GREEN LOGISTICS MANAGEMENT PRACTICES AND SUPPLY CHAIN PERFORMANCE AMONG LOGISTICS SERVICES PROVIDERS IN NAIROBI - KENYA

BY:

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DECLARATION

This management research project is my original work and has not been presented for any academic credit in this or any other university.

Signed…….. Date…….

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D61/72441/2011

This management research project has been submitted for examination with my approval as a University Supervisor.

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God’s love that endures forever. I knocked on the door of academic excellence and it was opened. To Him is all the glory.

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Special thanks to my wife, Caroline Mwende for her patience, understanding and support during the whole period of my studies.

DEDICATION

This project is dedicated to my mama, Margaret Ndungwa. Thank you for what you've made of this family. To my family, Carol Mwende, Lincoln Mumo and baby Levi. God bless you!

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ABBREVIATIONS AND ACRONYMS

GLMP: Green Logistics Management Practices

KIFWA: Kenya International Freight and warehousing association

LSP: Logistics Service Providers

SCOR: Supply Chain Operations Reference Model

SPSS: Statistical Package for Social Sciences

ABSTRACT

The supply chain and logistics sector of the Kenyan economy is faced by a lot of challenges. Logistics firms are investing heavily in research and lean methods of service delivery in order to cut costs and deliver their services effectively and efficiently.

In today's global economy, competition is becoming fierce by the day. Firms have an urgent need to invent and invest in modern methods of service delivery in order to remain relevant against a back drop of dwindling profits, global awareness of climatic concerns and need to retain customers. The dynamism of the global market today has called into question the competitive advantage of a firm investing in green logistics, and whether it is worthy for logistics firms to invest in green logistics.

This study had a two-pronged approach; to determine the benefits and challenges facing green logistics management and implementation among logistics service providers in Nairobi, Kenya and to determine the relationship between implementation of green logistics management and supply chain performance among logistics services providers in Nairobi, Kenya.

A sample of major logistics service providers was selected out of the target population and a questionnaire administered. The study used primary data which was collected using self-administered questionnaires. The data was analyzed using the Statistical Package for Social Sciences (SPSS) software, with the main analysis tools being frequencies, mean and standard deviation.. Descriptive statistics in form of tables and percentages were used to interpret and present the data.

The findings showed that most logistics service providers have adopted green logistics in their operations. The main green logistics practices that have been adopted by the firms include waste management, reverse logistics, eco design and packaging, route planning and scheduling, and recycling practices. There was a general positive relationship between green logistics practice and supply chain performance. There is need therefore for firms to invest more in green logistics with an aim of conserving the environment, remaining competitive and retaining customer loyalty. The management of the firms need to enlighten the staff on the benefits of adopting green logistics. Government bodies also need to increase awareness and sensitization to logistics service providers in order to fully achieve the benefits of green logistics across the industry.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Logistics is one of the most important developments in the supply chain and transportation industry and implies the organization and control over freight movements. 'Greenness' refers to positive environmental concerns employed to suggest compatibility with the environment (Rodrique et al., 2001). Logistics management has an impact on the firm performance and service delivery. The logistics function affects significantly the performance and competitive advantage through cost reduction and fast adaptation to the rapid changing global economy.

For firms to remain relevant there is need to adapt fast to changes in the environment to ensure survival and growth. Green logistics involves production of goods and services and distribution of these while taking to account the effect of these activities to the environment and to the society as well, measuring the environmental impact of different distribution strategies, waste management, and reduction in energy usage (Abdelkader Sbihi and Richard W. Eglese, 2010). The demand for environmentally friendly products coupled with increased costs of energy and inputs have necessitated businesses to find ways to reduce costs and increase customer loyalty (Lamming and Hampson, 1996).

The integration of environmental thinking into logistics has a positive impact on improving green strategies in supply chains. Increased awareness on environmental concerns such as global warming, scarce resources against a backdrop of rapidly increasing population has led to increased advocacy for green processes aimed at eliminating waste, pollution and conserving the environment (Kumar et al., 2012). Green logistics involves the activities related to eco efficient management of the forward and reverse flow of goods, services and information between the points of origin to the ultimate customer, and stresses the integration of ecological goals into the value chains (Carter et al., 2008).

1.1.1 Green Logistics Practices

Green logistics Green logistics involves the production of goods and services and the distribution of these while taking into account the effect of these activities to the environment and to the society as well, measuring the environmental impact of different distribution strategies, waste management and reduction in energy usage (Abdelkader Sbihi and Richard W. Eglese, 2010).

Green logistics management practices are strategies that reduce the environmental and energy footprint of freight distribution, which focuses on material handling, waste management, packaging and transport. Green logistics consists of all activities related to the eco-efficient management of the forward and reverse flows of products and information between the point of origin and the point of consumption.

Green logistics management encompasses environmental initiatives in inbound logistics which included green purchasing, eco- design, production and outbound logistics which include reverse logistics. These initiatives involve material suppliers, service contractors, vendors, distributors, and end users working together to reduce or eliminate adverse environmental impacts on their activities (Vachom et al., 2006, Chen. 2001, Sbihi et al., 2010).

1.1.2 Supply Chain Performance

According to Whitten et al., (2012), supply chains are value chains extending from suppliers' supplier to the ultimate customer whose optimal performance requires integration and coordination of the production, marketing and finance functions amongst individual organizations and those of supply chain partners. Whitten et al., (2012) note that a supply chain consists of all parties involved either directly or indirectly in fulfilling a customer request, and encompasses the manufacturers, suppliers, transporters, warehouses, retailers and the customers.

Supply chain management is the coordination and management of a complex network of activities involved in delivering a finished product to the end user or customer

(Shrivastava, 1995) The supply chain council (2007) defines supply chain management as every process involved in the production and delivery of a final product or service.
Supply chain performance is the evaluation of supply chain management and includes both the tangible factors like cost and intangible factors like resource utilization, and can be rated by the extent to which an organization has gone green, agility and adaptability to changes in the business environment. A well performing supply chain incorporates green logistics management practices whereby firms seek to minimize negative environmental impacts in their supply chain (Chan F and Chan H 2008, Whitten et al., 2012).

Supply chain performance measurement is the rating of the returns from supply chain investment and can be done by looking at how a supply chain exhibits agility, adaptability, alignment and sustainability. Agility is the ability of a supply chain to respond to short term changes in demand or supply quickly and handle external disruptions smoothly. Adaptability is the ability to adjust to the supply chain's design to meet structural shifts in markets and modify the supply network to reflect changes in strategies, technologies, and products. Alignment is the ability to match the interests of the partners and stakeholders in the supply chain to those of the firm (Whitten et al.,2012). Sustainability has been defined as the potential for reducing long term risks associated with resource depletion, fluctuations in energy costs, product liabilities, pollution and waste management (Shrivastava, 1995).

1.1.3 Logistics Service Providers in Kenya

Logistics firms in Nairobi fall under the Kenya International Freight and warehousing association (KIFWA) which is the sole representative of all logistics firms in Kenya. Other associations that govern logistics firms in Kenya include Federation of E.A Freight Forwarders Association, and Kenya institute of Supplies Management (http://www.kifwa.co.ke). As at July 2014, there were 1900 logistics firms operating in Kenya, dealing in clearing and forwarding, freight logistics and warehousing services, with about a half of these being located in Nairobi (ttp://www.businesslist.co.ke/category/logistics/8/city:Nairobi, http://www.yellowpageskenya.com)

The main objectives of these associations is to promote and protect legitimate trade of logistics agents, promote a high standard of service by its members to their customers, promote adoption of uniform documents and standard terms and conditions of service by members, collect, and circulate information and statistics affecting members or the business and representing the view of the members to the government agencies (Sabwa, 2013).

As Rogers et al., (1998) point out, information technology systems offer crucial support to supply chain processes and lack of implementation of proper IT support systems poses a major challenge to logistics service providers. An effective IT system is necessary for supporting logistics service providers in their quest to improve green logistics management practices.

IT systems can be used for track and trace of returns of products or for visibility purposes that will ensure lead times are met. An up to date IT system will also enable firms to handle information flow effectively, thereby ensuring that the forward and backward flow of material and other resources are handled efficiently (Ravi et al.,2005).

1.2 Statement of the Problem

According to Chonga et al., (2010), enterprises are encouraged to reuse, remanufacture recycle used products to reduce harmful effects to the environment. Tanguchi, (1997) indicates that today, many firms have accepted their responsibility to do no harm to the environment. Environmental issues, resource re-usage and IT applications are gaining interest in supply chain management researches (Chung-Jen Chunga et al., 2010).

Khafra, (2012) studied the green supply chain management practices and the challenges faced by manufacturing firm in Mombasa, Kenya, but the study did not seek to identify the green logistics management practices by firms and the effect of the practices on supply chain performance.

Obiso, (2011) studied the green supply chain management practices by independent

petroleum marketing firms and found out that majority of these firms did not appreciate the need to invest in these practices, and hence the need to study whether logistics service providers are aware of green logistics management practices and whether the practice has an significant influence on performance.

Chege, (2012) carried out research on green supply chain management practices and supply chain performance of private hospitals in Nairobi, Kenya and found out that these practices have a significant relationship with supply chain performance. The study however did not cover logistics service providers hence the need for studies to be done in this area. Observations from the above studies indicate that green logistics practices and the effect on supply chain performance are not addressed, and the studies done are not about logistics service providers. It is on these grounds that the study seeks to determine the green logistics practices by logistics service providers in Nairobi, Kenya and the effect of these practices on supply chain performance.

The study sought to answer the following questions; what are the Green Logistics Management Practices (GLMP) commonly used by Logistics Service Providers (LSP) in Kenya; Is there any relationship between Green Logistics Management Practices and supply chain performance of Logistics Service Providers in Kenya.

1.3 Objectives of the study

The objectives of the study were;

i. To determine the Green Logistics Practices used by Logistics Service Providers in Kenya.
ii. To establish the relationship between Green Supply Logistics Practice and supply Chain Performance of Logistics Service Providers in Kenya.

1.4 Value of the Study

The study shall add to the growing body of knowledge on green supply chain practices and their impact on the environment by offering a reference point for stake holders in the logistics sector.

The logistics service providers can benefit from the study by using the findings as a benchmark on their practices, and how to improve the supply chain performance of their organizations.

Researchers and academicians in the field of green logistics will find this study a useful guide for carrying out further studies in this area.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter takes into account the theoretical and empirical literature from past studies on the subject of green supply chain management practices. A critical review of supply chain performance measurement, supply chain key performance indicators, green logistics, green supply chain management practices, supply chain performance shall be taken in this chapter.

2.2 Green Logistics Practices

The term ‘supply chain’ was first used in the mid 1970’s as a term for transferring electricity to the final consumer (Benita et al., 1999). In the mid 1980’s, supply chain management came into force by integration of business functions like purchasing, manufacturing, sales and transportation (Wu et al., 1995).

Green logistics are supply chain management practices and strategies that reduce the environmental and energy footprint of distribution of goods and services. These practices focus on material handling, waste management, packaging and transport (The Supply Chain Council, 2007).

Environmental impact of business activities has become an important issue in recent years due to growing public awareness of environmental conservation, increasing need for sustainable development and introduction of environmental legislations. Firms are redesigning their logistics practices to make the activities more energy efficient and environmentally friendly. Green supply chain initiatives in procurement, manufacturing, distribution and recycling have become major trends (Mason, 2002). Consequently, green logistics have become an important consideration and a big challenge to supply chain management around the globe (Murphy et al., 2000; Rao et al., 2005;Vachon et al., 2006).

2.1.1 Reverse Logistics Practices

Rogers et al., (1999); (2006); Xie eta al., (2012) defined reverse logistics as the process of planning, implementing and controlling the efficient cost effective flow of raw materials, in – process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing or creating value or for proper disposal. Reverse logistics is a process in which a manufacturer systematically accepts previously shipped products or parts from the point of consumption for possible recycling, remanufacturing or disposal. More precisely, reverse logistics is the process of moving goods from their typical final destination for the purpose of capturing value, or for disposal that is friendly to the environment. Other reverse logistics practices include remanufacturing activities, refurbishment activities, reusing containers, and recycling packaging materials (Rogers et al., 1998).

2.1.2 Green Procurement Practices

The process of formally introducing and integrating environmental issues and concerns into the purchasing process, seeking to acquire services and goods characterized by a low environmental impact in products that are environmentally friendly by use of environmentally friendly processes. Initiatives aimed at reducing environmental impact in logistics include adoption of environmental criteria into supplier assessment and purchase of eco-friendly products. Suppliers who have certified processes ISO 14001 for example, and who have low raw material consumption, controlled emissions and pollution levels, and raw material tracing are preferable to firms that practice green logistics. Products that are made up of a large portion of recycled materials and stamped by reliable eco-labels are also preferred (Collicchia et al., 2011; Loebvich et al., 2011).

2.1.3 Eco- Design and packaging Practices

This practice involves designing of products that minimize consumption of materials and energy, that are reusable, recyclable and that enable the recovery of component materials and part. Eco-design reduces environmental impact, enables recycling or reuse and involves the use of biodegradable materials (Green et al., 2012).

Redesigning packaging to use less material and reducing energy and pollution from manufacturing processes is key to achieving eco design practices (Rogers et al., 1998).

2.1.4 Waste Management Practices

This may involve the use of alternative fuels, treatment and control of post combustion emissions, waste reduction, use of carbon dioxide refrigeration systems, reuse and recycling approaches, carbon dioxide capture and reduction of hydro-carbons (Colicchia et al., 2011).

2.1.5 Freight Consolidation

Freight consolidation helps deliver more goods with one transport means using transport more efficiently. Deliveries with less than full truck loads are note economical, and end up having more carbon dioxide emissions in the air. There is reduced cost per kilogram of transported merchandize where more goods are transported with one transport means, while at the same time carbon emissions are reduced (Gupta & Baghchi, (1987).

2.1.6 Route Planning and Scheduling

Traffic flows and congestion, location of distribution centers and production facilities and road infrastructure plays an important role in reducing emissions and reducing delays and saving on time spend on the road. Transporting goods during rush hours or through congested routes increases fuel consumption and carbon emissions. Moving distribution centers from town centers and from congested routes saves time on delivery. Having modern infrastructure helps reduce delivery times and emissions (Wu et al., 1995).

2.2 Green Logistics Performance

The three guiding pillars for the development of green logistics are accessibility, sustainability and mobility. Although government policy and other stakeholders influence corporate policy, logistics firms make the final decision which directly affects pollutant releases into the environment as they undertake their processes, and as such, in developing green logistics strategies the industry must be considered (Tanguchi & Johnson, 1999). The goals of logistics service providers often conflict with the aims of

green logistics (the paradoxes of green logistics) Rodrique et al., 2000). Increasing efficiency of industry activities with respect to timing and profits has been the primary focus and objective of planning and research related to green logistics.

Recently, concern over environmental impacts has spawned the concept of green logistics as a stimulus for developing supply chain strategies, which can reduce the environmental impact of firms (Murphy, 2007).

2.3 Supply Chain Performance Measurement

Supply chain management is the coordination and management of a complex network of activities involved in delivering a finished product to the end-user or customer. It is a vital business function and the process includes sourcing raw materials and parts, manufacturing and assembling products, storage, order entry and tracking, distribution through the various channels and finally delivery to the customer. A company's supply chain structure consists of external suppliers, internal functions of the company, and external distributors, as well as customers (commercial or end-user). Firms may be members of multiple supply chains simultaneously. The management and coordination is further complicated by global players spread across geographic boundaries and multiple time zones. The successful management of a supply chain is also influenced by customer expectations, globalization, information technology, government regulation, competition and the environment (Benita, 1999).

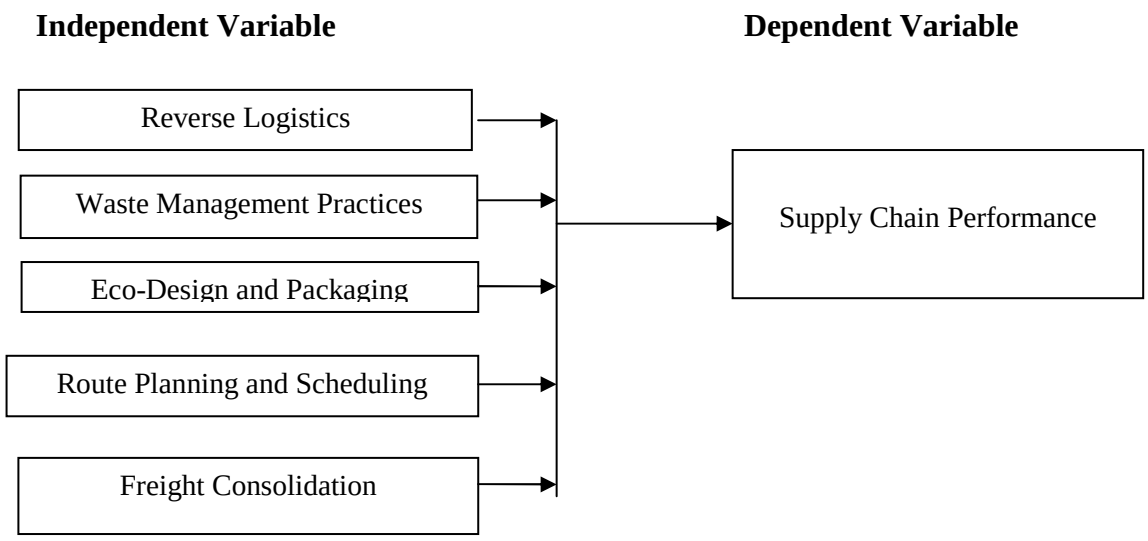
According to Chang et al., (2012) supply chain performance refers to the evaluation of a supply chain and may include both tangible factors like cost, and intangible factors like capacity utilization. Halme, (2010) points out that supply chain performance measurement can be done by use of a balanced score card which has four main areas of measurement i.e. customer perspective which evaluates on how the firm adds value to the customer through quality, time, performance, value and cost, internal business perspective, financial perspective and innovation and learning perspective.

The Supply Chain Council, (2010) argues that the supply chain operations reference model (SCOR) can also be used to measure supply chain performance. This method provides a framework that links metrics with five management processes; plan, source, make, deliver, return. The SCOR model metrics are divided under core supply chain performance attributes which are; reliability, responsiveness, agility and cost.

2.4 Conceptual Framework

A conceptual framework assists to simplify the proposed relationship between the dependent variable and the independent variable. The independent variables in this study are Reverse Logistics, Waste Management Practices, Green Procurement Practices, Eco – Design and Packaging Practices, Route Planning and scheduling and Freight Consolidation while the dependent variable is Supply Chain Performance.

Figure 2.1 Conceptual Framework



CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the methodology that was adopted by the researcher in carrying out the study. The population studied the methods adopted in sampling, the instruments used in data collection and procedures used in data analysis were presented in this chapter.

3.2 Research Design

A descriptive cross sectional research design was adopted for this study. According to Cooper and Schindler, (2003), a descriptive study is concerned with finding out what, where and how of a phenomenon. Descriptive research collects data in order to answer questions concerning the current status of the subject under study (Mugenda and Mugenda, 2003). Descriptive research design is expected to enable the researcher to generalize the findings to a larger population.

3.3 Target Population

The population of the study was all the logistics service providers based in Nairobi Kenya. The target population was the logistics service providing firms in Nairobi, that fall under the Kenya International Freight and warehousing association (KIFWA) which is the representative of logistics firms in Kenya. Random sampling to select the sample to be used in the study.

3.4 Sampling

A sample is a representation of the population. According to Mugenda and Mugenda, (2003) the sample size is a function of the total population and is acquired as indicated below;

$$n = N/(1 + Ne^2)$$

Where

n = Sample size

N= Target Population

e = Margin of error

Sample size n = $850/(1+850(0.05^2)$

n = 272

A sample size of 272 firms was used for the purpose of this study.

3.4 Data Collection

The research was done by use of a self-administered questionnaire as the primary data collection instrument. The questionnaire was divided into sections representing the various variables to be adopted for the study, and included closed structured and open ended questions. The questionnaire was administered through a drop and pick method, and the respondents comprised of senior management, and middle level management staff in the target firms.

The questionnaires were distributed by hand to be completed by the selected respondents. The respondents were given explanations concerning the purpose of the study and the rights of the respondents including confidentiality and anonymity, and informed consent was sought from the respondents. Follow ups on phone or send reminders on email were made to ensure high completion rate. Upon completion, the questionnaires were collected.

3.5 Data Analysis

The questionnaire responses were prepared and analyzed using descriptive statistics. These included correlation analysis, percentages and frequencies. The data analysis involved examining what was collected and making deductions and inferences. The data was entered into Statistical Package for Social Sciences, (SPSS) software to facilitate for analysis. The analyzed data was presented in frequency distribution tables and pie charts for ease of understanding and analysis.

Objective one was to be established using a simple linear regression model given as;

$Y = \infty + \beta_1 X_1 + e$

Where,

∞ = is the constant

$\beta_{1=}$ is the slope

Y= is the dependent variable

X= is the independent variable

e = is the error

Objective two was established by use of frequency distribution tables and pie charts which were computed to establish the relationship between green logistics management practices and supply chain performance.

CHAPTER FOUR
DATA ANALYSIS, PRESENTATIONS AND INTERPRETATION

4.1 Overview

This chapter analyses the findings, interprets and presents data in line with the objectives of the study. SPSS was used to generate the both the descriptive and inferential statistics presented in the chapter. The research findings were presented in figures and tables.

4.2 Presentation of Findings

4.2.1 Response Rate

The analysis of the response rate was as follows:

Table: 4.1 Response Rate

Questionnaires Distributed	**Frequency**	**Percentage %**
Returned	113	76.9 %
Not returned	34	23.1 %
Total	**147**	**100 %**

Source: Researcher (2014)

Table 4.1 above shows that 76.9% of the questionnaires were satisfactorily filled and returned while 27% were not returned. This implies the response rate was high.

4.2.2 Adaptation of Green Logistics

The study sought to understand the usage of green logistics in the participating organizations. The results are presented in table 4.2 below;

Table 4.2: Adopting to green logistics

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	62	54.9	54.9	54.9
No	51	45.1	45.1	100.0
Total	113	100.0	100.0	

Source: Researcher (2014)

From table 4.2 above, 54.9% of the respondents said their organizations have adopted green logistics while 45.1% said their organizations have not adopted green logistics. This indicate that majority of the respondents organizations had adopted green logistics.

4.2.3 The Period Companies have adopted Green Logistics Management Practices

The analysis on the length of time the organizations have used green logistics is presented in table 4.3 below;

Table 4.3: Length of green logistics use

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2yrs	45	39.8	39.8	39.8
	2-4yrs	55	48.7	48.7	88.5
	Over 4years	13	11.5	11.5	100.0
	Total	113	100.0	100.0	

Source: Researcher (2014)

Based on table 4.3 above, 39.8% of the respondents said their companies have adopted green logistics management practices for a period of between 1-2 years, 48.7% between 2-4 years and 11.5% for over 4 years. This implies that majority of the organizations had implemented green logistics for a period of between 2-4years.

4.3 Level of implementation of green logistics

The respondents were asked to rate the extent to which their organizations had implemented green logistics. In order to adequately cover the green logistics, the construct was broken down into 5 statements relating to implementation of green logistics. The statements were measured on a 5 point likert scale where; 1=Very small extent; 5=Very large extent. The reliability test was using Cronbach's alpha which yielded a value of 0.89, which is high implying a strong internal consistency among the 5 items. Table 4.4 presents the ratings the level of implementation of green logistics among logistics service providers;

Table 4.4 Level of green logistics Implementation

Statements	VSE (1) %	SE (2) %	ME (3) %	LE (4) %	VLE (5) %	Mean	Standard deviation
The firm recognizes logistics as one of the most important developments in supply chain and transportation industry	3.5	10.6	17.7	30.1	38.1	2.12	1.140
The firm recognizes 'greenness' as a key factor in the firm's environmental impact assessment	10.6	11.5	26.5	36.3	15.0	2.66	1.090
The firm takes into account the effect of its production activities to the environment and society	3.5	6.2	19.5	29.2	41.6	2.01	1.201
The firm recognizes the need for environmentally friendly products and reducing energy consumption as ways of reducing costs and increasing customer loyalty	5.3	15	17.7	32.7	29.2	2.16	0.922
The firm recognizes the need for advocacy for green processes aimed at eliminating waste, pollution and conserving the environment	0.9	3.5	35.4	31	29.2	3.11	1.205
Average Mean						**2.27**	**0.884**

Source: Researcher (2014)

As indicated by the results on the table 4.4, 3.5% of the respondents rated their organization as recognizing logistic management to a very small extent, 10.6% rated it as small extent, 17.7% rated it as recognized to a moderate extent, 30.1% rated their organizations as recognizing logistics to a large extent while 38.1% rated it at a very large extent. The mean score was 2.12 and standard deviation of 1.14.

10.6% of the respondents rated their firm as recognizing ‘greeness’, to a very small extent, 11.5% to a small extent 26.5% to a moderate extent, 36.3% to a large extent and 15% to a very large extent. This implies that majority of the respondents rated their

organization as having recognized ‘greeness’ to a large extent. The mean of the responses was 2.66 with a standard deviation of 1.09.

On the rating of the firms taking into account the effect of its activities on the environment, 3.5% said their organization took into account to a very small extent, 6.2% to a small extent 19.5% to a moderate extent, 29.2% to a large extent and 41.6% to a very large extent. This implies that majority of the respondents rated their organization as putting into account effect on environment to a very large extent. The mean of the responses was 2.01 with a standard deviation of 1.201.

3.3% of the respondents rated their organizations as recognizing environmentally friendly products in their cost reduction, to a very small extent, 15% to a small extent 17.7% to a moderate extent, 32.7% to a large extent and 29.2% to a very large extent. This implies that majority of the respondents rated their organization as having recognized environmentally friendly products in their cost reduction to a large extent. The mean of the responses was 2.16 with a standard deviation of 0.922.

On the rating of the firms recognition on the need to advocate for green 0.9% said their organization took into recognized to a very small extent, 3.5% to a small extent 35.4% to a moderate extent, 31% to a large extent and 29.2% to a very large extent. This implies that majority of the respondents rated their organization recognizing environmental advocacy to moderate extent. The mean of the responses was 3.11 with a standard deviation of 1.205.

4.4 Benefits of Green Management Practices

The respondents were asked to rate the benefits of green management practices in their organisation. The construct was broken down into 8 statements relating to benefits of green management practices. The statements were measured on a 5 point likert scale where; 1=Very small extent; 5=Very large extent. The reliability test was using Cronbach’s alpha which yielded a value of 0.89, which is high implying a strong internal

consistency among the 8 items. Table 4.5 presents the ratings of the benefits of green management practices among logistics service providers;

Table 4.5 Benefits of Green Logistics Management Practices

Statements	**VSE (1) %**	**SE (2) %**	**ME(3) %**	**LE (4) %**	**VLE (5) %**	**Mean**	**Standard deviation**
Improved waste management	15.9	19.5	18.6	29.2	16.8	3.04	1.281
Reduction in energy usage.	11.5	20.4	26.5	31	10.6	3.12	1.341
Reduced carbon emission in freight distribution	10.6	28.3	20.4	31	9.7	3.09	1.184
Reduced cost of operation	13.3	17.7	19.5	38.1	11.5	3.01	1.191
Fast adaptation to changes in the global economy	8.0	27.4	22.1	23	19.5	3.17	1.239
Increased awareness on global concerns	14.2	15.9	23.9	29.2	16.8	3.19	1.257
Efficiency in resource utilization	13.3	21.2	29.2	28.3	8.0	3.19	1.292
Maximized return on investment	15	20.4	24.8	25.7	14.2	2.96	1.164
Average Mean						**3.07**	**0.884**

Source: Researcher (2014)

From table 4.5, 15.9% of the respondents rated their organization have gained to a very small extent, the benefits related to improved waste management, 19.5% rated it as small extent, 18.6% rated it as recognized to a moderate extent, 29.2% rated their organizations as recognizing logistics to a large extent while 16.8% rated it at a very large extent. The mean score was 3.04 and standard deviation of 1.281.

11.5% of the respondents rated their firm as having achieved to a very small extent reduction of energy as a result of green logistics processes, 20.4% to a small extent 26.5% to a moderate extent, 31% to a large extent and 10.6% to a very large extent. This implies that majority of the respondents rated their organization as having achieved

reduction of energy as a result of green logistics to a moderate extent. The mean of the responses was 3.12 with a standard deviation of 1.341.

On the rating of the organizations reduction in freight emission as a result of green logistics, 10.6% said their organization has reduced freight emission very small extent, 28.3% to a small extent 20.4% to a moderate extent, 31% to a large extent and 9.7% to a very large extent. This implies that majority of the respondents rated their organization as having reduced fright emission as a result of green logistics to a large extent. The mean of the responses was 3.09 with a standard deviation of 1.184.

The respondents were asked to what extent green logistics have reduced cost of operation13.3% said to a very small extent, 17.7% to a small extent 19.5% to a moderate extent, 38.1% to a large extent and 11.5% to a very large extent. This implies that majority of the respondents rated their organization as having reduced the cost of operation as a result of green logistics. The mean of the responses was 3.01 with a standard deviation of 1.191.

On the rating of the firms adaptation to changes in global economy 8% said their organization have adapted to a very small extent, 27.4% to a small extent 22.1% to a moderate extent, 23% to a large extent and 19.5% to a very large extent. This implies that majority of the respondents rated their organization as having adapted to changes in the global economy to a very small extent. The mean of the responses was 3.17 with a standard deviation of 1.239.

On the rating of the firms increased awareness on global concerns, 14.2% said their organization have increased the awareness to a very small extent, 15.9% to a small extent 23.9% to a moderate extent, 29.2% to a large extent and 16.8% to a very large extent. This implies that majority of the respondents rated their organization as having increases awareness of global concerns to a large extent. The mean of the responses was 3.19 with a standard deviation of 1.257.

13.3% of the respondents rated their organizations as having efficient in resource mobilization to a very small extent, 21.2% to a small extent 29.2% to a moderate extent, 28.3% to a large extent and 8% to a very large extent. This implies that majority of the respondents rated their organization as having efficiency in resource mobilization to a small extent. The mean of the responses was 3.19 with a standard deviation of 1.292.

On the rating of the extent of firms maximizing return on investment 15% said their organization have maximized their return on investment to a very small extent, 20.4% to a small extent 24.8% to a moderate extent, 25.7% to a large extent and 14.2% to a very large extent. This implies that majority of the respondents rated their organization as having maximized their return on investment to a large extent. The mean of the responses was 2.96 with a standard deviation of 1.164.

4.5 Supply Chain Management Practices

The respondents were asked to rate the supply chain management practices in their organization. The construct was broken down into7 statements relating to supply chain management practices. The statements were measured on a 5 point likert scale where; 1=Very small extent; 5=Very large extent. The reliability test was using Cronbach's alpha which yielded a value of 0.72, which is relatively high implying internal consistency among the 7 items. Table 4.6 presents the ratings of supply chain management practices among logistics service providers;

Table 4.6 Supply Chain Management Practices

Statements	VSE (1) %	SE (2) %	ME (3) %	LE (4) %	VLE (5) %	Mean	Standard deviation
The firm has formally introduced environmental issues into purchasing process	8.8	31	17.7	28.3	13.3	3.06	1.225
The firm has formally integrated environmental concerns into to supplier assessment process.	10.6	23.9	19.5	34.5	11.5	3.12	1.211
The firm has formally implemented use of environmentally friendly process	15	28.3	17.7	27.4	11.5	2.92	1.276
The firm has formally introduced the designing of products that minimize material and energy consumption	17.7	23	28.3	23.9	7.1	2.80	1.196
The firm is inclined to use of recyclable and reusable material and parts	15.1	21.2	30.1	23.9	8.8	2.88	1.201
The firm is has formally introduced the use of alternative fuels, treatment and control of post combustion emissions and waste reduction	13.3	31	35.4	12.4	8.0	2.71	1.099
The firm has formally introduced freight consolidation practices	8.8	21.2	33.6	22.1	14.2	3.12	1.163
The firm practices route mapping and planning	12.4	18.6	36.3	14.2	18.6	3.08	1.255
Average Mean						**2.91**	**0.884**

Source: Researcher (2014)

From table 4.6,18% of the respondents rated their organization have formally introduced to a very small extent, environmental issues into purchasing process, 31% rated it as small extent, 17.7% rated it as introduced to a moderate extent, 28.3% rated their organizations to have introduced environmental issues to a large extent while 13.3% rated it at a very large extent.

The mean score was 3.06 and standard deviation of 1.225. 10.6% of the respondents rated their firm as having formally integrated to very small extent environmental concerns into supplier assessment process, 23.9% to a small extent 19.5% to a moderate extent, 34.5% to a large extent and 11.5% to a very large extent. This implies that majority of the respondents rated their organization as having integrated environmental concers into supplier assessment process to a moderate extent. The mean of the responses was 3.12 with a standard deviation of 1.211.

On the rating of implementation of use of environmentally friendly process, 15% said their organization has formally implemented use of environmentally friendly process to a very small extent, 28.3% to a small extent 17.7% to a moderate extent, 27.4% to a large extent and 11.5% to a very large extent. This implies that majority of the respondents rated their organization as having formally implemented use of environmentally friendly process to a small extent. The mean of the responses was 2.92 with a standard deviation of 1.276.

The respondents were asked to what extent their firms have formally introduced the designing of products that minimize material and energy consumption, 17.7% said to a very small extent, 23% to a small extent 28.3% to a moderate extent, 23.9% to a large extent and 7.1% to a very large extent. This implies that majority of the respondents rated their organization as having formally introduced the designing of products that minimize material and energy consumption. The mean of the responses was 2.80 with a standard deviation of 1.196.

15.1% of the respondents rated their firm as having inclined to a very small extent to use of recyclable and reusable materials and parts, 21.2% to a small extent 30.1% to a moderate extent, 23.9% to a large extent and 8.8% to a very large extent. This implies that majority of the respondents rated their organization as having to use of recyclable and reusable materials and parts to a moderate extent. The mean of the responses was 2.88 with a standard deviation of 1.201.

On the rating of the organizations use of alternative fuels, treatment and control of post combustion emissions and waste reduction 13.3% said their organization has adopted use of alternative fuels, treatment and control of post combustion emissions and waste reduction, 31% to a small extent 35.4% to a moderate extent, 12.4% to a large extent and 8% to a very large extent. This implies that majority of the respondents rated their organization as having adopted use of alternative fuels, treatment and control of post combustion emissions and waste reduction to a large extent. The mean of the responses was 2.71 with a standard deviation of 1.099.

The respondents were asked to what extent the firm has formally introduced freight consolidation practices, 8.8% said to a very small extent, 21.2% to a small extent 33.6% to a moderate extent, 22.1% to a large extent and 14.2% to a very large extent. This implies that majority of the respondents rated their organization as having formally introduced freight consolidation practices. The mean of the responses was 3.12 with a standard deviation of 1.163.

On the rating of the firms adaptation to route mapping and planning, 12.4% said their organization have adapted to a very small extent, 18.6% to a small extent 36.3% to a moderate extent, 14.2% to a large extent and 18.6% to a very large extent. This implies that majority of the respondents rated their organization as having adapted to route mapping and planning to a very small extent. The mean of the responses was 3.08 with a standard deviation of 1.255.

4. 6 Reverse Logistics Practices

The respondents were asked to rate the reverse logistics practices in their organizations. The construct was broken down into 4 statements relating to reverset practices. The statements were measured on a 5 point likert scale where; 1=Very small extent; 5=Very large extent. The reliability test was using Cronbach's alpha which yielded a value of 0.68, which is relatively good implying internal consistency among the 4 items. Table 4.6 presents the ratings of reverse logistics practices among logistics service providers;

Table 4.7 Reverse Logistics Practices

Statements	VSE (1) %	SE (2) %	ME (3) %	LE (4) %	VLE (5) %	Mean	Standard deviation
The firm has formally introduced reverse logistics into its processes	9.7	15.9	23.9	29.2	21.2	3.36	1.254
The firm has formally implemented planning and controlling efficient cost effective flow of raw materials from point of consumption to origin	14.2	24.8	31	19.5	10.6	2.88	1.196
The firm accepts previously shipped products or parts for the purpose of recycling.	6.2	15.9	28.3	31.9	17.7	3.39	1.137
The firm accepts previously shipped products or parts for the purpose of disposal	4.4	11.5	19.5	36.3	28.3	3.73	1.128
Average Mean						**3.477**	**.477**

Source: Researcher (2014)

On the rating of the organizations introduction of reverse logistics into its processes, 9.7% said their organization has introduced reverse logistics to a very small extent, 15.9% to a small extent 23.9% to a moderate extent, 29.2% to a large extent and 21.2% to a very large extent. This implies that majority of the respondents rated their organization as having formally introduced reverse logistics into its processes to a large extent. The mean of the responses was 3.36 with a standard deviation of 1.254.

The respondents were asked to what extent their firms have formally implemented planning and controlling efficient cost effective flow of raw materials from point of consumption to origin, 14.2% said to a very small extent, 24.8% to a small extent 31% to a moderate extent, 19.5% to a large extent and 10.6% to a very large extent. This implies

that majority of the respondents rated their organization as having formally implemented planning and controlling efficient cost effective flow of raw materials from point of consumption to origin. The mean of the responses was 2.88 with a standard deviation of 1.196.

On the rating of the firms acceptance of previously shipped products or parts for the purpose of recycling, 6.2% said their organization have adapted to a very small extent, 15.9% to a small extent 28.3% to a moderate extent, 31.9% to a large extent and 17.7% to a very large extent. This implies that majority of the respondents rated their organization as having adapted acceptance of previously shipped products or parts for the purpose of recycling to a moderate extent. The mean of the responses was 3.39 with a standard deviation of 1.137.

In the rating of the firms acceptance of previously shipped products or parts for the purpose of disposal, 4.4% said their organization have accepted to a very small extent, 11.5% to a small extent 19.5% to a moderate extent, 36.3% to a large extent and 28.3% to a very large extent. This implies that majority of the respondents rated their organization as having accepted previously shipped products or parts for the purpose of disposal to a large extent. The mean of the responses was 3.73 with a standard deviation of 1.128.

4. 7 Green Procurement Practices

The respondents were asked to rate green procurement practices in their organizations. The construct was broken down into 7 statements relating to green procurement practices. The statements were measured on a 5 point likert scale where; 1=Very small extent; 5=Very large extent. The reliability test was using Cronbach's alpha which yielded a value of 0.81, which is high implying strong internal consistency among the 7 items. Table 4.8 presents the ratings of green procurement practices among logistics service providers;

Table 4.8 Green Procurement Practices

Measurement	VGE (1)	GE (2)	ME(3)	SE(4)	VSE(5)	TOTAL	
	Tables N %	Tables N %	Tables N %	N %	Tables N %	Mean	deviation
The firm has formally introduced environmental issues and concerns into its functions	15.9	20.4	30.1	222.1	11.5	2.93	1.237
The firm has formally implemented acquisition of goods and services characterized by a low environmental impact	12.4	14.2	29.2	28.3	15.9	3.21	1.235
The firm has formally implemented use of environmentally friendly processes into its production functions	15.0	23.9	33.6	18.6	8.8	2.82	1.167
The firm has formally introduced initiatives that are aimed at reducing environmental impact in its logistics	10.6	16.8	28.3	31	13.3	3.19	1.187
The firm has formally implemented processes that are ISO 14001 certified	7.1	18.6	24.8	32.7	16.8	3.34	1.170
Average Mean						**3.02**	**1.477**

Source Researcher (2014)

On the rating of the organizations introduction of environmental issues and concerns into its functions, 11.5% said their organization has introduced environmental issues and concerns to a very small extent, 22.1% to a small extent 30.1% to a moderate extent, 20.4% to a large extent and 15.9% to a very large extent. This implies that majority of the respondents rated their organization as having formally introduced environmental issues and concerns into its functions to a small extent. The mean of the responses was 2.93 with a standard deviation of 1.237.

The respondents were asked to what extent their firms have formally implemented acquisition of goods and services characterized by a low environmental impact, 15.9% said to a very small extent, 28.3% to a small extent 29.2% to a moderate extent, 14.2% to a large extent and 12.4% to a very large extent. This implies that majority of the respondents rated their organization as having formally implemented acquisition of goods and services characterized by a low environmental impact to a moderate extent. The mean of the responses was 3.21 with a standard deviation of 1.1235.

On the rating of the firms implementation of environmentally friendly processes into its production functions, 8.8% said their organization have adapted to a very small extent, 18.6% to a small extent 33.6% to a moderate extent, 23.9% to a large extent and 15.0% to a very large extent. This implies that majority of the respondents rated their organization as having implemented environmentally friendly processes into its production functions to a moderate extent. The mean of the responses was 2.82 with a standard deviation of 1.167.

In the rating of the firms introduction of initiatives that are aimed at reducing environmental impact in its logistics, 13.3% said their organization have accepted to a very small extent, 31% to a small extent 28.3% to a moderate extent, 16.8% to a large extent and 10.6% to a very large extent. This implies that majority of the respondents rated their organization as having introduced initiatives that are aimed at reducing environmental impact in its logistics small. The mean of the responses was 3.19 with a standard deviation of 1.187.

In the rating of the firms implementation of processes that are ISO 14001 certified, 16.8% said their organization have accepted to a very small extent, 32.7% to a small extent 24.8% to a moderate extent, 18.6% to a large extent and 7.1% to a very large extent. This implies that majority of the respondents rated their organization as having implemented processes that are ISO 14001 certified to a very small extent. The mean of the responses was 3.34 with a standard deviation of 1.17.

4.8 Eco-design, packaging and waste management

The respondents were asked to rate eco design, packaging and waste management in their organizations. The construct was broken down into 5 statements relating to green procurement practices. The statements were measured on a 5 point likert scale where; 1=Very small extent; 5=Very large extent. The reliability test was using Cronbach's alpha which yielded a value of 0.76, which is high implying strong internal consistency among the 5 items. Table 4.9 presents the ratings of eco design, packaging and waste management among logistics service providers;

Table 4.9 Eco – Design, Packaging and Waste management

Measurement	**VGE (1)**	**GE (2)**	**ME (3)**	**SE (4)**	**VSE(5)**	**TOTAL**	
	Tables N %	Tables N %	Tables N %	Tables N %	Tables N %	Mean	Standard deviation
The firm has formally introduced designing of products that minimize material and energy consumption	17.7	23	28.3	23.9	7.1	2.8	1.96
The firm has formally introduced usage of material and parts that are reusable and recyclable.	15.9	20.4	31	23.9	8.8	2.89	1.198
The firm has formally introduced use of biodegradable materials.	12.4	24.8	30.1	18.6	14.2	2.97	1.228
The firm has formally introduced use of alternative fuels, treatment and control of post combustion emissions	13.3	22.1	35.4	12.4	16.8	2.97	1.25
The firm has implemented waste reduction measures in its production processes.	19.5	28.3	33.6	14.2	4.4	2.56	1.093
Average Mean						**2.81**	**1.003**

Source: Researcher (2014)

Based on table 4.9 above, the rating of the organizations introduction of designed products that minimize material and energy consumption, 7.1% of the respondents indicated a very small extent, 23.9% to a small extent 28.3% to a moderate extent, 23% to a large extent and 17.7% to a very large extent. This implies that majority of the

respondents rated their organization as having formally introduced designing of products that minimize material and energy consumption to a moderate extent. The mean of the responses was 2.8 with a standard deviation of 1.96.

The respondents were asked to what extent their firms have formally introduced usage of material and parts that are reusable and recyclable, 18.8% said to a very small extent, 23.9% to a small extent 31% to a moderate extent, 20.4% to a large extent and 15.9% to a very large extent. This implies that majority of the respondents rated their organization as having formally introduced usage of material and parts that are reusable and recyclable to a moderate extent. The mean of the responses was 2.89 with a standard deviation of 1.198.

On the rating of the firms introduction of biodegradable materials, 14.2% said their organization have introduced to a very small extent, 18.6% to a small extent 30.1% to a moderate extent, 24.8% to a large extent and 12.4% to a very large extent. This implies that majority of the respondents rated their organization as having formally introduced use of biodegradable materials to a moderate extent. The mean of the responses was 2.97 with a standard deviation of 1.228.

In the rating of the firms introduction to use of alternative fuels, treatment and control of post combustion emissions, 16.8% said their organization have accepted to a very small extent, 12.4% to a small extent 35.4% to a moderate extent, 22.1% to a large extent and 13.3% to a very large extent. This implies that majority of the respondents rated their organization as having introduced use of alternative fuels, treatment and control of post combustion emissions to a moderate extent. The mean of the responses was 2.97 with a standard deviation of 1.25.

In the rating of the firms implementation of waste reduction measures in its production processes, 4.4% said their organization have implemented to a very small extent, 14.2% to a small extent 33.6% to a moderate extent, 28.3% to a large extent and 19.5% to a very large extent. This implies that majority of the respondents rated their organization as

having implemented waste reduction measures in its production processes to a moderate extent. The mean of the responses was 2.56 with a standard deviation of 1.093.

4.9 Freight consolidation, route planning and scheduling

The respondents were asked to rate freight consolidation, route planning and scheduling in their organizations. The construct was broken down into 4 statements relating to freight consolidation, route planning and scheduling. The statements were measured on a 5 point likert scale where; 1=Very small extent; 5=Very large extent. The reliability test was using Cronbach's alpha which yielded a value of 0.66, which is good to portray internal consistency among the 4items. Table 410 presents the ratings of freight consolidation, route planning and scheduling among logistics service providers;

Table 4.10 Freight Consolidation, route planning and scheduling

Measurement	**VGE (1)**	**GE (2)**	**ME(3)**	**SE(4)**	**VSE(5)**	**TOTAL**	
	Tables N %	Tables N %	Tables N %	Tables N %	Tables N %	Mean	Standard deviation
The firm has formally introduced freight consolidation aimed at transporting more goods efficiently	13.3	20.4	27.4	22.1	16.8	3.09	1.279
The firm has formally implemented route planning and scheduling to avoid rush hour traffic	8.8	25.7	34.5	21.2	9.7	2.97	1.106
The firm has formally implemented route planning that avoids congested town centers by use of alternative routes	17.7	27.4	30.1	18.6	6.2	2.68	1.152
The firm has invested in modern infrastructure to reduce delivery time.	9.7	16.8	30.1	32.7	10.6	3.18	1.136
Average Mean						**2.84**	**1.12**

Source: Researcher (2014)

As table 4.10 indicates, the rating of the organizations introduction of freight consolidation aimed at transporting more goods efficiently, 16.8% said their organization has introduced environmental issues and concerns to a very small extent, 22.1% to a small extent 27.4% to a moderate extent, 20.4% to a large extent and 13.3% to a very large extent. This implies that majority of the respondents rated their organization as having formally introduced freight consolidation aimed at transporting more goods efficiently to a moderate extent. The mean of the responses was 3.09 with a standard deviation of 1.279.

The respondents were asked to what extent their firms have formally implemented route planning and scheduling to avoid rush hour traffic, 9.7% said to a very small extent,

21.2% to a small extent 34.5% to a moderate extent, 25.7% to a large extent and 8.8% to a very large extent. This implies that majority of the respondents rated their organization as having formally implemented route planning and scheduling to avoid rush hour traffic to a moderate extent. The mean of the responses was 2.97 with a standard deviation of 1.106.

On the rating of the firms implementation of route planning to avoid congested cities, 6.2% said their organization have adapted to a very small extent, 18.6% to a small extent 30.1% to a moderate extent, 27.4% to a large extent and 17.7% to a very large extent. This implies that majority of the respondents rated their organization as having adapted to route planning to avoid congested cities to a moderate extent. The mean of the responses was 2.68 with a standard deviation of 1.152.

In the rating of the firm's investment in modern infrastructure, 10.6% said their organization have invested to a very small extent, 32.7% to a small extent 30.1% to a moderate extent, 16.8% to a large extent and 9.7% to a very large extent. This implies that majority of the respondents rated their organization as having invested in modern infrastructure to reduce delivery time to a small extent. The mean of the responses was 2.97 with a standard deviation of 1.25.

4.10 Supply Chain Management Performance

The respondents were asked to rate performance of supply chain in their organizations. The construct was broken down into 5 items relating to performance of supply chain. The statements were measured on a 5 point likert scale where; 1=Very small extent; 5=Very large extent. The reliability test was using Cronbach's alpha which yielded a value of 0.90, which is high portray a strong internal consistency among the 5 items. Table 4.10 presents the ratings of freight consolidation, route planning and scheduling among logistics service providers;

Table 4.11 Performance of Supply Chain Management

Measurement	VGE (1)	GE (2)	ME(3)	SE(4)	VSE(5)	TOTAL	
	Tables N %	%	%	Tables N %	%	Mean	Standard deviation
Freight Consolidation	19.5	23.9	31.9	14.2	10.6	2.73	1.234
Route planning	21.2	27.4	35.4	11.5	4.4	2.50	1.087
Waste management	15.0	24.8	30.1	15.9	14.2	2.69	1.158
Recycling practices	17.7	26.5	31.9	16.8	7.1	2.77	1.157
ISO 14001 certification	15.0	26.5	33.6	15.9	8.8	2.62	1.163
Average Mean						**2.65**	**1.113**

Source: Researcher (2014)

From table 4.11 the rating of freight consolidation, 10.6% said their organization has improved to a very small extent, 14.2% to a small extent 31.9% to a moderate extent, 23.9% to a large extent and 19.5% to a very large extent. This implies that majority of the respondents rated their organization as having improved to a moderate extent due to adoption of freight consolidation. The mean of the responses was 2.73 with a standard deviation of 1.234.

The respondents were asked to what extent their firms have improved due to adoption of route planning, 4.4% said to a very small extent, 11.5% to a small extent 35.4% to a moderate extent, 27.4% to a large extent and 21.2% to a very large extent. This implies that majority of the respondents rated their organization as having improved to a moderate extent due to adoption of route planning. The mean of the responses was 2.50 with a standard deviation of 1.087.

On the rating of the firms improvement due to waste management, 14.2% said their organization have adapted to a very small extent, 15.9% to a small extent 30.1% to a moderate extent, 24.8% to a large extent and 15.0% to a very large extent. This implies

that majority of the respondents rated their organization as having improved to a moderate extent due to waste management. The mean of the responses was 2.69 with a standard deviation of 1.158.

In the rating of the firms improvement due to recycling practices, 7.1% said their organization have accepted to a very small extent, 16.8% to a small extent 31.9% to a moderate extent, 26.5% to a large extent and 17.7% to a very large extent. This implies that majority of the respondents rated their organization as having improved to a moderate extent due to recycling practices. The mean of the responses was 2.77 with a standard deviation of 1.157.

In the rating of the firms improvement due to adoption of ISO 14001 certification, 8.8% said their organization have improved to a very small extent, 15.9% to a small extent 33.6% to a moderate extent, 26.5% to a large extent and 15.0% to a very large extent. This implies that majority of the respondents rated their organization as having improved to a moderate extent a large extent. The mean of the responses was 2.56 with a standard deviation of 1.093.

4.11 Correlation Analysis

This section presents the correlation analysis between supply chain performance and the independent variables that comprises green supply chain management practices. The results are presented in table 4.12 below;

Table 4.12: Correlations between Supply chain performance and Green SCP

		Supply Chain Performance	Green Supply Chain Management Practices	Implementation of Reverse Logistics practices	Implementation of eco-designs, packaging and waste management	Implementation of Green Procurement Practices	Freight Consolidation, Rout Planning and Scheduling	Implementation of Green Logistics
Supply Chain Performance	Pearson Correlation	1	.982**	.970**	.974**	.986**	.979**	.969**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	113	113	113	113	113	113	113
Green Supply Chain Management Practices	Pearson Correlation	.982**	1	.981**	.990**	.991**	.994**	.968**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	113	113	113	113	113	113	113
Implementation of Reverse Logistics practices	Pearson Correlation	.970**	.981**	1	.989**	.980**	.984**	.934**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	113	113	113	113	113	113	113
Implementation of eco-designs, packaging and waste management	Pearson Correlation	.974**	.990**	.989**	1	.983**	.990**	.950**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	113	113	113	113	113	113	113
Implementation of Green Procurement Practices	Pearson Correlation	.986**	.991**	.980**	.983**	1	.987**	.968**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	113	113	113	113	113	113	113
Freight Consolidation, Rout Planning and Scheduling	Pearson Correlation	.979**	.994**	.984**	.990**	.987**	1	.963**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	113	113	113	113	113	113	113
Implementation of Green Logistics	Pearson Correlation	.969**	.968**	.934**	.950**	.968**	.963**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	113	113	113	113	113	113	113

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

Table 4.12 above shows the Pearson moment correlation analysis between supply chain performance and the independent variables.

The correlation between supply chain performance and Green Supply Chain Management Practices is 0 .982 which shows a strong positive correlation. Supply chain performance correlates positively with, Implementation of Reverse Logistics practices(r=0.970), Implementation of eco-designs(r=0.974), packaging and waste management. (r=0.986), Implementation of Green Procurement Practices (r=0.979), Freight Consolidation Route Planning and Scheduling of Green Logistics(r=0.969). All the bivariate correlations are significant $p \leq 0.01$ (sig, 0.000).

4.12 Regression Analysis

The analysis and results of the regression analysis are as presented below;

Table 4.13: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.838[a]	.827	.816	.180

a. Predictors: (Constant), Freight Consolidation, Rout Planning and Scheduling, Implementation of Green Logistics, Implementation of Reverse Logistics practices, Implementation of Green Procurement Practices, Implementation of eco-designs, packaging and waste management, Green Supply Chain Management Practices

Table 4.13 presents the model summary of the regression analysis. It indicates that the adjusted R-square is 0.816, i.e. 81.6%. This implies that the independent variables explain 81.6% of the variations in the performance of supply chain management.

Table 4.14: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	146.222	6	24.370	751.749	.000[b]
	Residual	3.436	106	.032		
	Total	149.658	112			

a. Dependent Variable: Supply Chain Performance

b. Predictors: (Constant), Freight Consolidation, Rout Planning and Scheduling, Implementation of Green Logistics, Implementation of Reverse Logistics practices, Implementation of Green Procurement Practices, Implementation of eco-designs, packaging and waste management, Green Supply Chain Management Practices

Table 4.14 above presents the Analysis of Variance (ANOVA) which gives the sum of squares and the test the overall significance of the regression model (f-test). Based on the analysis in the table, the relationship predicted under the regression model is statistically significant at $p \leq 0.001$ (sig, 0.000) i.e. the linear relationship between performance of supply chain and the independent variables is statistically significant.

Table 4.15: Regression Co-efficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.108	.065		-1.668	.098
	Implementation of Green Logistics	.306	.074	.283	4.114	.000
	Green Supply Chain Management Practices	.019	.174	.019	.109	.914
	Implementation of Reverse Logistics practices	.222	.114	.220	1.955	.053
	Implementation of eco-designs, packaging and waste management	-.020	.137	-.020	-.143	.886
	Implementation of Green Procurement Practices	.499	.125	.503	3.976	.000
	Freight Consolidation, Rout Planning and Scheduling	.006	.153	.006	.041	.967

a. Dependent Variable: Supply Chain Performance

Table 4.15 above is presents the regression coefficients of each predictor (also independent) variable in the model. The t column tests the significance of individual predictor in the model i.e the regression null hypothesis that there is no significant relationship between the predictor and the dependent variable. From the column, there is a significant relationship between performance of supply chain and implementation of green logistics, $p \leq 0.001$ (sig, 0.000) and implementation of green procurement practices at $p \leq 0.001$ (sig, 0.000). In the model, the linear regression is fitted as follows:

4.13 Model Specification

$Y\ (81.6\%) = -0.108+0.283X_1 +0.019X_2+0.220X_3-0.020X_4+0.503\ X_5+0.006\ X_6$

Where;

Y= Supply Chain Performance

X_1 = Implementation of Green Logistics

X_2 = Green Supply Management Practice

X_3= Implementation of Reverse Logistics practices

X_4= Implementation of eco-designs, packaging and waste Management

X_5= Implementation of Green Procurement Practices

X_6= Freight Consolidation, Route Planning and Scheduling

From the above regression model, when all independent variable are held constant, supply chain performance is -0.108. Simultaneously, a one percent improvement in implementation of green logistics increases the overall supply chain performance by 0.283, a one percent improvement in green supply management practice increases supply chain performance by 0.019, a one percent improvement in reverse logistics practices improves supply chain performance by 0.220, a one percent increase in eco designs, packaging and waste management lowers performance of supply chain management by 0.020, a one percent change in green procurement improve supply chain performance by 0.503 while one percent change in freight consolidation, route planning and scheduling improve supply chain performance by 0.006.

CHAPTER FIVE
SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Overview

This chapter discusses the findings, draws conclusions and makes recommendations. The discussion is presented based on the study objectives. Afterwards, conclusions to the research questions are drawn in view of the discussions. Lastly, the chapter suggests recommendations and suggestions for further research.

5.2 Summary of the Findings

In the study, 147 questionnaires were sent out to members and staff of logistics service providing firms in Nairobi, falling under KIFWA 113 successfully filled and returned the questionnaire. The sample therefore had a response rate of 76.9%. Table 4.2 above, presents the adoption of green logistics where majority (54.9%) of the respondents said their organizations have adopted to green logistics. From table 4.3, majority (48.7%) of the respondents said that their organizations have adopted green logistics for a period of between 2-4 years.

5.2.1 Level of implementation of green logistics

Green logistics was rated using 5 statements relating to implementation of green logistics, measured on a 5 point likert scale where; 1=Very small extent; 5=Very large extent. The reliability test yielded a Cronbach's alpha 0.89 implying a strong internal consistency among the 5 items.

From table 4.4 the ratings the level of implementation of green logistics, majority (38.1%) rated their organizations as recognizing logistics to a very large extent, 36.5% , rated their organization as having recognized 'greeness' to a large extent, 41.6% rated their organization as putting into account effect on environment to a very large extent, 32.7% rated their organization as having recognized environmentally friendly products in

their cost reduction to a large extent, 35.4% rated their organization recognizing environmental advocacy to moderate extent.

5.2.2 Benefits of Green Logistics Management Practices

Benefits of green management practices was rated using 8 statements relating to benefits of green management practices, measured on a 5 point likert scale where; 1=Very small extent; 5=Very large extent. The reliability test yielded a Cronbach's alpha of 0.89, implying a strong internal consistency among the 8 items.

From table 4.5 the majority ratings of the statements relating to benefits of green management practices were as follows; 29.2% rated their organization as benefited from waste management, 31% rated their organization as having achieved reduction of energy as a result of green logistics to a moderate extent, 31% rated their organization as having reduced fright emission as a result of green logistics to a large extent, 38.1% rated their organization as having reduced the cost of operation as a result of green logistics, 27.4% rated their organization as having adapted to changes in the global economy to a very small extent, 29.2% rated their organization as having increases awareness of global concerns to a large extent, 28.3% rated their organization as having efficiency in resource mobilization to a small extent, 25.7% rated their organization as having maximized their return on investment to a large extent.

5.2.3 Supply Chain Management Practices

Supply chain management was rated using 7 statements relating to supply chain management and measured on a 5 point likert scale where; 1=Very small extent; 5=Very large extent. The reliability test yielded a Cronbach's alpha of 0.72, implying internal consistency among the 7 items.

From table 4.6 the majority ratings of supply chain management practices among logistics service providers are as follows; 29.2% rated their organization as having formally introduced reverse logistics into its processes to a large extent, 24.8% rated their organization as having formally implemented planning and controlling efficient cost

effective flow of raw materials from point of consumption to origin, 31.9% rated their organization as having adapted acceptance of previously shipped products or parts for the purpose of recycling to a moderate extent, 36.3% rated their organization as having accepted previously shipped products or parts for the purpose of disposal to a large extent.

5.2.4 Reverse Logistics Practices

Reversed logistics practices were rated using 4 statements relating to reverse logistics practices and measured on a 5 point likert scale where; 1=Very small extent; 5=Very large extent. The reliability test yielded a Cronbach's alpha of 0.68 implying a good internal consistency among the 4 items.

From table 4.7 presents the majority ratings of reverse logistics practices were as follows; 29.2% of the respondents rated their organization as having formally introduced reverse logistics to a larger extent, 31% rated their organization as having formally implemented efficient planning and control to a moderate extent, 31.9% rated their organization acceptance of previously shipped products for the purposes of recycling to a large extent, 36.3% rated their organization's accept previously shipped products for purposes of disposal to a large extent.

5.2.5 Green Procurement Practices

Reversed logistics practices were rated using 7 statements relating to reverse logistics practices and measured on a 5 point likert scale where; 1=Very small extent; 5=Very large extent. The reliability test yielded a Cronbach's alpha of 0.81 implying a strong internal consistency among the 4 items.

From table 4.8 presents the majority ratings of reverse logistics practices were as follows; 30.1% rated their organization as having formally introduced environmental issues and concerns into its functions to a small extent. 29.2% rated their organization as having formally implemented acquisition of goods and services characterized by a low environmental impact to a moderate extent, 33.6% rated their organization as having

implemented environmentally friendly processes into its production functions to a moderate extent, 28.3rated their organization as having introduced initiatives that are aimed at reducing environmental impact in its logistics small, 32.7% rated their organization as having implemented processes that are ISO 14001 certified to a very small extent.

5.2.6 Eco – Design, Packaging and Waste management

Eco design packaging and waste management were rated using 5 statements relating eco-design packaging and waste management and measured on a 5 point likert scale where; 1=Very small extent; 5=Very large extent. The reliability test yielded a Cronbach's alpha of 0.76 implying a strong internal consistency among the 5 items.

From table 4.9 presents the majority ratings of eco-design packaging and waste management were as follows 28.3% rated their organization as having formally introduced designing of products that minimize material and energy consumption to a moderate extent, 31% rated their organization as having formally introduced usage of material and parts that are reusable and recyclable to a moderate extent, 30.1% rated their organization as having formally introduced use of biodegradable materials to a moderate extent, 35.4% rated their organization as having introduced use of alternative fuels, treatment and control of post combustion emissions to a moderate extent, 33.6% rated their organization as having implemented waste reduction measures in its production processes to a moderate extent.

5.2.7 Freight Consolidation, route planning and scheduling

Freight consolidation, route planning and scheduling were rated using 4 statements relating to freight consolidation, route planning and scheduling and measured on a 5 point likert scale where; 1=Very small extent; 5=Very large extent. The reliability test yielded a Cronbach's alpha of 0.66 implying a good internal consistency among the 4 items.

From table 4.10 on presents the majority ratings of freight consolidation, route planning and scheduling was as follows; 27.4% rated their organization as having formally

introduced freight consolidation aimed at transporting more goods efficiently to a moderate extent,34.5% rated their organization as having formally implemented route planning and scheduling to avoid rush hour traffic to a moderate extent, 30.1% rated their organization as having adapted to route planning to avoid congested cities to a moderate extent 32.7% rated their organization as having invested in modern infrastructure to reduce delivery time to a small extent.

5.2.8 Supply Chain Management Performance

Performance Supply chain management was rated using 5 statements relating to supply chain performance and measured on a 5 point likert scale where; 1=Very small extent; 5=Very large extent. The reliability test yielded a Cronbach's alpha of 0.90 implying strong internal consistency among the 5 items.

From table 4.11 on performance of supply chain management, the majority ratings was as follows; 31.9% rated their organization as having improved to a moderate extent due to adoption of freight consolidation, 35.4% rated their organization as having improved to a moderate extent due to adoption of route planning, 30.1% rated their organization as having improved to a moderate extent due to waste management, 31.9% rated their organization as having improved to a moderate extent due to recycling practices, 33.6% rated their organization as having improved to a moderate extent a large extent.

5.2.9 Relationship between Supply Chain Performance and Green Supply Chain Management

Table 4.11 shows the Pearson moment correlation analysis between supply chain performance and the independent variables where there is strong positive correlation between supply chain performance and Green Supply Chain Management Practices (r=0 .982), Implementation of Reverse Logistics practices(r=0.970), Implementation of eco-designs(r=0.974), packaging and waste management. (r=0.986), Implementation of Green Procurement Practices (r=0.979), Freight Consolidation Route Planning and Scheduling of Green Logistics (r=0.969). All the bivariate correlations are significant $p \leq 0.01$ (sig, 0.000).

The overall multiple linear regression depicting model is significant (f-test) at p≤0.001 (sig, 0.000), with adjusted r-squared at 81.6%.

Table 4.16 above is presents the regression coefficients of each predictor (also independent) variable in the model. The t column tests the significance of individual predictor in the model i.e., the regression null hypothesis that there is no significant relationship between the predictor and the dependent variable.

From the column, there is a significant relationship between performance of supply chain and implementation of green logistics, p≤0.001 (sig, 0.000) and implementation of green procurement practices at p≤0.001 (sig, 0.000). In the model, the linear regression is fitted as follows:

From the above regression model, when all independent variable are held constant, supply chain performance is -0.108. Simultaneously, a one percent improvement in implementation of green logistics increases the overall supply chain performance by 0.283, a one percent improvement in green supply management practice increases supply chain performance by 0.019, a one percent improvement in reverse logistics practices improves supply chain performance by 0.220, a one percent increase in eco designs, packaging and waste management lowers performance of supply chain management by 0.020, a one percent change in green procurement improve supply chain performance by 0.503 while one percent change in freight consolidation, route planning and scheduling improve supply chain performance by 0.006.

5.3 Conclusion

The outcome of the study revealed that rapid changes in external environment coupled with the globalization of the world business climate affect the performance of logistics service providers in Nairobi now more than before. Firms have adopted various green logistics practices in an effort to overcome the challenges posed by the increase in cost of doing business and in order to increase effectiveness of supply chains. The study reveals that most of the logistics service providers (54.9%) are practicing green logistics in order

to cut costs, improve performance, conserve the environment and gain competitive advantage.

The first objective of the study was to determine the green logistics practices used by logistics service providers in Nairobi, Kenya. The outcome of the analysis outlines major green logistics practices which include: waste management, eco – design and packaging, reverse logistics, freight consolidation, route planning and scheduling and green procurement practices.

The second objective was to establish the relationship the relationship between green logistics practices and supply chain performance of logistics service providers in Nairobi, Kenya.

The results in Table 4.11 shows a strong correlation between supply chain performance and the independent variables where there is strong positive correlation between supply chain performance and Green Supply Logistics Management Practices (r=0 .982), Implementation of Reverse Logistics practices(r=0.970), Implementation of eco-designs and packaging (r=0.974), waste management (r=0.986), Implementation of Green Procurement Practices (r=0.979), Freight Consolidation Route Planning and Scheduling of Green Logistics (r=0.969).

5.4 Recommendations

The study found that 21.1% of the logistics service providers are yet to adopt green logistics practices. There is need for relevant authorities to provide impetus for these organizations to start practicing green logistics and be part of the global push to enhance environmental conservation and gain other benefits associated with implementing green logistics.

The fact that green logistics practices have a perfect positive influence on the supply chain performance underpins the need for the firms to increase investment in these green

logistics practices and intensify research and development in the respective strategies to optimize the gains of green logistics.

5.5 Suggestion for Further Research

This study focused on the relationship between green logistics practices and supply chain performance among logistics service providers in Nairobi, Kenya. There is need for future studies to establish the relationship between green logistics and supply chain performance among logistics service providers in Kenya. Further studies can also be done on challenges facing the implementation of green logistics practices among 3rd party service providers in Kenya. Further studies should consider how variables like government intervention and need for positive corporate social responsibility impact on the adoption and implementation of green logistics.

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APPENDIX I: LETTER OF INTRODUCTION

Shadrack N. Muendo
School of Business,
University of Nairobi
P. O. Box 30197
NAIROBI
September, 2014

Dear Respondent,

RE: COLLECTION OF SURVEY DATA

I am a postgraduate student of the University of Nairobi, School of Business, Nairobi campus. In order to fulfill the degree requirement, I am undertaking the above project as part of the academic requirements towards completion of the course. You have been selected to form part of this study. This is to kindly request you to assist me collect the data by filing out the accompanying questionnaire, which I will collect from you personally. The information that you are going to provide will be used exclusively for academic purposes and will be treated with strict confidence. At no time will your name appear in my report. A copy of the final paper will be availed to you upon request.

Your co-operation will be highly appreciated.

Thank you in advance.

Yours faithfully,

SHADRACK N MUENDO
MBA STUDENT

P. MAGUTU
LECTURER/SUPERVISOR
SCHOOL OF BUSINESS SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

APPENDIX II: QUESTIONNAIRE

SECTION A: Organizational profile

1. Has your company adopted green logistics management practices to support its operations?

Yes ☐

No ☐

2. For how long has your organization used green logistics management practices?

1-2 years	
2-4 years	
over 4 years	

SECTION B: Level of implementation of green logistics

To what extent to does your firm recognize the following?

Use the scale of: 1=very small extent; 2 = small extent; 3 = moderate extent; 4 = great extent; and 5= very great extent.

	1	2	3	4	5
The firm recognizes logistics as one of the most important developments in supply chain and transportation industry					
The firm recognizes 'greenness' as a key factor in the firm's environmental impact assessment					
The firm takes into account the effect of its production activities to the environment and society					
The firm recognizes the need for environmentally friendly products and reducing energy consumption as ways of reducing costs and increasing customer loyalty					
The firm recognizes the need for advocacy for green processes aimed at eliminating waste, pollution and conserving the environment.					

SECTION C: Benefits of Green Logistics Management Practices

To what extent has your firm realized the following green supply chain performance benefits as a result of implementing green logistics management practices?

Use a scale of: 1= very great extent; 2= to a great extent; 3= moderate extent; 4=small extent and 5= very small extent.

Benefit	1	2	3	4	5
Green logistics management practices have led to improved waste management and reduction in energy usage.					
Reduced carbon emission in freight distribution					
Green logistics management practices have a significant impact in reducing costs					
Green logistics management practices contribute to fast adaptation to changes in the global economy					
Increased awareness on global concerns such as global warming and scarcity of resources					
Resource utilization is increased					
Maximized return on investment					

SECTION D: Supply Chain Management Practices

To what extent has your firm implemented the following green procurement practices in an effort to improve supply chain performance?

Use a scale of: 1= very great extent; 2= to a great extent; 3= moderate extent; 4=small extent and 5= very small extent.

Benefit	**1**	**2**	**3**	**4**	**5**
The firm has formally introduced environmental issues into purchasing process					
The firm has formally integrated environmental concerns into to supplier assessment process					
The firm has formally implemented use of environmentally friendly process					
The firm has formally introduced the designing of products that minimize material and energy consumption					
The firm is inclined to use of recyclable and reusable material and parts					
The firm is has formally introduced the use of alternative fuels, treatment and control of post combustion emissions and waste reduction					
The firm has formally introduced freight consolidation practices					
The firm practices route mapping and planning					

SECTION E: Reverse Logistics Practices

To what extent has your firm implemented the following green procurement practices in an effort to improve supply chain performance?

Use a scale of: 1= very great extent; 2= to a great extent; 3= moderate extent; 4=small extent and 5= very small extent.

Benefit	**1**	**2**	**3**	**4**	**5**
The firm has formally introduced reverse logistics into its processes					
The firm has formally implemented planning and controlling efficient cost effective flow of raw materials from point of consumption to origin					
The firm accepts previously shipped products or parts for the purpose of recycling.					
The firm accepts previously shipped products or parts for the purpose of disposal					

SECTION F: Green Procurement Practices

To what extent has your firm implemented the following green procurement practices in an effort to improve supply chain performance?

Use a scale of: 1= very great extent; 2= to a great extent; 3= moderate extent; 4=small extent and 5= very small extent.

Benefit	**1**	**2**	**3**	**4**	**5**
The firm has formally introduced environmental issues and concerns into its functions					
The firm has formally implemented acquisition of goods and services characterized by a low environmental impact					
The firm has formally implemented use of environmentally friendly processes into its production functions					
The firm has formally introduced initiatives that are aimed					

at reducing environmental impact in its logistics					
The firm has formally implemented processes that are ISO 14001 certified					

SECTION F: Eco – Design, Packaging and Waste management

To what extent has your firm implemented the following green procurement practices in an effort to improve supply chain performance?

Use a scale of: 1= very great extent; 2= to a great extent; 3= moderate extent; 4=small extent and 5= very small extent.

Benefit	**1**	**2**	**3**	**4**	**5**
The firm has formally introduced designing of products that minimize material and energy consumption					
The firm has formally introduced usage of material and parts that are reusable and recyclable.					
The firm has formally introduced use of biodegradable materials.					
The firm has formally introduced use of alternative fuels, treatment and control of post combustion emissions					
The firm has implemented waste reduction measures in its production processes.					

SECTION G: Reverse Logistics Practices

To what extent has your firm implemented the following green procurement practices in an effort to improve supply chain performance?

Use a scale of: 1= very great extent; 2= to a great extent; 3= moderate extent; 4=small extent and 5= very small extent.

Benefit	**1**	**2**	**3**	**4**	**5**
The firm has formally introduced reverse logistics into its processes					
The firm has formally implemented planning and controlling efficient cost effective flow of raw materials from point of consumption to origin					
The firm accepts previously shipped products or parts for the purpose of recycling.					
The firm accepts previously shipped products or parts for the purpose of disposal					

SECTION H: Freight Consolidation, route planning and scheduling

To what extent has your firm implemented the following green procurement practices in an effort to improve supply chain performance?

Use a scale of: 1= very great extent; 2= to a great extent; 3= moderate extent; 4=small extent and 5= very small extent.

Benefit	**1**	**2**	**3**	**4**	**5**
The firm has formally introduced freight consolidation aimed at transporting more goods efficiently					
The firm has formally implemented route planning and scheduling to avoid rush hour traffic					
The firm has formally implemented route planning that avoids congested town centers by use of alternative routes					
The firm has invested in modern infrastructure to reduce					

delivery time.					

SECTION I: Supply Chain Performance

To what extent has your firm improved its performance upon the implementation of the following green procurement practices?

Use a scale of: 1= very great extent; 2= to a great extent; 3= moderate extent; 4=small extent and 5= very small extent.

Practice	**1**	**2**	**3**	**4**	**5**
Freight Consolidation					
Route planning					
Waste management					
Recycling practices					
ISO 14001 certification					

APPENDIX III: LOGISTICS SERVICE PROVIDERS

1. Hellmann Worldwide Logistics
2. Cargo Elegance Logistics Ltd
3. Transnet Freight Services
4. Roy Transmotors Ltd
5. Spedag Spedition (k) Ltd
6. Urgent Cargo Handling Ltd
7. Siginon Freight Ltd
8. Victoria International Logistics Ltd
9. Panal Freighters Ltd
10. Tradewinds Logistics Ltd
11. Eston Cargo Links
12. Nzoia Freighters Ltd
13. Bahari Logistics Ltd
14. Dean Logistics Ltd
15. Dinesh Construction Ltd
16. Aero Cargo Express Ltd
17. Dannafrica Logistics Ltd
18. Focus Initiative Import & Export Co. Ltd
19. Global Cargo Handlers & Logistics Ltd
20. Jaspa Logistics Ltd
21. Rapid Kate Services Ltd
22. Roma Constructions Ltd
23. Swiftlink Freight Services Ltd
24. GTS Cargo Logistics Limited
25. Highlands Forwarders Ltd
26. Interfreight East Africa Limited
27. Safmarine
28. Eremo Stores Ltd
29. FreightWell Express Ltd
30. First Cargo Freight Forwarders Ltd
31. Hardy General Contractors
32. Astral Aviation Ltd
33. Global Cargo Handlers & Logistics Ltd
34. Jaspa Logistics Ltd
35. Kenlloyd Logistics Ltd
36. Mara Shabba (k) Ltd
37. Rapid Kate Services Ltd
38. Roma Constructions Ltd
39. SaSa Logistcs Ltd
40. Swiftlink Freight Services Ltd
41. Andy Forwarders Services Ltd
42. CMA CGM Kenya Ltd
43. Highlands Forwarders Ltd
44. Interfreight East Africa Limited
45. Rapid Kate Services Ltd
46. Safmarine
47. Sahel Freighters Ltd
48. Freightcare Logistics Ltd
49. Mupeki Hauliers
50. Dap Logistics Ltd
51. Eremo Stores Ltd
52. Interfreight East Africa Limited
53. Kenya Logistics Network
54. Seedcol Global Shipping E A
55. FreightWell Express Ltd
56. Interfreight East Africa Limited
57. First Cargo Freight Forwarders Ltd
58. Hardy General Contractors
59. Astral Aviation Ltd
60. General Freighters Ltd
61. Goldwell Forwarders Ltd
62. Gordhandas Dharamshi & Bros Ltd
63. Hellmann Worldwide Logistics

64. Hind Construction Co Ltd
65. Homeland Freight Ltd
66. Intermediate Technology Workshops (K) Ltd
67. Jagjit Construction Co
68. Kenomar Holdings Ltd
69. Kenshade Trading Agencies Ltd
70. Kilimanjaro Construction Ltd
71. Kings Cargo Agencies Ltd
72. Kirinyaga Construction (K) Ltd
73. Konoike Construction Co Ltd
74. Lagtec Ltd
75. Landmark Holdings Ltd
76. Laxmanbhai Construction Ltd
77. Les Amis Ltd
78. Marge Investments Ltd
79. Mechanised Cargo Systems Ltd
80. Milicon's Ltd
81. Minikin Services Ltd
82. Mountain Freight Ltd
83. Nanak Singh Bansal
84. Pabon Cargo Ltd
85. PlanFreight Ltd
86. Raw Construction
87. Ray Cargo Services Ltd
88. Removals Freight International Ltd
89. Rising Freight Ltd
90. Runway Motors
91. Rupra Construction Co Ltd
92. SigmaOrange LLC
93. Skylift Cargo Ltd
94. Space Freighters International Ltd
95. Spartan Forwarders Ltd
96. Super Contractors Ltd
97. Construction Masters (K) Ltd
98. Corner Garage Transport Ltd
99. Cross Ocean Ltd
100. DHL Global Forwarding (K) Ltd
101. Earth Link Freighters Ltd
102. Express Kenya Ltd
103. Famo Forwarders Ltd
104. Fastlane Logistics Systems Ltd
105. Fleet Freighters Ltd
106. Freight Care Ltd
107. Freight Forwarders Kenya Ltd
108. Future Freight Co Ltd
109. Gemini Freighters Ltd
110. General Cargo Services Ltd
111. General Freighters Ltd
112. Georine Agencies Ltd
113. Goldwell Forwarders Ltd
114. Gordhandas Dharamshi & Bros Ltd
115. Gulf Stream Investments Ltd
116. Hellmann Worldwide Logistics
117. Sigma Orange LLC
118. Simcon Freight Ltd
119. Skylift Cargo Ltd
120. Skylark Construction Ltd
121. Space Freighters International Ltd
122. Spartan Forwarders Ltd
123. Speedex Logistics Ltd
124. Superfreight Ltd
125. Super Contractors Ltd
126. Superior Construction Co Ltd
127. Tabaki Freight Services International Ltd
128. Taurus Construction Co Ltd
129. Teleca Construction Ltd

130. Teo's Co Ltd
131. Termcotank Kenya Ltd
132. Tiba Freight Forwarders Ltd
133. Town Construction Co Ltd
134. Tropical Sky Cargo Ltd
135. Universal Link Limited
136. Union Logistics Ltd
137. Victory Construction Co Ltd
138. Vinep Forwarders Ltd
139. Visaro Construction Co
140. V Naran Mulji Properties Ltd
141. Waki Clearing & Forwarding Agent
142. Waterwaves Agencies Ltd
143. Welfast Construction Co Ltd
144. Weston Logistics Ltd
145. Worldwide Movers Kenya Ltd
146. Worldnet Freight Ltd
147. Worldwide Kenya Ltd
148. Yara East Africa Ltd
149. Zafora Investments
150. African Salihiya Cargo & Clearing Ltd
151. BronzePound LLC
152. Charities Logistics Ltd
153. Lemco Freight Forwarders Ltd
154. Marflo Freight Forwarders Ltd
155. Bollore Africa Logistics Kenya Ltd
156. DHL Global Forwading (K) Ltd
157. Rapid Kate Services Ltd
158. Swift Global Logistics
159. Pentagon Logistics Ltd
160. Arnop Logistics Company Ltd
161. Alpha Impex Logistics International Ltd
162. Aero Logistics Ltd
163. Mex Logistics Africa Ltd
164. Aeromarine Logistics Ltd
165. Platinum-Outsourcing Logistics
166. Keynote Logistics
167. Osprea Logistics Kenya
168. Maritime Logistics
169. Inspire Africa Logistics Limited
170. Garvins Logistics Ltd
171. Empire Logistics Services Ltd
172. Interport Cargo Logistics Ltd
173. Interglobal Logistics Limited
174. Sas Logistics
175. Mex Logistics Africa Ltd
176. Aeromarine Logistics Ltd
177. Inspire Africa Logistics Limited
178. Global Logistics {e.a}solutions Ltd
179. Western Logistics Services Ltd
180. Skyland Logistics Ltd
181. Bridgeway Logistics Services Ltd
182. Swift Global Logistics (K) Ltd
183. Inland Africa Logistics Ltd
184. Cargo World Logistics Ltd
185. Chains & Logistics Ltd
186. Convex Commercial Logistics Ltd
187. Southpole Logistics
188. East African Supplies & Logistics Ltd
189. Express Shipping & Logistics (EA) Ltd
190. MEX Logistics Africa Ltd
191. Aircom Cargo Logistics (K) Ltd
192. Blue Wave Logistics
193. Kite Enterprises & Logistics