in Kenya.		research design was utilized thereby demonstrating a methodological gap.	

Source: Researcher (2023)

2.5 Conceptual Framework

Green logistics, as captured by eco-design, green packaging, reverse logistics, and green warehousing, form the predictor variables of the investigation, while the dependent variable is organizational performance in the context of logistics firms in Nairobi, Kenya.

Independent Variable **Dependent Variable**

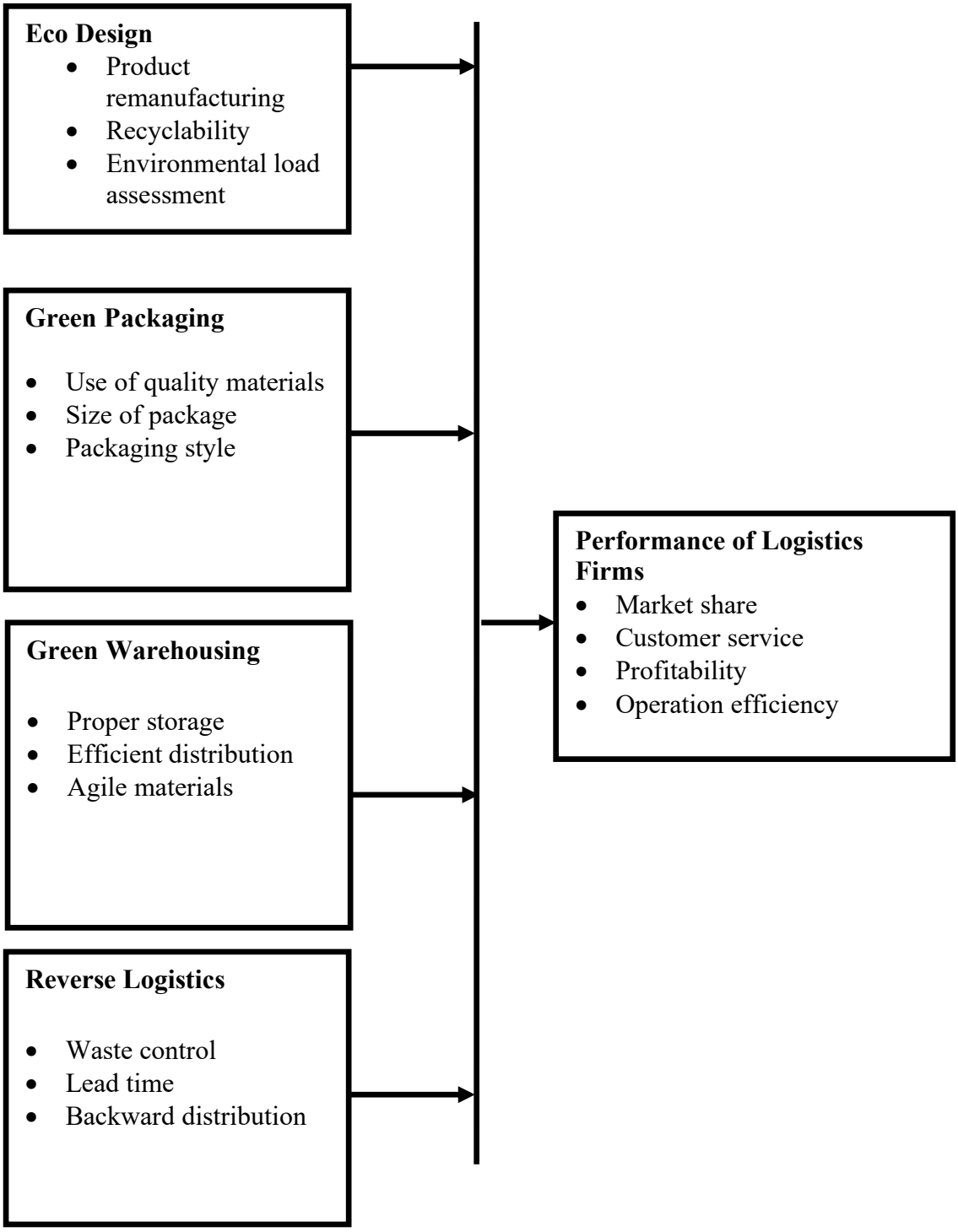

Figure 2.1: Conceptual Framework

Source: Researcher (2023)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The various approaches and procedures regarding the methodology of the investigation are documented in this section. Target population, research design, sampling technique was discussed in this chapter. In addition to this, procedures for the collection of data and subsequent analysis as well as presentation were documented in the sub sections of this chapter.

3.2 Research Design

A research design provides the structural plan for addressing the study objectives, and in this investigation, a descriptive research design was adopted because it aligns directly with the nature of the study variables. The objectives—examining eco-design, green packaging, green warehousing, and reverse logistics in relation to firm performance—require collecting detailed, factual, and current information from logistics firms as these practices exist in real operational settings. Descriptive design is therefore appropriate because it enables the researcher to systematically capture respondents' perceptions, practices, and organizational experiences without manipulating any variables (Saunders et al., 2012). Unlike exploratory designs, which seek to discover unknown phenomena, or explanatory designs, which test causal relationships, this study focuses on documenting and describing the extent and influence of green practices as they are currently implemented. Consequently, the descriptive design offers the most suitable framework for obtaining accurate, comparable, and representative data across logistics firms in Nairobi City County (Mugenda, 2008).

3.3 Target Population

A population is defined as the entire group of individuals, organizations, or elements that share common characteristics relevant to a particular study (Kombo & Tromp, 2006). In this study, the target population comprised 420 logistics firms registered under the Kenya International Freight and Warehousing Association (KIFWA), representing formal logistics operators within Nairobi City County (KIFWA, 2023).

To determine an appropriate sample for analysis, the study adopted Slovin's formula, which is suitable when the level of variance in the population is unknown. A 5% margin of error was applied because it is widely accepted in social science research as a balance between precision and feasibility—allowing the researcher to obtain a sufficiently large sample for statistical reliability while maintaining practicality in terms of time and cost. Using this margin of error resulted in a sample size of 205 firms, which is considered representative of the 420 firms, ensuring that the sample adequately reflects the characteristics of the entire population for generalization of findings.

3.4 Sample Size and Sampling Design

Sampling refers to the procedure of selecting a portion of a target population to participate in a study so that the findings can be generalized to the entire population. According to Mugenda and Mugenda (2013), sampling ensures that the selected elements adequately represent the characteristics of the population.

In this study, the target population comprised 420 logistics firms registered under the Kenya International Freight and Warehousing Association (KIFWA). To ensure that each firm had an equal and independent chance of selection, the study adopted a simple random sampling technique. A complete sampling frame was first obtained from the KIFWA membership register. Each firm on the list was assigned a unique identification

number, after which a computer-generated random number procedure was used to select the participating firms. The sample size was determined using Slovin's formula, as applied in previous logistics research (Mutua, 2021), enabling the researcher to draw a representative sample while maintaining acceptable precision levels.

$C= N/ [1+Ne^2]$

Where C =sample size the sample size

N= total population

e= error tolerance.

Ariola (2006) notes Slovin's error margin ranges from 0.01 to 0.05; this study used the standard 0.05.

$C= 420/ [1+420(0.05)^2]$

C= 204.8

C= 205.

3.5 Data Source and Collection Instruments

A structured questionnaire with closed-ended items was used to gather respondent views. As defined by Hair et al. (2015), data collection tools support research processes, while Sekaran & Bougie (2016) describe questionnaires as instruments with targeted questions. This tool captured demographic details first, then data on key variables. Designed with a 5-point Likert scale for clarity and speed, the questionnaire had two parts: respondent background and variable-specific questions.

3.6 Pilot Test

Sekaran and Bougie (2016) emphasize pilot testing as key to assessing research tool accuracy. Eight participants joined the pilot but were excluded from final data collection. Ten percent of the main sample guided the pilot size. Twenty questionnaires were issued to logistics firm supervisors, helping verify response consistency and questionnaire reliability.

3.6.1 Validity of the Instrument

Cooper and Schindler (2011) define validity as how effectively a tool measures intended concepts. This study applied content and construct validity content to ensure items matched the subject, and construct to confirm the test reflected the intended idea.

3.6.2 Reliability of the Instrument

Reliability reflects a tool's ability to produce consistent results across similar conditions (Hair et al., 2015). If repeated measures yield identical outcomes, the tool is reliable; differing results suggest otherwise (Cooper & Schindler, 2014). SPSS was used to test reliability, with coefficients above 0.7 confirming adequacy (Babbie, 2010).

3.7 Data Collection Procedure

Permission to conduct the study was sought from NACOSTI. Introductory and consent letters were prepared, and meetings held with relevant officials to explain the study's purpose. Upon approval, questionnaires were distributed using the drop-and-pick method over four weeks to enhance response accuracy and reliability.

3.8 Data Analysis and Presentation

After field data collection, responses were cleaned, organized, and entered into SPSS for analysis. The software handled raw data entry, cleaning, and advanced statistical

procedures. Data analysis involved inspection, transformation, and modeling to extract insights, support conclusions, and guide decisions. Descriptive statistics means, percentages, standard deviations, frequencies, and cross-tabulations were used to profile respondents and organizations. Multi-linear regression tested relationships between independent and dependent variables, revealing their significance and interconnections.

$$Y = ß_0 + ß_1X_1 + ß_2X_2 + ß_3X_3 + ß_4X_4 + e$$

Where:

Y= Performance of Logistics Firms

$ß_0$= Constant

$ß_1$ to$ß_4$=Variable Coefficients

X_1= Eco Design

X_2 = Green Packaging

X_3 = Green Warehousing

X_4 = Reverse Logistics

E= Error

3.9 Ethical Considerations

The University provided the researcher with an authorization letter, after which a research permit was obtained from the National Commission for Science, Technology and Innovation (NACOSTI). Prior to data collection, all respondents were informed about the purpose of the study and their rights, after which informed consent was voluntarily obtained. Participants were assured that their personal information would remain confidential and would not be shared with any third parties. All sensitive data, including organizational details and individual responses, were securely stored in

password-protected digital files accessible only to the researcher. Respondents were informed that they could withdraw from the study at any point without penalty or explanation. To minimize potential researcher bias, standardized data collection procedures were followed, and responses were recorded objectively without manipulation or influence from the researcher. Furthermore, no identifying personal or institutional details were disclosed in any written report or communication platform.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter examined study results using descriptive and inferential statistics. Findings aligned with objectives, and data quality checks confirmed reliability.

4.1.1 Response Rate

This section outlines participant feedback, emphasizing completed questionnaires and comparing them with those unreturned. Table 4.1 presents the analysis.

Table 4.1: Response Rate

Response	Frequency	Percent
Retrieved	172	83.9
Unretrieved	33	16.1
Total	205	100

Source: Field Survey (2025)

Table 4.1 shows that 172 of 205 questionnaires were returned, yielding an 83.9% response rate. This reflects strong participant interest in green practices and their effect on logistics firm performance in Nairobi. The 16.1% unreturned forms indicate a small feedback gap. Overall, the high return rate strengthens the study's credibility and signals growing stakeholder attention to sustainable logistics.

4.2 Demographic Information of the Respondents

Respondents' demographic details gender, age, education, and experience highlight the diversity within the study group. These factors shaped their views on green practices and logistics firm performance in Nairobi. Table 4.2 presents the demographic breakdown.

Table 4.2: Demographic Information of the Respondents

	Frequency	Percent
Sex		
Male	103	59.9
Female	69	40.1
Total	**172**	**100.0**
Age		
Below 25 years	71	41.3
25-50 years	86	50.0
Above 50 years	15	8.7
Total	**172**	**100.0**
Educational Qualification		
Secondary School	2	1.2
Diploma	29	16.9
Bachelors	88	51.2
Masters	36	20.9
PhD	3	1.7
Others	14	8.1
Total	**172**	**100.0**
Years of work experience		
Below 5 years	22	12.8
5-10 years	75	43.6
Above 10 years	75	43.6
Total	**172**	**100.0**

Source: Field Survey (2025)

Table 4.2 showed that 59.9% of the respondents are male and 40.1% are female. This allocation gives the impression that the majority of the people involved in the study are male, which is a historical trend in the logistics industry in Nairobi County, Kenya. The high number of males can be explained by gender stereotypes and the cultural expectations that in the past predisposed to men occupations in the field of logistics and transportation. Moreover, the logistics industry in Nairobi County, as most others, has historically been male dominated, which may restrict women participation and representation in the field.

Table 4.2 disclosed that 41.3% of the respondents were below 25 years of age, amounting to 71 individuals. The largest group comprised those aged 25-50 years,

which accounted for 50.0% or 86 respondents. In contrast, only 8.7%, equating to 15 respondents, were above 50 years old. As it was revealed in Table 4.2, 41.3 percent of the respondents were under 25 years of age, which was 71 people. The biggest group was that of 25-50 years old with 86 respondents that constituted 50.0%. However, the proportion of respondents younger than 50 was 8.7 or 15 respondents who were above 50 years old. Such age structure points to a youthful and middle-aged workforce, which can benefit the implementation of green practises because of their flexibility and understanding of environmental concerns, which is also consistent with global dynamics where the contribution of the younger generations to environmental movement has been stressed. This trend can be explained by the fact that the majority of the respondents fell within the age bracket 25-50 years since most of them are in their working age thus they are in the active stage of their career progressions and seek to be offered good opportunities to improve themselves in terms of career and professional development. Moreover, people within this age bracket usually have a combination of experience and flexibility hence are well placed to adopt new practises, such as sustainable logistics.

Table 4.2 also reported that 51.2 percent of the respondents had held a Bachelor degree, which is 88 people, and 20.9 percent had a Masters degree which is 36 people. Then a smaller portion of the population had a Diploma at 16.9% (29 respondents) and the proportion of secondary school was 1.2% (2 respondents). Moreover, 1.7% (3 respondents) and 8.1% (14 respondents) included those with a PhD, and the remaining 1.7% (3 respondents) and 8.1% (14 respondents) belonged to the category of Others that probably corresponds to different certifications or qualifications that were not stipulated in the study. The high number of Bachelor degree holders is explained by the growing educational demands in the logistics industry where employers tend to demand

higher qualified candidates to handle complex supply chain operations successfully. Moreover, with the logistics sector being transformed to be green, there is increasing focus on recruiting people who are not just learned but also competent in sustainability and environmental management.

Table 4.2 shows that 12.8% (22 respondents) had under five years' experience, while 43.6% (75) had five to ten years.The distribution of experience also demonstrated a balanced representation of both middle-level and highly experience professionals in the logistics industry with 43.6 percent marking an equal percentage of over ten years of experience. The high percentage of the respondents with five to ten years and above ten years of experience makes it appear that the logistics sector in Nairobi is appealing to individuals who have acquired adequate skills to make a positive impact on the green practises. This experience is important because the professionals will be equipped with the knowledge they need to achieve the sustainable logistics strategies that will improve their efficiency in operations and their environmental performance.

4.3 Pilot Study Analysis

The results of any research study are meaningful in coming up with legitimate conclusions on what is being researched. Given this, the key concern is whether the tool can consistently gather data that ensures valid, dependable results. Cronbach Alpha, a coefficient ranging between 0 and 1, was launched with this. Any value less than 0.7 is termed weak, and therefore, a pilot result at this level would imply a reconsideration of the research instrument, and any construct whose values exceed 0.7 are regarded as acceptable to obtain a sound and valid pilot result. Table 4.3 records the results.

Table 4.3: Reliability Analysis

Construct	Reliability Cronbach's Alpha
Organisational Performance	.826
Eco Design	.721
Green Packaging	.925
Green Warehousing	.761
Reverse Logistics	.861
Mean	.819

Source: Field Survey (2025)

Table 4.3 presents pilot results, showing all constructs had Alpha values above 0.7. Organisational performance scored 0.826, eco design 0.721, green packaging 0.925, green warehousing 0.761, and reverse logistics 0.861. The cumulative result of all these constructs was a mean value of 0.819 that exceeds the acceptable value of 0.7. This proves that the constructs were good measures of the intended purpose of the investigation. These results are consistent with those of Rousson, Gasser and Seifer (2012), who stated that alpha value greater than 0.7 indicates acceptable reliability.

4.4 Descriptive Analysis

This study relied on descriptive analysis to interpret key data traits. Using statistical summaries, it highlighted trends, patterns, and averages from respondent feedback. These insights deepened understanding and supported later inferential tests, helping draw conclusions aligned with research aims. The analysis centered on study variables, presenting response percentages, means, and standard deviations.

4.4.1 Eco Design

Eco design focuses on reducing environmental harm across a product’s lifecycle from creation to disposal. It promotes sustainable materials, energy-saving methods, and minimal waste. By embedding ecological factors into design, it supports circular

economy goals while meeting user expectations. Table 4.4 presents respondent feedback.

Table 4.4: Descriptive Statistics of Eco Design

Item	Responses					Mean	St. Dev
	SD	D	N	A	SA		
	%	%	%	%	%		
We have good recycling facilities	5.8	8.1	21.5	35.5	29.1	3.7384	1.13742
Products undergo proper remanufacturing	1.7	2.3	11.6	51.2	33.1	4.1163	.82955
We carry out biomedical load assessment	2.3	1.7	9.3	48.3	38.4	4.1860	.85171
Recyclability enhances organization performance through eco design	1.2	0.6	11.0	50.0	36.6	4.5058	3.94479
We undergo lifecycle assessment to detect environmental load	6.4	4.7	12.2	47.1	29.7	3.8895	1.08391
	Av. Mean = 4.0872; Av. St. Dev = 1.56948						

Source: Field Survey (2025)

Table 4.4 demonstrated the responses of the respondents' concerning recycling facilities where it is noted that 5.8% of respondents strongly disagreed as supported by 8.1% of the respondents who disagreed. In addition, 21.5% of the respondents remained impartial, suggesting indifference towards the effectiveness of these facilities, while a significant 35.5% agreed and 29.1% strongly agreed that good recycling facilities are available. A mean of 3.7384 and standard deviation of 1.13742 indicates respondents generally agreed on the sufficiency of recycling facilities, showing favorable views toward existing eco-design efforts.

Regarding the remanufacturing processes for products, 1.7% of respondents strongly disagreed and 2.3% disagreed indicating a small segment of participants who do not believe that products undergo proper remanufacturing. Furthermore, 11.6% of the respondents remained nonaligned as 51.2% of the respondents agreed that proper

remanufacturing occurs and 33.1% strongly agreed that proper remanufacturing occurs. The mean of 4.1163 and standard deviation of 0.82955 suggest that there is a positive sentiment towards eco-design initiatives related to remanufacturing.

Regarding biomedical load assessments, 2.3% strongly disagreed, 1.7% disagreed, and 9.3% were neutral indicating limited doubt about proper execution. Meanwhile, 48.3% agreed and 38.4% strongly agreed, showing broad support. A mean of 4.1860 and standard deviation of 0.85171 suggest firms view the practice positively. The statement on the impact of recyclability on organizational performance reported 1.2% of respondents who strongly disagreed as only 0.6% of the respondents disagreed believe that recyclability does not enhances organizational performance through eco-design as 11.0% offered no view. Results showed 50.0% agreed and 36.6% strongly agreed that recyclability boosts organizational performance. A mean of 4.5058 and standard deviation of 3.94479 indicate favorable views on integrating recyclability into eco-design.

The respondents' perceptions of the practice of conducting lifecycle assessments to detect environmental loads showed that 6.4% of respondents strongly disagreed and 4.7% disagreed with 12.2% of the respondents who remained indifferent. The outcome noted that 47.1% of the participants agreed that lifecycle assessments are indeed conducted and 29.7% strongly agreed. A mean of 3.8895 with a 1.08391 deviation shows respondents leaned toward agreement on lifecycle assessments in eco-design. Similarly, a 4.0872 mean and 1.56948 deviation reflect consensus on eco-design’s role in enhancing logistics firm performance in Nairobi.

The findings agree with those of Ademulegun, Adebambo, and Alabi (2022) indicated that the adoption of eco-design practices in the study region is moderate, encompassing

areas such as supply design, shipping, production, product use, and end-of-life practices. Wakulele, Odock, Chepkulei, and Kiswili (2018) revealed that eco-design strategies positively impact a company's effectiveness, particularly in financial and environmental performance areas. Additionally, Sunati, Fahwsi, and Wahyudi (2022) demonstrated that effective internal environmental management and the integration of eco-design significantly enhance organizational performance.

4.4.2 Green Packaging

Green packaging reduces environmental harm by using recyclable, biodegradable, or renewable materials like plant-based plastics and recycled paper. This shift lowers carbon emissions and cuts fossil fuel use. Rising demand for eco-friendly products pushes firms to adopt such packaging, boosting brand trust and supporting sustainability in logistics. Respondent opinions appear in Table 4.5.

Table 4.5: Descriptive Statistics of Green Packaging

Item	Responses					Mean	St. Dev
	SD	D	I	A	SA		
	%	%	%	%	%		
We use quality materials in packaging of goods	4.1	1.2	2.9	31.4	60.5	4.4302	.93083
We ensure that goods are in the right sizes	4.7	2.3	16.9	57.6	18.5	3.8314	.91801
We have fashionable packaging style in line with green logistics	3.5	4.7	13.4	45.9	32.6	3.9942	.98228
Our company strives towards having which encourage and is compactable to returnable packaging methods	2.9	5.2	14.0	48.3	29.7	3.9651	.95449
We strive towards having reusable materials for packaging	7.0	4.1	15.7	44.2	29.1	3.8430	1.10491
	Av. Mean = 4.0128; Av. St. Dev = 0.97810						

Source: Field Survey (2025)

Table 4.5 displayed the responses of the respondents' regarding green packaging practices within logistics firms. Specifically, when asked about the use of quality materials in the packaging of goods, 4.1% of respondents strongly disagreed, 1.2% disagreed, 2.9% indicated indifference, while a significant 31.4% agreed and the majority, 60.5%, strongly agreedA mean of 4.4302 and standard deviation of 0.93083 indicate respondents viewed the use of quality packaging materials favorably. The mean score suggests that most respondents believe their organizations prioritize quality materials in their packaging processes, reflecting a commitment to sustainable practices.

Regarding the assurance of proper sizing for goods in logistics, 4.7% of respondents strongly disagreed with the notion as 2.3% disagreed with 16.9% expressing indifference. In contrast, 57.6% agreed and 18.5% strongly agreed that their firms package goods in appropriate sizes. The mean of 3.8314 and standard deviation of 0.91801 confirm broad consensus on proper sizing practices.

Concerning the perception of fashionable packaging styles in line with green logistics, 3.5% of respondents strongly disagreed with the assertion with 4.7% of the respondents in disagreement with the notion and 13.4% of the respondentsexpressed indifference, while a significant 45.9% agreed and 32.6% strongly agreed that their organizations employ fashionable packaging styles that align with green logistics principles. A mean of 3.9942 and standard deviation of 0.98228 reflect general agreement among respondents on the value of adopting stylish, eco-friendly packaging.

Findings on returnable packaging showed 2.9% strongly disagreed, 5.2% disagreed, and 14.0% were neutral. Meanwhile, 48.3% agreed and 29.7% strongly agreed their firms promote practices supporting returnable packaging. The mean score revealed is

3.9651 and a standard deviation of 0.95449, indicating agreement towards returnable packaging, though with some variability in responses. The mean suggests that respondents largely agree with the company's efforts to implement returnable packaging.

Regarding the commitment to using reusable materials for packaging indicated that 7.0% of respondents strongly disagreed with the statement as 4.1% of the respondents disagreed with the notion and 15.7% aligned with indifference. The outcome disclosed that 44.2% of the participants agreed that their company strives towards utilizing reusable materials for packaging and 29.1% strongly agreed. The responses displayed mean score of 3.8430, with a standard deviation of 1.10491. The mean score indicates a substantial agreement regarding the use of reusable materials as majority of respondents acknowledge their company's efforts in promoting reusable packaging.

An average mean of 4.0128 and a standard deviation of 0.97810 reflect broad agreement on the value of green packaging within these firms. This supports the view that eco-friendly packaging significantly boosts logistics performance in Nairobi County. Yusuf (2020) stressed the need for low-impact distribution channels, while Mogeni and Kiarie (2016) linked green packaging to improved outcomes in multinational firms. Mutua (2021) found it enhances logistics efficiency, and Rop, Shalle, and Nteere (2021) noted its role in strengthening public sector operations.

4.4.3 Green Warehousing

Green warehousing refers to the integration of environmentally sustainable practices within warehouse operations, aiming to minimize the ecological footprint of logistics activities. This approach encompasses various strategies, such as utilizing energy-efficient technologies, optimizing space to reduce waste, and implementing sustainable

packaging solutions, all of which contribute to lower energy consumption and reduced carbon emissions. The respondent responses are demonstrated in Table 4.6.

Table 4.6: Descriptive Statistics of Green Warehousing

Item	Responses					Mean	St. Dev
	SD	D	I	A	SA		
	%	%	%	%	%		
We have proper storage facilities	1.7	4.1	12.8	58.1	23.3	3.9709	.82666
Goods are stored in good conditions	3.5	6.4	16.3	52.9	20.9	3.8140	.95528
Our warehouses are in line with green procurement initiative	5.2	6.4	13.4	44.8	30.2	3.8837	1.07517
We have agile storage materials	7.0	7.0	12.2	44.2	29.7	3.8256	1.14137
We efficient delivery channels	7.6	6.4	18.0	40.7	27.3	3.7384	1.15274
	Av. Mean = 3.8465; Av. St. Dev = 1.03024						

Source: Field Survey (2025)

Table 4.6 specifically noted that 1.7% of respondents strongly disagreed that proper storage facilities are available as further disagreed by 4.1% of the respondents with neutrality coming from 12.8% of the respondents. The findings demonstrated that 58.1% of the interviewees agreed that proper storage facilities are available as aligned by 23.3% of the respondents who strongly agreed that proper storage facilities are available. Findings showed 58.1% agreed and 23.3% strongly agreed that adequate storage facilities exist. A mean of 3.9709 and standard deviation of 0.82666 reflect general approval of current warehousing standards. Table 4.6 result indicated that strongly disagreement emanated from 3.5% of the respondents as 6.4% of the respondents disagreed on the conditions under which goods are stored. The outcome showed that 16.3% of the participants are indifferent. The outcome noted that 52.9% of the respondents agreed that goods are stored in good conditions as 20.9% strongly

agreed. The mean score of 3.8140 and standard deviation of 0.95528 suggests that the respondents incline towards agreement regarding the adequacy of storage conditions, signifying view that favours the current warehousing practices.

Pertaining to the statement on the alignment of warehouses with green procurement initiatives, 5.2% of respondents strongly disagreed with 6.4% noting disagreement as 13.4% provide no opinion. The findings demonstrated that 44.8% of the participants agreed that their warehouses are in line with these initiatives and 30.2% strongly agreed. The mean of 3.8837 and standard deviation of 1.07517 suggests respondents agreed with the alignment of green procurement practices, indicating a favorable view of the current state of warehousing initiatives. Regarding the agility of storage materials used in warehouses, 7.0% of respondents strongly disagreed as another 7.0% disagreed demonstrating a minority who do not perceive the storage materials as agile. Findings showed 12.2% were neutral, while 44.2% agreed and 29.7% strongly agreed that warehouse storage materials are agile. A mean of 3.8256 and deviation of 1.14137 reflect a positive lean toward current warehousing practices.

Table 4.6 displayed the responses of the respondents regarding the statement that their delivery channels are efficient as indicated by 7.6% of the respondents who strongly disagreed which is further aligned by the views of 6.4% of the respondents who disagreed. Additionally, 18.0% remained indifferent, while 40.7% of the respondents agreed that their delivery channels are efficient as supported by 27.3% of the participants who strongly agreed that their delivery channels are efficient. A mean of 3.7384 with a 1.15274 deviation shows respondents agreed on delivery channel efficiency. Similarly, a 3.8465 mean and 1.03024 deviation from green warehousing responses reflect consensus on its role in improving logistics performance in Nairobi.

These findings support Yusuf (2020), who linked green warehousing to better outcomes in Kenyan manufacturing firms. Rop, Shalle and Nteere (2021) documented that green warehousing and performance of public corporations in Kenya had significant relationships.

4.4.4 Reverse Logistics

Reverse logistics is a process which entails moving goods that are at the end point to the manufacturer or retailer primarily to recover value or to dispose it properly. This process involves different activities, among them, returns management, recycling, refurbishment, and remanufacturing which have gained more significance as companies seek to improve sustainability and minimise waste in their operations. Table 4.7 lists the perceptions of the participants.

Table 4.7: Descriptive Statistics of Reverse Logistics

Item	Responses					Mean	St. Dev
	SD	D	I	A	SA		
	%	%	%	%	%		
We have proper waste control systems	2.9	6.4	18.6	48.8	23.3	3.8314	.95547
We also use alternative delivery mechanisms	4.1	7.0	20.3	41.9	26.7	3.8023	1.04091
Fuel efficient vehicles are used by our company	4.1	4.7	14.5	41.3	35.5	3.9942	1.02881
Our vehicles are well maintained on a continuous basis	3.5	7.6	24.4	49.4	15.1	3.6512	.94612
We keep driver and fleet statistics for purposes of enhancing operational efficiency	2.3	7.0	15.1	47.7	27.9	3.9186	.95776
	Av. Mean = 3.8395; Av. St. Dev = 0.98581						

Source: Field Survey (2025)

Table 4.7 presented the respondents with the opinion of reverse logistics, in particular focusing on the effectiveness of the waste management systems in their organisations.

The results observed that that 2.9 percent of the persons strongly did not agree, 6.4 percent did not agree and 18.6 percent did not take sides on this matter. On the contrary, the figure was 48.8 per cent as the number of respondents who gave their consent to the idea was 23.3 per cent that their company is using appropriate waste control practises. A mean of 3.8314 and standard deviation of 0.95547 reflect a favorable view of waste management, suggesting most respondents acknowledge the effectiveness of their organization's waste control systems.

Findings showed 4.1% strongly opposed, 7.0% disagreed, and 20.3% remained neutral on alternative delivery methods. In contrast, 41.9% agreed and 26.7% strongly supported their organization's use of such approaches. A mean of 3.8023 and deviation of 1.04091 reflect general approval of these methods. However, on fuel-efficient vehicles, 41.3% disagreed and 35.5% strongly disagreed, while only 4.1% strongly supported, 7.0% agreed, and 20.3% were undecided indicating limited adoption. The average result is a 3.9942 with a standard deviation of 1.02881 signifying positive attitude towards adoption of fuel efficient vehicles. The average of this score implies that the respondents are largely in agreement with the fact that the organisation is dedicated to the use of fuel-efficient cars.

Results in Table 4.7 associated with vehicle maintenance in the organisation showed that 3.5% of the respondents strongly opposed the claim, 7.6% opposed, and a significant 24.4% participants had a nonaligned position on the topic. A very large percentage 49.4% of the interviewees concurred that their cars are always in great working conditions with 15.1% heavily concurring. The average 3.6512 and standard deviation of 0.94612 emerged with an implication of consensus on the vehicle

maintenance practises in existence. Consequently, the participants are aware that the organisations have well-maintained vehicles.

The driver and fleet statistics tracking, with an aim of improving the operational efficiency, indicated that 2.3% of the sample vehemently opposed the statement as 7.0 percent opposed and 15.1 percent neutral. The result showed that 47.7% of the respondents said that their organisation is actively monitoring driver and fleet statistics to enhance operational efficiency with 27.9% strongly affirming. The average of 3.9186 and standard deviation of 0.95776, implied a positive inclination towards the practise of data monitoring. Such an average score shows that the respondents tend to support the statement that their organisation is determined to gather the necessary data to improve the overall efficiency of the organisation. The mean of all the items is 3.8395, which shows that the respondents generally agreed on the efficacy of reverse logistics practises in their organisations. The positive sentiment is supported by a standard deviation of 0.98581, showing agreement on the role of these practices in boosting logistics performance in Nairobi County. Mogeni and Kiarie (2016) linked reverse logistics to improved outcomes in multinational firms. Chrisostom and Monari (2018) found it significantly enhanced operational efficiency. Mutua (2021) highlighted its impact on logistics business performance, while Rop et al. (2021) noted its influence on public sector effectiveness.

4.4.5 Organizational Performance

Organisational performance is the effectiveness and the efficiency with which an organisation achieves its goals and objectives which involves many dimensions including financial outcomes, operational effectiveness, and employee satisfaction. It can be gauged by the key performance indices (KPIs), which evaluate the productivity,

profitability, and general effectiveness on the stakeholders, such as customer, employees, and the community. The opinions of the respondents were obtained with the result obtained in Table 4.8.

Table 4.8: Descriptive Statistics of Organizational Performance

Item	Responses					Mean	St. Dev
	SD	D	N	A	SA		
	%	%	%	%	%		
We strive towards achieving high efficiency in our operation	4.7	2.3	14.5	41.9	36.6	4.0349	1.01391
We provide customer services in a timely manner	3.5	1.2	15.7	51.7	27.9	3.9942	.89506
We strive towards cost minimization	2.9	5.2	15.1	51.7	25.0	3.9070	.93193
We experienced increased patronage, thereby experiencing high profit	4.1	7.0	16.3	40.1	32.6	3.9012	1.06326
We have a large market share	5.2	6.4	18.0	48.8	21.5	3.7500	1.03237
	Av. Mean = 3.9175; Av. St. Dev = 0.98731						

Source: Field Survey (2025)

Table 4.8 has shown the perception of the respondents on the performance of the logistics firms in terms of their striving to have the maximum efficiency in their operation with 4.7% of the respondents strongly disagreeing that they are trying to achieve the maximum efficiency in their operation with 2.3% of the respondents who disagree. The respondents who responded to give no opinion constitute 14.5% of the sample respondents. Results showed 41.9% agreed and 36.6% strongly agreed their organization strives for high efficiency. A mean of 4.0349 and standard deviation of 1.01391 confirm general consensus on this commitment.

The results given in Table 4.8 of the timeliness in the delivery of customer service as a performance measure indicated that 3.5% of the respondents strongly disagreed and 1.2% disagreed that indicates that a small percentage of the respondents regarded the

organisation as poor in this aspect. On the other hand, 15.7 percentage showed a neutral opinion indicating indifference with regards to timeliness of service delivery. On the other hand, a significant portion of 51.7 percent responded to the question on customer services as timely, and 27.9 percent strongly agreed on this, indicating a wide recognition of the organisation as an efficient entity when it comes to customer services. The average score was 3.9942 and the standard deviation was 0.89506, which indicated a dominant tendency in the respondents, pointing to a positive perception of the organisation regarding the provision of timely customer services.

Table 4.8 highlight the perceptions of respondents on the commitment of their organisation to minimise costs with 2.9% strongly disagreeing, and 5.2% disagree, denoting the respondents who do not view their organisation as focusing on minimising costs. In addition, 15.1% was neutral because 51.7% of the people who responded affirming that the organisation was doing its best to reduce costs and 25.0% strongly affirmative. The mean score of 3.9070 and standard deviation of 0.93193 shows a strong inclination towards agreement which indicates a positive impression of the organisation in terms of cost efficiency focus. All these findings show that there was a general positive attitude about the organisational commitment to cost minimization.

Table 4.8 gave a summary of how the respondents felt about their organisation in regards to how it was dealing with the rise in patronage and its effects on profitability. Only a few participants, 4.1%, strongly disagreed and 7.0% disagreed, which indicates a minority who do not correlate increases in patronage with increases in profits in their organisation. Also, 16.3% were non-committal and expressed that they have no clear stand on the issue. On the other hand, 40.1% agreed and 32.6% strongly agreed that higher patronage drives increased profits. A mean of 3.9012 and standard deviation of

1.06326 reflect a clear lean toward agreement, suggesting respondents view the link between customer support and profitability positively.

The perceptions of the respondents regarding the experience of their organisation with regard to increased patronage and the consequent high profits provided their respective organisation were given in Table 4.8 with 4.1% of the respondents strongly disagreeing and 7.0% disagreeing. Also, 16.3% said that they are neutral, indicating that they are indifferent to the relationship between the two factors. Nonetheless, there was a large percentage of 40.1% and a strong percentage of 32.6% who responded that there is a relationship between increased patronage and increased profitability. The findings show a general lean toward agreement, with a mean of 3.9012 and a 1.06326 deviation, suggesting respondents viewed organizational performance positively. While individual opinions may differ, the link between increased patronage and profitability appears strong. A separate mean of 3.9175 and deviation of 0.98731 further confirm favorable views across various aspects of performance.

4.5 Inferential Analysis

Inferential analysis allows researchers to draw conclusions or predict population traits from sampled data, aiding hypothesis testing. This study applied regression and correlation techniques to assess how eco design, green packaging, warehousing, and reverse logistics influence logistics firm performance in Nairobi County.

4.5.1 Correlation Analysis

Correlation analysis helps assess both the strength and direction of relationships between variables. In this study, it was key in identifying links between eco design,

green packaging, warehousing, reverse logistics, and logistics firm performance in Nairobi County. Table 4.9 presents the findings.

Table 4.9: Correlation Results

		Organizational Performance	Eco Design	Green Packaging	Green Warehousing	Reverse Logistics
Organizational Performance	Pearson Correlation	1				.
	Sig. (2-tailed)					
Eco Design	Pearson Correlation	.396**	1			
	Sig. (2-tailed)	.000				
Green Packaging	Pearson Correlation	.422**	.181*	1		
	Sig. (2-tailed)	.000	.018			
Green Warehousing	Pearson Correlation	.523**	.175*	.216**	1	
	Sig. (2-tailed)	.000	.021	.004		
Reverse Logistics	Pearson Correlation	.560**	.272**	.433**	.650**	1
	Sig. (2-tailed)	.000	.000	.000	.000	

Source: Field Survey (2025)

Table 4.9 revealed that eco design shows a positive correlation of 0.396 which is moderately weak with the organisational performance. The results indicated that the eco design relationship with organisational performance is noteworthy to logistics companies in Nairobi County. The result agrees with the finding of Wakulele, Odock, Chepkulei, and Kiswili (2018) and Sunati, Fahwsi, and Wahyudi (2022) demonstrated that internal environmental management and eco-design were found to be significantly

correlated with performance of the organisation. It has been found that green packaging has a moderately weak positive (0.422) correlation with organisational performance. A significant correlation (0.000) was found between green packaging and organizational performance, echoing findings by Mogeni and Kiarie (2016), Mutua (2021), and Rop, Shalle, and Nteere (2021), who all noted a strong link. Reverse logistics showed a moderately high positive correlation of 0.560, while green warehousing recorded a coefficient of 0.523, also significant (0.000), indicating that improved warehousing practices enhance performance. These results align with Yusuf (2020) and Rop et al. (2021), who confirmed a strong connection between green warehousing and firm outcomes. Variations across studies may stem from differing contexts and methodologies. Additionally, reverse logistics was again found to be significantly associated with performance, consistent with findings by Mogeni and Kiarie (2016), Chrisostom and Monari (2018), Mutua (2021), and Rop et al. (2021).

4.5.2 Regression Analysis

Regression analysis helps examine how changes in independent variables affect a single dependent variable. In this study, it was applied to assess the influence and direction of eco design, green packaging, warehousing, and reverse logistics on logistics firms' performance in Nairobi County. Results from the model summary, variance analysis, and coefficients are shown in Tables 4.10, 4.11, and 4.12.

Table 4.10: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.680[a]	.462	.450	.46533

Source: Field Survey (2025)

Table 4.10 shows that R = 0.680 which shows that there is a strong positive relationship between green practises and organisational performance of logistics companies in Nairobi County, Kenya. This value indicates that the adoption of sustainable practises which include eco design, green packaging, green warehousing, and reverse logistics have a strong association with the performance of these firms. R-squared value of the model was found to be 0.462. This means that these green practises explain 46.2 percent of the organisational performance variance in the firms, implying that there is a significant relationship between sustainability efforts and business performance in the logistics industry. The research did further argue about the combined importance of the model and the results are tabulated in Table 4.11.

Table 4.11: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31.107	4	7.777	35.916	.000[b]
	Residual	36.160	167	.217		
	Total	67.268	171			

Source: Field Survey (2025)

Considering the consequence of the model joint significance in Table 4.11, the findings revealed that a significant F -statistic of 35.916, which is also validated by the model, is significant ($p < 0.001$). This finding supports the essence of incorporating green operations in the logistic operation to record improved performance outcomes in the Nairobi County, Kenya. The aggregate effect of the green practises constituents embraced in the study on the performance of the researched firms in Kenya is, therefore, enormous. In order to further establish the individual effect of the explanatory factors on the performance of the firms, the individual effects of the outcome of the factors are captured in Table 4.12.

Table 4.12: Regression Coefficients Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.499	.299		1.668	.097
	Eco Design	.166	.040	.248	4.191	.000
	Green Packaging	.235	.066	.226	3.569	.000
	Green Warehousing	.277	.069	.301	4.013	.000
	Reverse Logistics	.191	.079	.199	2.412	.017

Source: Field Survey (2025)

Table 4.12 shows a constant value of 0.499, indicating the baseline level of organisational performance when eco design, green packaging, green warehousing, and reverse logistics are all set to zero. This suggests that even without these variables, the firms maintain a positive performance level.

Eco design's unstandardized coefficient of 0.166 ($p < 0.001$) reveals a strong positive influence on organisational performance. A unit increase in eco design corresponds to a unit rise in performance among logistics firms in Nairobi County. With a p-value of 0.000, below the 0.05 threshold, the null hypothesis is rejected, confirming eco design's significant impact. This shows that integrating environmental elements into product design not only supports sustainability but also boosts operational outcomes by fostering innovation and meeting eco-conscious consumer preferences. Firms adopting eco design gain a competitive edge through compliance and product novelty. These findings align with Wakulele, Odock, Chepkulei, and Kiswili (2018), who noted eco-design's positive effect on financial and environmental performance. Ademulegun, Adebambo, and Alabi (2022) found moderate adoption of eco-design across supply, shipping, production, usage, and disposal. Sunati, Fahwsi, and Wahyudi (2022) also

linked eco-design and internal environmental management to improved organisational performance.

Green packaging also showed a significant positive effect, with a coefficient of 0.235 ($p < 0.05$). This means each unit increase in green packaging practices leads to a 0.235 unit rise in performance. The p-value confirms statistical significance, leading to rejection of the null hypothesis. Sustainable packaging enhances operational efficiency and customer satisfaction, contributing to overall performance. This may stem from improved consumer perception and brand loyalty, as eco-friendly packaging aligns with market preferences. The results support Mogeni and Kiarie (2016), who found green packaging significantly impacted multinational firms in Kenya. Yusuf (2020) recommended low-impact distribution channels, while Mutua (2021) and Rop, Shalle, and Nteere (2021) confirmed green packaging's positive role in logistics and public sector performance.

Green warehousing's impact was also significant, with a coefficient of 0.277 ($p < 0.05$), meaning a one-unit increase in green warehousing boosts performance by 0.227 units. The low p-value supports rejecting the null hypothesis, confirming its positive effect. Sustainable warehousing enhances logistics efficiency, reduces operational costs, and improves overall firm performance. This may be due to energy-saving and waste-reducing practices that cut costs and raise efficiency. Yusuf (2020) found a positive link between green warehousing and performance in manufacturing firms. However, Trivellas, Mallindetros, and Reklitis (2020) did not observe a connection between green warehousing and logistics emissions or final outcomes. Rop, Shalle, and Nteere (2021) reported a significant relationship in Kenya's public corporations. Differences across studies may stem from varying contexts and research methods.

Reverse logistics also had a significant positive effect, with a coefficient of 0.191 ($p < 0.05$). A unit increase in reverse logistics corresponds to a unit rise in performance. The p-value supports rejecting the null hypothesis, confirming its impact. Efficient reverse logistics through recycling and waste management enhances sustainability, reduces costs, and improves service delivery. This may be due to better resource recovery and waste handling. The findings align with Mogeni and Kiarie (2016), who linked reverse logistics to performance in multinational firms. Chrisostom and Monari (2018) found a strong positive association, while Mutua (2021) and Rop et al. (2021) confirmed its role in boosting logistics and public sector performance in Kenya.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter outlines the study's summary, emphasizing major findings. It also draws conclusions from the results obtained. In addition, it offers recommendations grounded in the findings and discusses the research's knowledge contributions and future research directions.

5.2 Summary of Findings

The study examined the influence of selected green practices—eco-design, green packaging, green warehousing, and reverse logistics—on the performance of logistics firms in Nairobi City County, Kenya. Data were collected from members of the Kenya International Freight and Warehousing Association (KIFWA) using structured questionnaires, and analysis involved descriptive, correlation, and regression techniques. The findings for each objective are summarized below.

5.2.1 Influence of Eco-Design on Performance

The study' first objective established that eco-design practices are widely adopted among logistics firms and are perceived as important to their operations. Descriptive results showed high agreement that eco-design contributes to operational improvement. Correlation results indicated a weak but significant positive relationship between eco-design and performance. Regression analysis, however, revealed that eco-design has a strong and significant positive effect on firm performance. This demonstrates that incorporating environmentally conscious design enhances efficiency, competitiveness, and overall organizational outcomes.

5.2.2 Influence of Green Packaging on Performance

The second objective's findings showed that green packaging is commonly practiced and positively regarded by logistics firms. Descriptive data revealed a high mean, indicating strong acceptance of green packaging initiatives. Correlation results showed a weak yet significant positive relationship between green packaging and performance. Regression analysis confirmed that green packaging significantly improves firm performance. These findings suggest that eco-friendly packaging methods enhance operational efficiency and strengthen competitiveness within the logistics sector.

5.2.3 Influence of Green Warehousing on Performance

Third objective's results demonstrated that green warehousing practices are strongly supported by logistics firms in Nairobi. Descriptive findings reflected high mean scores, indicating agreement that green warehousing contributes to sustainability and performance improvement. Correlation analysis showed a strong positive association between green warehousing and firm performance, while regression results confirmed that green warehousing significantly enhances operational effectiveness. This implies that sustainable warehousing strategies play a crucial role in improving efficiency and boosting overall organizational performance.

5.2.4 Influence of Reverse Logistics on Performance

The fourth objective, the study found that reverse logistics is considered an important sustainability and performance-enhancing practice among logistics firms. Descriptive results showed positive mean scores, indicating strong agreement on its relevance. Correlation analysis revealed a moderate and significant positive relationship between reverse logistics and performance. Regression findings further confirmed that reverse logistics has a significant positive effect on organizational outcomes. This suggests that

implementing reverse logistics practices improves operations, enhances customer satisfaction, and strengthens firm performance.

5.3 Conclusion

Primarily, the impact of green practises on the performance of logistics companies in the Nairobi County, Kenya was examined. At that, in the context of impact of eco design on the performance of logistics firms in Nairobi County, Kenya, the survey revealed that eco design has a beneficial and substantial outcome on the performance of logistics firms. To sum up, the effect of eco-design on the performance of logistics companies is beneficial and strong. Consequently, the process of the product lifecycle, namely recycling, of the product remanufacturing and conducting lifecycle assessment of the products has resulted in innovation to adapt environmental issues to fit the process, thereby satisfying regulatory requirements and conforming to the product needs changes. This evidence hence substantiates the argument that eco-design does enhance the environmental performance, along with its role as a catalyst of an organisation, in addition to its futuristic sustainability of the logistics industry.

The survey examined the effect of green packaging on the performance of the firms, and the results revealed that green packaging has a high positive impact on the performance of the firms. The research concludes that the green packaging plays a major and positive role in influencing the performance of the logistics firms in the Nairobi County. Green packaging has also played a key role in terms of minimised wastage, increased efficiency and lower cost of operation, consumer satisfaction due to usage of quality, recyclable and reusable materials, size, and proper design of packaging. Such results underscored the tactical essence of implementing sustainable packaging solutions in logistical operations due to the fact that it makes actual gains in

both the aspect of ensuring environmental concern but also in the aspect of gaining a competitive advantage.

With regards to the impact of green warehousing on the performance of logistics firms in Nairobi County, Kenya, the results identified that green warehousing has a positive and significant impact on the performance of the logistics firms. Based on this finding, the research postulates that green warehousing practise acts as a front-runners of offering high performance within organisations. Improved storage conditions, environmental friendliness of storage systems, and flexibility of supplying materials has resulted in improved efficiency in the storage system, as well as in the distribution and the reduced the eco-impact. The findings substantiate the fact that green warehousing is imperative in guaranteeing operational excellence, cost effectiveness, and corporate responsibility hence, the need to require the logistics institutions invest in green warehousing technology.

In relation to the effect of reverse logistics on the performance of logistics firms in the Nairobi County, Kenya, the results of the study revealed that reverse logistics have a strong influence on the performance of the logistics firms. Consequently, the research arrives at the conclusion that the combination of reverse logistics, well-regulated waste management, the efficient use of product recalls, the implementation of alternative delivery and other virtues have collaborated to deliver cost-saving effects, incentivate resource utilisation and operational streamlining improvements. The fact that the association between reverse logistics and performance turns out to be positive and statistically significant proves that logistics companies should institutionalise reverse logistics as an important component of their sustainability and operations policies.

5.4 Recommendations

Following the findings of this study, several actionable recommendations are proposed for logistics firms in Nairobi City County to enhance their performance through green practices. First, logistics companies should systematically integrate eco-design into their product and service development processes. This requires not only evaluating materials and production methods for sustainability but also prioritizing recyclable, energy-efficient, and low-impact alternatives throughout the product lifecycle. From a resource-based theory perspective, such integration leverages the firms' internal capabilities to gain a sustainable competitive advantage, reducing waste and resource costs while strengthening market positioning.

Second, the adoption of holistic green packaging strategies should be prioritized. Practical measures include the use of biodegradable, recyclable, and reusable materials, as well as optimized packaging that minimizes waste and environmental impact. By applying these approaches, firms can enhance operational efficiency, lower waste management expenditures, and improve brand reputation. Linking this to stakeholder theory, prioritizing green packaging not only benefits the firm economically but also responds to the environmental expectations of customers, regulators, and the broader community.

Third, logistics firms should invest in green warehousing initiatives that incorporate sustainable technologies such as solar panels, energy-efficient lighting, and advanced inventory management systems. These measures optimize space utilization, reduce energy consumption, and minimize waste. Theoretically, this reflects resource-based theory, where internal capabilities in sustainable infrastructure contribute to long-term operational efficiency and improved firm performance. Practically, firms can

implement phased upgrades or pilot projects to determine the most cost-effective solutions before full-scale adoption.

Finally, implementing structured reverse logistics systems is essential for managing product returns, refurbishing, recycling, and remanufacturing processes efficiently. This approach not only enhances operational efficiency but also aligns with game theory, as firms that adopt effective reverse logistics can strategically differentiate themselves in the competitive market, reduce costs associated with waste, and improve customer satisfaction. Firms should establish clear procedures, monitor performance metrics, and integrate reverse logistics into overall supply chain planning to maximize resource utilization and sustainability outcomes.

5.5 Contribution to Knowledge

The survey is a contribution to the body of knowledge regarding the theory, policy and practise. This research contributes to the theoretical body of knowledge in sustainable logistics in terms of revealing how eco-design, green packaging, green warehousing and reverse logistics have a great impact on the logistics performance of the firms in Kenya and specifically, Nairobi County. By encouraging the inclusion of these sustainability practises in the logistics operations, the research helps in developing an overall framework that connects environmental sustainability to both the operational efficiency and business performance.

The analysis is a resourceful addition to the policy makers who seek to foster sustainability in the logistic industry in Kenya. The research recommends the development of friendly policies to reward the implementation of these practises by the strict emphasis on the power of eco-design, green packaging, green warehousing and reverse logistics to the performance of firms. These policies may be tax breaks on

companies that carry out sustainable operations, research and development of environmentally friendly technologies, and policies that compel environmentally friendly practises.

The real life implications of this research are important to logistics firms that are in operation in Nairobi County because the recommendations given are practical matters that can be implemented to improve the operational performance of the logistics firms in the county through sustainability programmes. Through incorporation of eco-design, green packaging, green warehousing practises and reverse logistics, companies can enhance their productivity, cut down expenses and satisfy the growing consumer demand of environmental friendly practises. This research is a guide to the practitioners in the logistics industry to perform the systematic application of these strategies in order to create a culture of sustainability that does not only keep up with the trends of the world but also improves their competitive edge in the fast changing industry.

5.6 Suggestion for Further Research

After considering the effect of green practises on performance of logistics firms in the Nairobi County, Kenya, other studies may be conducted to incorporate in them other aspects of green practises impact on performance of these firms in Nairobi County. Moreover, multi-sector comparison may facilitate a deeper understanding of the presence of similar effects in other sectors, which will expand the applicability of green practises. Though, it was conducted in Nairobi County, other studies can be carried out in other counties to compare the various impacts on green practises on the performance of the logistics firms in Kenya.

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APPENDICES

Appendix 1: Letter of Introduction

…….

Department of Business Administration

School of Procurement and Supply Chain Management

Kenyatta University

Kenya.

RE: Request to fill in the Questionnaire

Dear Respondent,

My name is Anne Muthini, a postgraduate student at Kenyatta University who seeks to undertake research on Green Practices and Performance of Logistics Firms in Nairobi City Council, Kenya. I seek to conduct a study to determine the effects of green packaging, reverse logistics, green warehousing, and eco-design on performance,which is necessary in the partial completionof a Master's Degree in Business Administration. I request your indulgence in responding to the questionnaire based on your knowledge and experience; I can assure you that your responses will be handled with utmost privacy.

Thank you.

Yours Faithfully

…….

Appendix II: Questionnaire

SECTION A

RESPONDENT'S PERSONAL DATA

Instruction: Please tick ( ) the column that best represents your response appropriately

Sex: Male ( ) Female ( )

Age: Below 25 ( ) 25 – 50 years ( ) Above 50 ( )

Educational Qualification: Secondary School ( ) Diploma ( )Bachelor's Degree( ) Masters ( ) PhD. ( ) others ( )

Years of work experience in the organization below 5yrs ( ), 5 – 10yrs ( ) above 10 yrs ( )

SECTION B

Please select your favored response using the following criteria: Agree, Neutral, Strongly Disagree, Strongly Agree, and Neutral.

Eco Design

Please select your favored response using the following criteria: Agree, Neutral, Strongly Disagree, Strongly Agree, and Neutral.

No	Statement	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
1	We have good recycling facilities					

2	Products undergo proper remanufacturing					
3	We carry out biomedical load assessment					
4	Recyclability enhances organization performance through eco design					
5	We undergo lifecycle assessment to detect environmental load					

Green Packaging

No	**Statement**	**Strongly Agree**	**Agree**	**Indifferent**	**Disagree**	**Strongly Disagree**
1	We use quality materials in packaging of goods					

2	We ensure that goods are in the right sizes					
3	We have fashionable packaging style in line with green logistics					
4	Our company strives towards having which encourage and is compactable to returnable packaging methods					
5	We strive towards having reusable materials for packaging					

Green Warehousing

Please select your favored response using the following criteria: Agree, Neutral, Strongly Disagree, Strongly Agree, and Neutral.

No	**Statement**	**Strongly Agree**	**Agree**	**Indifferent**	**Disagree**	**Strongly Disagree**

1	We have proper storage facilities					
2	Goods are stored in good conditions					
3	Our warehouses are in line with green procurement initiative					
4	We have agile storage materials					
5	We have efficient delivery channels					

Reverse Logistics

Please select your favored response using the following criteria: Agree, Neutral, Strongly Disagree, Strongly Agree, and Neutral.

No	**Statement**	**Strongly Agree**	**Agree**	**Indifferent**	**Disagree**	**Strongly Disagree**
1	We have proper waste control systems					

2	We also use alternative delivery mechanisms					
3	Fuel efficient vehicles are used by our company					
4	Our vehicles are well maintained on a continuous basis					
5	We keep driver and fleet statistics for purposes of enhancing operational efficiency					

Organizational Performance

Please select your favored response using the following criteria: Agree, Neutral, Strongly Disagree, Strongly Agree, and Neutral.

No	**Statement**	**Strongly Agree**	**Agree**	**Indifferent**	**Disagree**	**Strongly Disagree**

1	We strive towards achieving high efficiency in our operation					
2	We provide customer services in a timely manner					
3	We strive towards cost minimization					
4	We experienced increased patronage, thereby experiencing high profit					
5	We have a large market share					

Appendix III: List of Logistic Firms in Nairobi

1. Skyway Forwarders
2. Sheffield Cargo Logistics
3. Salama Cargo
4. Offshore Global Logistics
5. Modest International Logistics
6. Transmeridian International Logistics Ltd
7. Freigh Forwarders
8. Elisa Transport Logistics
9. DHL Global Logistics
10. Acceler Global Logistics
11. Aeromarine Capital Group
12. Richens Logistics Ltd
13. Bottom-up Clearing and Forwarding Ltd
14. Aramex Logistics
15. Bromley Logistics
16. ShreejiEnterprises Ltd
17. Union Logistics Ltd
18. First Lane Logistics
19. Calsdan Logistics
20. Modest International Logistics
21. Top-Link Logistics
22. Til Logistics
23. Global Freight Logistics Ltd
24. Neema Logistics Ltd

25. Metro Logistics Ltd

26. Africa Global Logistics

27. World Cargo Logistics

28. MOL Logistics

29. Acceler Logistics

30. Cargodirect Shipping and Logistics Ltd

31. Transrock Ltd

32. Transmeridian International Ltd

33. Aeromarine Logistics

34. Eastlyfe Logistics

35. Deekay Freight Logistics Ltd

36. Spart Freight Logistics Ltd

37. Excess Global Logistics

38. Damco Logistics Ltd

39. Bromley Logistics

40. Regional Cargo Logistics

41. Serium Global Logistics

42. Youngline Logistics

43. One Africa Logistics Ltd

44. Aircom Cargo Logistics Ltd

45. Sonic Fresh Co Ltd

46. Freight In Time Ltd

47. Benfi Global Logistics

48. Logistics Company Ltd

49. Hellman Worldwide Logistics

50. Seacon Kenya Ltd

51. Polygon Logistics Ltd

52. Jaconinos Transport and Logistics

53. Boldline Shipping and Logistics Service

54. JSK cargo

55. Siginon Global Logistics

56. Fushia Movers

57. Roy Transmotors Ltd

58. Roy Parcel Service Ltd

59. Kentex Cargo

60. Kisa Logistics

61. Offshore Global Logistic Ltd

62. NFT Autoport

63. Swift Packers and Movers

64. Only Logistics

65. Paket Logistics

66. Ryan Movers and Mounting

67. Kenya Exports Ltd

68. Cube Movers Ltd

69. Multicare Movers

70. Spax Graphics

71. States Duka Ltd

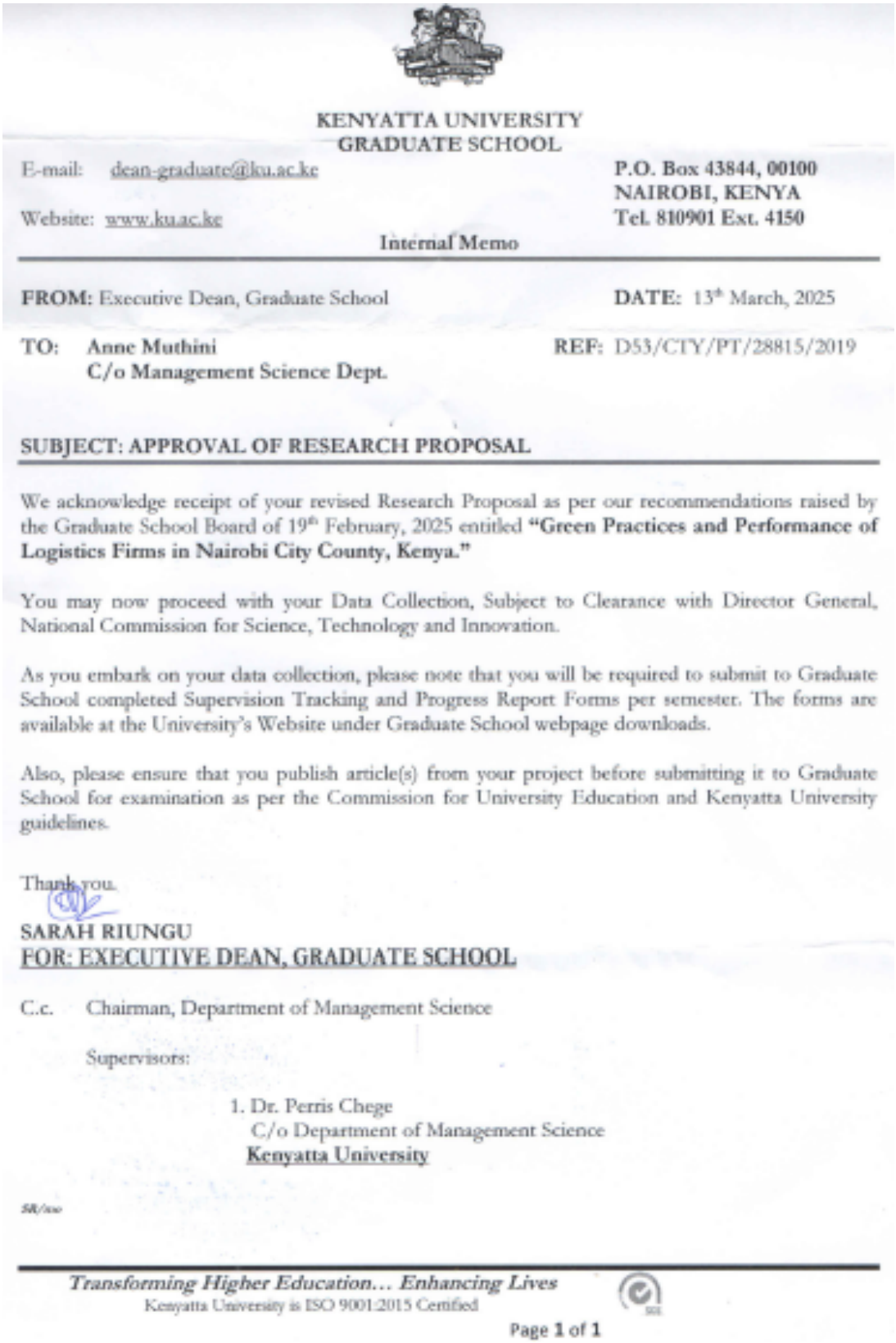
72. Absolute Movers Ltd

73. Octa Transporter

74. Oil seals and Bearing Center Ltd

75. Central Business Park

Appendix IV: Research Approval Letters



KENYATTA UNIVERSITY
GRADUATE SCHOOL

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Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 4150

Internal Memo

FROM: Executive Dean, Graduate School

DATE: 13th March, 2025

TO: Anne Muthini
C/o Management Science Dept.

REF: D53/CTY/PT/28815/2019

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

We acknowledge receipt of your revised Research Proposal as per our recommendations raised by the Graduate School Board of 19th February, 2025 entitled **"Green Practices and Performance of Logistics Firms in Nairobi City County, Kenya."**

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking and Progress Report Forms per semester. The forms are available at the University's Website under Graduate School webpage downloads.

Also, please ensure that you publish article(s) from your project before submitting it to Graduate School for examination as per the Commission for University Education and Kenyatta University guidelines.

Thank you.

SARAH RIUNGU
FOR: EXECUTIVE DEAN, GRADUATE SCHOOL

C.c. Chairman, Department of Management Science

Supervisors:

1. Dr. Perris Chege
C/o Department of Management Science
Kenyatta University

SR/xxx

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Page 1 of 1

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P.O. Box 43844, 00100
NAIROBI, KENYA
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Our Ref: D53/CTY/PT/28815/2019

DATE: 13th March, 2025

Director General,
National Commission for Science, Technology
and Innovation
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR ANNE MUTHINI – REG. NO. D53/CTY/PT/28815/2019

I write to introduce **Anne Muthini** who is a Postgraduate Student of this University. The student is registered for M.B.A degree programme in the **Department of Management Science.**

Anne intends to conduct research for a M.B.A Project Proposal entitled, **"Green Practices and Performance of Logistics Firms in Nairobi City County, Kenya."**

Any assistance given will be highly appreciated.

Yours faithfully,

PROF. ELIUD NJAGI
EXECUTIVE DEAN, GRADUATE SCHOOL

SR/mo

Appendix V: Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 151008

Date of Issue: 30/April/2025

RESEARCH LICENSE

This is to Certify that Miss. Ann Muthini of Kenyatta University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev. 2014) in Nairobi on the topic: GREEN PRACTICES AND PERFORMANCE OF LOGISTICS FIRMS IN NAIROBI CITY COUNTY, KENYA for the period ending : 30/April/2026.

License No: NACOSTI/P/25/4172838

151008

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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See overleaf for conditions