

**THE IMPACT OF GREEN LOGISTICS PRACTICES ON CUSTOMER  
VALUE AMONG FOOD PROCESSING FIRMS IN MOMBASA COUNTY,  
KENYA**

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## DECLARATION

I declare that this is my original work and has not been presented in any institution for the award of any degree.

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## **DEDICATION**

I dedicate this project to my Late father Mr. Lazarus Makau, family, friends, colleagues and the entire School of Business, University of Nairobi.

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## **ABBREVIATIONS AND ACRONYMS**

<b>CSR</b>	:	Corporate Social Responsibility
<b>ECD</b>	:	Environmentally Conscious Design
<b>GDP</b>	:	Gross Domestic Product
<b>GSCM</b>	:	Green Supply Chain Management
<b>IT</b>	:	Information Technology
<b>KAM</b>	:	Kenya Association of Manufacturers
<b>KMED</b>	:	Kenya Manufacturers and Exporters Directory
<b>KNBS</b>	:	Kenya National Bureau of Statistics
<b>KPI</b>	:	Key Performance Indicator
<b>LCA</b>	:	Life Cycle Assessment analysis
<b>NEMA</b>	:	National Environmental Management Authority
<b>R&amp;D</b>	:	Research and Development
<b>R-A</b>	:	Resource Advantage
<b>RL</b>	:	Reverse Logistics
<b>SCM</b>	:	Supply Chain Management
<b>WMS</b>	:	Warehouse Management System

## **ABSTRACT**

This research work is about the relationship between Green Logistics Practices and customer value among Food processing firms in Mombasa County, Kenya. This research had three intentions: To determine the extent to which food processing firms in Mombasa practice green logistics, To explore the extent to which green logistics practices determine customer value and To determine the challenges that the food processing firms in Mombasa face in adopting green logistics practices. The study design used a descriptive cross sectional survey design. Questionnaires were used to collect data and descriptive statistics to analyze the data. The study focused on firms in the food processing industry in Mombasa County, Kenya. The study revealed that 98.3 % of food processing firms in Mombasa County have adopted green logistics practices but not to a very large extent. It also revealed that majority of the firms which have not adopted the green logistics practices are in planning and implementation stages. The correlation between customer value and green logistics practices revealed that there exists a statistical significant relationships at  $F = 10.456$  and  $p$  value  $<0.05$  which influence the customer perception towards the firm products and services. The study also concluded that lack of advanced technology, lack of awareness among the stakeholders and strict government policies with mean scores of 3.15, 3.13 and 2.96 respectively were the major challenges faced. The study recommended that there is urgent need for firms in Mombasa to go green by incorporating green logistics practices which will help deal with environmental issues such as pollution and environmental degradation, government should not only impose strict regulations but also should provide funding to enable the firms acquire the required equipment with the latest technology and that firms should develop green logistics policy which will act a guide in planning and also implementing the required practices. Despite the limitation of questionnaire filling in data collection, the study suggests further a comprehensive research on how the government policies affect implementation of green logistics and also remedial measures to address the issue.

# CHAPTER ONE: INTRODUCTION

## 1.1. Background of the Study

Today, environmental degradation is of great concern and this is majorly caused by the customer's use of products and services. The degradation is evident due to the changes in the climate, water and air pollution and the global warming effect that is increasing day by day (Ratnajeewa & Bandara, 2015). Companies are now embracing sustainable or green logistics practices due the increasing awareness about the environment. To create value for the customer, businesses need to constantly be on the lookout for changes in the market trends and continually research on the changes in consumer behavior in the marketplace (Koller, Floh, & Zauner, 2011). By identifying the need of value in customers, businesses can modify their services to the consumers. Thus through green logistics organizations not only provide an opportunity to meet consumer expectations and achieve customer value but also address their environmental concerns (Doszhanov & Ahmad (2015). Implementing green logistics practices is necessary for any organization that wants to capture the attention of the customer (Koller et al., 2011).

The study was rooted on three theories: First is the resource advantage theory of competition which explains the heterogeneity of firm resources, the advantage of market segmentation, the competitive and comparative advantages and disadvantages of the marketplace positions and the resources. Thus focus on green logistics as a valuable resource can lead to a firm's value creation for the customer (Hunt & Morgan, 1997). Another theory is the stakeholder theory which argues that the stakeholders can influence green logistics practices adoption by exerting pressure on firms to decrease or eliminate the damaging effects on environment and increase beneficial effects (Donaldson & Preston, 1995). Lastly, we have the strategic group theory which implies

that the strategic groups formed by firms are usually in a competition on who efficiently and effectively adopts the strategies (Peteraf & Shanley, 1997). Firms can compete in adopting the green logistics practices that would conserve the environment and serve the customers interest too.

The Kenyan food processing industry remains the largest component of the manufacturing sector and its activities have intensified greatly. Figures collected from the Kenya National Bureau of Statistics (KNBS) shows that, there was a growth in the manufacturing sector real output of 3.5 percent in year 2016 compared to a 3.6 percent growth in the year 2015. The output volume grew by 4.9 percent in 2016. The food processing sector grew by 6.5 percent in 2017. The manufacturing industry in Kenya contributes 14% of the Gross Domestic Product (GDP) of the country and offer employment to over 2 million persons. There are 181 food processing firms which is 24% of the manufacturers in Kenya. Out of the 181, 73 are in coast region which makes it to 40.3 % (Kenya Manufacturers and Exporters Directory (KMED) 2017). Though the sector is faced with various challenges including; high production cost, waste management, lack of innovative technologies and skills, environment degradation among others. This sector under the supervision of the Kenya Association of Manufacturers (KAM) should be persuaded to adopt logistics techniques that are environmentally friendly and assist in the minimization of pollution. Required parameters in green logistics systems should be considered by the Firms in Mombasa to curb the environmental challenges. (Businge, Ondimu, Maina, Mutai, Ochola, Ali & Nyangena, 2011).

### **1.1.1 Green Logistics Practices**

Green logistics involves activities aimed to maintain and reduce environmental pollution into the entire supply chain. Such activities include the product engineering, material sourcing,

production, and product transportation the customer and organization of the product after its life cycle (Srivastava, 2007). Green logistics analyzes and addresses the environmental consequences of logistics (Mudgal, Shankar, Talib & Raj 2010). A green logistics system contains five different aspects namely: green distribution and transportation, green packaging, green design, green storage and warehousing, and green management systems (Gong & Kong, (2014).

Green transportation and distribution is defined as the maintainable delivery of goods and services (Maura, Letting, Ithinji & Orwa 2016). It involves green network design, utilization of fuel efficient transport fleets and equipment, the application of improved aerodynamics in vehicles, better utilization of vehicles and ensuring little or no return of empty trucks, application of vehicle routing and scheduling software and fuel-efficient driving (Dye, LaGuardia & Srinivasan, 2011). Green packaging involves minimization of waste by using agile materials and appropriate packaging sizes and in order-filling. This can only be achievable by using containers that are recyclable, bags that are biodegradable, reusable materials, and eco-packaging which means packaging products with materials that are less hazardous and eco labeling (Large & Thomsen, 2011). Environmental labeling/ eco-labeling entails describing the information of a product and the possible effects on the environment inherent in its production and use. (Von & Rothermann, 1999).

Green design is the use of environmentally sensible design (ECD) and Life cycle valuation analysis (LCA) and aims at developing and understanding how decisions on design affect the environmental compatibility of the product and also minimization of waste (Fortes, 2009). Green storage or warehouse is an approach of optimizing energy and space/layout for inventory/storage, minimizing movement e.g. use solar warehouse, day light and install energy-efficient lighting system, utilize warehouse layout and inventory strategy or energy-efficient

building, wind or solar power plant (Karia & Asaari, 2016). Green management system is an approach of developing strategic planning, control and assessment for green logistics practices that enhance environment, economic and social sustainable development e.g. top management support and commitment, total participation, education and training (Karia & Asaari, 2016). According to Steger, (1993) implementing green logistics practices will lead several benefits such as ; a firm is able to save cost, increase market opportunity, utilize resources efficiently and prevent pollution on environment, and quality to customers which all lead to value to the end user.

### **1.1.2 Customer Value**

Customer value is a consumers' identified preference for a product and its attributes, performances, and resulting effects that arise from use of it that promote or block the achievement of the customer's needs (Woodruff, 1997). Customer value is the variation between the value gained from buying and consuming a product and the total cost of obtaining the product (Yamamoto, 2001). Value is a combination of the functional, economical, emotional and self-expressive paybacks delivered by the brand that provides value to the target client. Customer value has four dimensions: functional, economical, emotional and social (Wang, Po Lo Chi & Yang 2004).

Functional value refers to the frictionless functioning of a product. It is the quality/ benefits that a customer gets for consuming a particular product. Functional benefits emanates from the product attribute to provide the customers with functional utility. The main aim is to concentrate on the best benefits to the customer. The capability of a phone to communicate or the quenching of thirst by a water bottle and mobility that is offered by buying a car are good examples.



Economic value in some categories of products is expressed as monetized costs and benefits. It is also called value in use or end -benefit value". Customers are enlightened beings in nature and make a decision after summing up the projected gains, relate them to the costs incurred then purchases the product if it offers sufficient gains to justify the cost price. They also consider other spending options then picks the most favorable (Gruen, Osmonbekov & Czaplewski 2006).

Emotional value is one that provides consumers with a great feeling that they experience when buying or using a particular product. Such products promote excitement to the customer when they own or use the product. Some of the emotional benefits include the feeling experienced by purchasing a product or service that would bring some benefits to the society or when donating to charities(Wang et al 2004).Sometimes consumers get emotionally attached to some products and especially those that are environmentally friendly hence the feel good effect (Thomson,MacInnis & Park,2005).

Social value or self-expressive benefits gives a chance to a customer to convey his or her self-image. Companies enhance the relation between customers and the products by focusing on something that can be connect the products to their personality. Self-expressive benefits concentrate on the act of using the product unlike to the emotional benefits which focuses on the result of using the product. Examples of self-expressive benefits include the sophistication and the class displayed by the use of Apple iPhone, and the luxury shown by carrying a Louis Vuitton bag (Wang et al 2004).

### **1.1.3 Green Logistics and Customer Value**

Gupta and Sharma (1996) argue that green logistics practices are rooted in sound ecological principles in which the top level management effectively transforms resources into environmental friendly products and services. According to Steger (1993), implementing green

logistics practices will lead a firm to save cost, increase market opportunity, utilize resources efficiently and prevent pollution on environment, and quality to customers which all lead to value to the end user. According to Koller et al., (2011) Consumers have gradually become aware of the possible unpleasant effects of consumption on the environment.

Firms engage in environmentally friendly practices in order to provide a solution to the environmental issues, help preserve the environment and become the industries role models. Consumers' concern for the environment however do not necessarily lead to purchase and use of environmentally friendly products(Laroche, Bergeron, &Barbaro, 2002).In deciding whether or not to buy and use environmentally friendly products, customers face a social dilemma, either to take societal and environmental responsibility or maximize their own benefits without considering the consequences. Consumers who value good bindings with others often also consider environmental issues when making purchasing decisions (Laroche et al 2001) Green distribution practices positively impacts customer value through ecological value attainment, sustainability and personal value from innovation and quality products.

#### **1.1.4 Food Processing Sector**

Mombasa County is the hub of industrial activities in the entire coastal region. It accounts for 90% of the establishment and employment opportunities (Mwaguni & Munga, 1997).The Kenyan manufacturing industry continues to grow despite the challenges in the operating environment. It contributes 14% of the country's GDP. There are 181 food processing firms which is 24% of the manufacturers in Kenya. Out of the 181, 73 are in coast region which makes it to 40.3% (KMED, 2017). Being located along the coast line of the Indian Ocean this makes the county prone to pollution with most of the industrial solid waste and other contaminated liquid discharges finding its way to the ocean. In fact, coastal and marine resources such as fishing

activities, beaches, coral lagoons and marine life are under relentless pressure from population outburst and raging industrial pollution (Mwaguni & Munga, 1997). Solid wastes from service sectors like hotels and hospitals are not well sorted and treated before being deposited at the ocean base line releasing toxic and potentially hazardous refuse to animal and human health.

As populations grow and economies expand natural resources are depleting rapidly causing tremendous challenges (Esty & Winston, 2009). Manufacturing and service firms are becoming more associated with adverse environmental impacts, (Gallopoulos, 2006).

Manufacturing companies in Mombasa County are not been spared either and are linked to serious negative environmental impacts. The firms however face various challenges such as lack of sustainable energy, poor management of solid and liquid wastes, use of obsolete technologies and skills and inadequate compliance with environmental regulations (Mutheke, 2016). Corrective remedy is required to attain a pivotal change generally in the society and particularly among the industries in order to include future sustainability (Banks, Lisney, & Riley 2003). Therefore adoption of green operations initiatives is not an option for food processing industry but a crucial requirement in the effort to help salvage earth`s natural resources.

## **1.2 Research Problem**

Green logistics has been identified as a very important factor affecting the sustainability of a supply chain (Nyariaro, F. G. (2017). For this reason, managers have to embrace green logistics practices in order to lower the effects of their business operations on the environment (Cronin, Smith, Gleim, Ramirez & Martinez, 2011). Despite this increasing awareness, still there are key parts of green supply chain management that needs more research specifically the impact of green logistics practices directing the focus to the end user or the customer.

In Mombasa, a lot has happened that has opened the public's eye and made it realize the importance of environmental conservation. Example is the ban of plastic bags by National Environmental Management Authority (NEMA). Plastic bags contribute considerably a high fraction of the municipal's solid waste. In the slums, the bags are also used as flying toilets, which is another growing concern. As a result, complaints have been raised by the Kenyan public, environmentalists and the government (Girum, 2005). Very few food processing firms in Mombasa are perceived as "green". It is assumed that environmental awareness amongst these firms is relatively low and there is no much empirical indications to propose that the environmental concerns are in any way connected to the consuming customer's behavior towards purchasing green products.

Many studies have focused on Green Supply Chain Management (GSCM) practices on other variables and the general environmental effects instead of specifically focusing on creation of end user value through green logistics. Therefore, there exist some gaps exist in literature with regard to understanding how consumer value could be achieved through green logistics practices. Zulfiqar and Shaafat (2015), researched on the effect of green marketing on customer service maximization and safety of the environment and found out that protection of the environment, green revolution, sustainability in life style and minimizing global warming have become a natural fact in our daily lives. Holt and Ghobadian (2009), studied on the GSCM practices amongst UK manufacturers, Trigoso (2007) focused on GSCM in the UK but in the construction industry. Shultz and Holbrook (1999) suggested that it is of essence to balance the environmental and economic performance especially for organization experiencing pressures from the competition, regulatory and the community.

According to (Mwaura et al, (2016) on their study on green distribution practices and competitiveness, green logistics practices to a great extent influenced firm competitiveness, reduction of cost and efficiency improvement. Sambu(2016) while researching on effects of green packaging on company performance concluded that there is a confirmed relation between green packaging and company's performance. Lam, Lee & Mohamed (2010) on his study on the adoption and impact of GSCM has greatly benefited most manufacturing firms in Mombasa especially in waste minimization eventually leading to increase in demand thereby maximization of the profits.

Although, it has been shown in general that the firms do have active policies on green logistics, gaps in the implementation of the policies was shown in terms of majority of the firms failing to converge stakeholders in the same industry to share their expertise, experience and challenges, therefore resulting in failure to realize the full benefits of green logistics. Noteworthy is that the available studies discussed the green practices on performance, competitive advantage and sustainability hence, the need to do a research on effects of green logistics on the customer value and make comparison of the results with other studies

This study strives to define the impact of green logistics practices on customer value. Most available studies were on green supply chain aspects only but very few had scrutinized deeply effects of green logistics practices on customer value. In view of the foregoing discussion and considering the need for green logistics practices, this research study tried to find the answers to following questions: To what extent do food processing firms in Mombasa practice green logistics?, What is the impact of green logistics practices to customer value and What challenges do food processing firms in Mombasa face in the process of adopting green logistics practices?

### **1.3 Research Objectives**

The following were the study objectives:

- i) To determine the extent to which food processing firms in Mombasa practice green logistics.
- ii) To search the extent to which green logistics practices determine customer value
- iii) To determine the challenges that the food processing firms in Mombasa face in adopting green logistics practices.

### **1.4 Value of the Study**

Upon completion, this research finding would of benefit to a number of stakeholders. The findings will benefit those in the field of academics and researchers who would be interested to conduct other related research in this area will be able to find reference materials.

This study will also assist the government in policy formulation, identify the loopholes in the existing environmental laws and regulations hence making better policies on environmental concern .The management will be in a position to identify the green logistics practices that will improve the company's business performance, achieve customer value and even mobilize their R&D department to research on environmentally sustainable logistics concerns of the industry.

Firms in Kenya at large will also be able to understand the best green logistics practices that have already been employed by food processing firms in Mombasa and this will enable them compare themselves with the best in the sector in the adoption of the best practices. Other organizations and the public at large will be made aware of the importance of environmental conservation and this will enable them to have more concern on buying products that are environmentally friendly.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter's main objective was to review the literature by other scholars and researchers on various studies and theories in support of green logistics practices by firms by exploring practices employed by food processing firms in an attempt to deal with environmental challenges.

### **2.2 Theoretical Foundation of the Study**

This study was rooted on three theories namely: Resource advantage theory of competition which recognizes the heterogeneity of firms' resources,, Stakeholder's theory which discusses the groups vital for firm's success and the Strategic group theory which deals with groups following similar strategy.

#### **2.2.1 Resource Advantage Theory of Competition**

Resource advantage (R-A) theory is a developmental process theory of competition which stresses that inventions; organizational learning's and innovations emerge from within. It also assumes that customers and companies have no perfect information, and that institutions and systems, public policy and entrepreneurship affect the firm's economic performance (Hodgson 1993). The theory appreciates in an industry; resources of the firms are very different and immobile. This therefore leads to some firms having a competitive and comparative advantage over others and vice versa hence producer better quality products to the market (Hunt, 2012). R-A theory emphasizes on the significance of segmentation of markets, heterogeneity of firm's resources and the comparative and competitive advantages and disadvantages in resources (Peteraf& Barney, 2003). Market segments are groups of customers who share one or more

common tastes and preferences or any other characteristics put together. Resources are defined as all stocks of goods, money, materials, personnel and any other assets that are owned by an organization that allows it to function more efficiently and effectively (Hunt, 2012). Each firm in the industry has unique resources that cannot be copied easily.(Hunt & Morgan1996.)

The theory helps in comprehension of the process of creating value to the customer (Hamel & Prahalad 1994). By understanding what the customer perceive as quality, managers can plan and manage the available resources well and deliver the best. However, according to Priem and Butler (2001), the resource advantage view has a constraint in that it does not address administrative implications or operational efficacy i.e. it explains how management develops and acquires strategic means that meet the standards of being profitable, scarce, unique and how conveniently an organization can be formed but no demonstration on how management can achieve the same (Connor, 2002).

### **2.2.2 Stakeholder Theory**

According to Freeman, Wicks and Parmar (2004) , stakeholders are “those groups who are vital to the survival and success of the organization”. The stakeholders include the consumers, company staff, local communities, producers, suppliers, distributors and shareholders. People are gaining more awareness of the environmental impact of human actions and therefore many are resolving to make behavioral changes for the sake of the environment. Consumers and producers have realized that combining efforts together they can create a difference in protecting and preserving the environment (Wong, 2012).Going green can affect an entire organization hence the need to get as many stakeholders involved as possible. Ideally, poor environmental decisions will lead to bad relationships of the company relationship and its stakeholders. Therefore, the success of those organizations aiming to implement green operations initiatives strongly depend



on the cooperation of their stakeholders Similarly suppliers are choosing to eliminate supply chain partners who are not environmentally conscious in order to guard their own image (Henriques & Sadosky, 1999).

According to Jensen, (2001), stakeholder theory stresses that managers should take into consideration all the stakeholders interests while making decisions of the firm. This theory however fails to specify how the manager is supposed to make the necessary tradeoffs amongst these different conflicting interests hence making it impossible for them to make meaningful and productive decisions (Hillman &Keim 2001). This theory however entertains managers' unaccountability for the decisions and actions that they take. It is evident that this theory can be prone to conflicting interests between the managers and the directors (Jensen, 2002).

### **2.2.3. Strategic Group Theory**

A strategic group is a group of organizations in an industry adopting similar strategies in their operations (Porter, 1980). According Cool and Schendel (1987), a strategic group is a group of organizations or businesses competing in the same area of business with related scope of resource allocations and utilizations. Firms in a strategic group compete in resources and the practices that they adopt hence leading segmentations among the industries. (Leask & Parker 2006).

The significance of this theory in this research work is that it provides management and researchers with a means through which they can group firms into strategic groups to enable them learn better the competitive procedure of an industry and its development. Firms can choose to form a group that practices green distribution as one of the strategies towards value

creation for the customer. Firms can compete in adopting the green distribution practices that would conserve the environment and serve the customers interest too (Leask & Parker 2006).

### **2.3. Green Logistics Practices.**

Green logistics is a practice of logistics which is required to take care of the environment and also bring social, economical and functional value (Browne, McKinnon &Whiteing 2012). The adoption of green logistics firms implies that the firm is able to run its activities and growth its competitive ability according to economically, socially and environmentally acceptable factors (Zinkeviciute, Vasiliauskas, &Šimonytė 2013).

Green logistics main aim is to minimize the environmental pollution and use of advanced logistics technology in resource consumption, planning and execution of distribution, movement of goods, safe keeping, handling of materials and production. It is a smooth movement of materials that connects the main green supply and demand to over control the barriers between space and time in the economic management process, also called environmental logistics.(Guirong&Zongjian2012). According to Deng and Huang (2011) green logistics systems and are characterized by minimal movements, less material handling, short distances of transportation, direct routes of shipping and better utilization of the available resources.

#### **2.3.1Green Distribution and Transportation**

An approach of managing delivery and using green vehicles that enhance environment, economic and social sustainable development e.g. use less fuel, bio fuels, solar and natural green vehicles(Karia&Asaari2016).Green distribution and transportation practices involve green network design, utilization of fuel efficient transport fleets and equipment, use of alternative fuel vehicles, the application of improved aerodynamics in vehicles, delivery directly to user site,

increased utilization rates of vehicles and minimization of empty returns, application of vehicle routing and scheduling software, fuel- efficient driving and change to modal shift. (Mwaura et al, 2016).

Practicing in route planning (reduce transportation engine idle time during pickup and delivery process across or in the country) and load optimizing (maximize utilization space within distribution containers) and using less harmful fuel are some of the ways of transforming green transportation practices to benefits (Karia&Asaari2016).

### **2.3.2 Green Packaging**

In a research by Ninlawan , Seksan , Tossapol , and Pilada (2010) Green packaging is characterized by waste reduction through use of materials that are agile, eco labeling, use of the right packaging sizes and order-filling. It can also be achieved through using recyclable containers, bags that are biodegradable, reusable materials, and eco-packaging which means minimization of hazardous material in packaging (Large & Thomsen 2011). According to Sambu (2016), green packaging contributes positively and significantly on firm performance in manufacturing industry. On the other hand, although it has been shown in general that the firms do have active policies on green packaging, gaps in the implementation of the policies is shown in terms of majority of the firms failing to bring together stakeholders share their expertise and challenges, therefore resulting in failure to realize the full benefits of green packaging.

Green concerns that are common in packaging include use of natural resources and voluminous consumption of energy, use of packaging material that are not recyclable, half- filled and over packed packages leading improper use of the available and more waste to the environment(Peattie, 2005).Business can adopt they following green packaging strategies;

Removal strategy which is the removal of unwanted layers from the package to reduce waste, Reduction strategy which is reduction of the packaging material as a resources in terms of thickness and refilled packages, Reuse strategy which is offering reusable packages such as glass bottles, containers and shopping bags that are reusable, Recycling strategy that calls for recycling the product after its end of life, Biodegradability strategy which is the use of materials that are biodegradable and lastly Technology development strategy which allows product's eco performance improvement.(Peattie 2005). Green packaging is not only important in satisfying and exceeding the customer need but also a tool to gain competitive advantage and satisfying help reduce production expenses.

### **2.3.3. Green Design**

Green design or Environmentally Conscious Design (ECD) is the process of incorporating environmental thinking drawing the plans, programs, policies and products. It is an aspect of manufacturing that considers the technological and social design characteristics, blend, processing and usage of products in the industries. The benefits include cleaner and safer factories, protection of the workers, reduction of disposal costs, minimization of health and environmental risks, better products quality and a good public image(Zhang, Kuo, Lu, & Huang 1997).

It is the use of (ECD) and Life Cycle Assessment analysis (LCA) with the aim of developing and understanding how decisions in design affect the harmonization of the product and the environment (Glantsching, 1994; Chandra, 1991) and also waste minimization (Johnson, 1998; Sarkis & Cordeiro, 2001). It also entails environmental labeling/ eco-labeling which entails describing the information of a product and the environmental impact that come with the production or use of it (Rotherman, 1999).

### **2.3.4 Green Storage and Warehousing**

Green storage or warehouse is an approach of optimizing energy and space/layout for inventory/storage, minimizing movement e.g. use solar warehouse, day light and install energy-efficient lighting system, utilize warehouse layout and inventory strategy or energy-efficient building, wind or solar power plant (Karia&Asaari2016).On a study on transforming green logistics practice into benefits, firms should practice warehouse optimization and position their warehouse facilities nearby ports to facilitate smooth and timely releasing of cargoes ,have both electricity and diesel powered forklifts which are more eco-friendly or rechargeable, Plan to use alternative fuel in future like natural gas vehicles , use stock take system to check stock balance anytime to minimize wastage and practice warehouse layout optimization(Karia&Asaari2016).

Green warehousing is incorporating green thinking into warehouses and distribution centers. A green element is one which reduces waste, material usage and consumption of energy. Some elements used in practical examples include, implementation of paperless warehouse management system (WMS), use of energy saving lighting, automat coolers, solar energy, ventilators that circulate air well, use better insulators, use equipment which emit less carbon and minimal energy consumption and use of containers which are returnable/recyclable containers(Đukić, Česnik & Opetuk 2010).

### **2.3.5 Green Management System**

Green management system is an approach of developing strategic planning, control and assessment for green logistics practices that enhance environment, economic and social sustainable development e.g. top management support and commitment, total participation, education and training (Karia&Asaari2016).Firms should be Positive towards green logistics application, Believe that green logistics application can be the critical part of the evolution in

logistics field, proactively put a lot of efforts in research and development (R&D) department to consider green logistics to be one part of their company, get total supports and commitment from everyone and Purchase green products, e.g. eco stationeries and electric saving air conditioner.(Đukić, Česnik & Opetuk 2010). It involves top management commitment to carry out an environmental sustainability strategy and bring everyone on board boost up the employees' morale to practice it and make the job easier, practicing eco-friendly stationery and electric saving air conditioner which results in saving cost for electricity

## **2.4 Empirical Literature Review**

According to Chan, He, Chan and Wang (2012) the main aim of justifiable development is to discourse the environmental concerns as well respond to socioeconomic factors. There is a lot of pressure for companies to incorporate green practices in their structures and systems. This is as a result the growing consumer awareness of the environment as well as the high costs for energy, raw materials, laws on the environment, and pressure from dominating firms in the value chain.(Mogeni, &Kiarie 2016).

In the recent past, literature on green logistics has been expanding. A small amount of empirical studies in the area have been completed. Most studies deal with green packaging and green operations which involve remanufacturing, recycling and Reverse Logistics (RL) etc.). According to AarónGonzález et al (2009) on Sustainable packaging on his study on consumers' loyalty and behavior found out that the consumers make choices in packaging when their desired product comes in alternative package (Thogersen, 1999).. Today, the environment as another factor enters into consideration for the consumers. Due to the emergence of many information campaigns about packaging and waste, the consumers' level of environmental concern has increased. According to Ottman (1993), four green consumers' needs can be identified. These

needs include the need and right of information, need for control, need to make a make a positive change and the need to maintain current lifestyle. If a good satisfies these needs, the consumer will be more than willing to buy it.

According to Sheth et al (1991), customer in comprised of the functional, emotional and economical and social values. Theoretically, consumers wish to maximize all these consumption values. However, in reality consumers are willing to forego one of these values in order to benefit more of another. Based on the empirical analysis, consumers possess functional, economical, social and emotional consumption values. According to Murphy (2012) there is an increasing force on manufacturing firms to adopt more eco-friendly policies. Some countries are now enforcing regulations that help reduce the amounts of packages that enter the waste stream hence addressing the negative impact of packaging on the environment (Hasan, 2013).Consequently, environmental policies and regulation frameworks have been enforced by many governments in their administrations to encourage the practice of more eco- friendly activities by industries, a case of integration of environmental thinking into the design of products and use of distribution practices that are sustainable (Murphy, 2012). All manufacturers therefore must ensure that all their offerings to the market conform to the regulations and policies of the environment (Mwaura et al, 2016)

Laroche, Bergeron, &Barbaro (2001) suggest that customers who prefer purchasing green products are generally conscious and concerned about the environmental believe that it is important to be environmentally friendly. Green packaging is packaging that reduces environmental damage. Green communication to customers promotes a positive image and indicates firm's environmental consciousness (Ottman, 1998). Afande (2010) on green marketing strategy adoption by Kenyan tea firms with ISO 9000 and 14001 certifications

concluded that Kenya is still in the process of completely adopting green strategy. A study by Irungu & Mungai(2013) focused on evaluating the commitment of management towards the adoption green practices in 4 and 5 star hotels in Mombasa, and found that 82 percent of the managers were focused on improving the green concepts. In another study by Kirimi (2014), it was established that, green marketing mix strategies influence the performance of rapid moving finished goods companies in Nairobi County. He pointed out that green marketing strategies are in place but adoption rate for most firms in Kenya is still very low, biased and not felt by most consumers.

Lastly there is a study done by Kamori, (2013) focusing on green marketing strategies adoption in supermarkets. His conclusion was that going green is not yet fully adopted and there exist a few challenges. For examples, the process entails setting aside a huge financial investment which consequently brings about low returns. Resistance to change in some departments slowing down the adoption of green initiatives. He recommended that government should put in strict legislative requirements as well as conservation policy to encourage industrial greening From the above argument it's clear that green distribution practices in Kenya are still in their implementation stage and therefore more awareness among industries is crucial. Firms are expected to be at different stages in the adoption process of green operations as is the evidence with other countries of the world. Going green is increasingly a big concern for many businesses in the current global world.

## **2.5 Challenges in Green Logistics**

A number of challenges face the implementation of green logistics practices. First there is lack of Information Technology (IT) implementation. IT systems enhance performance of the supply chain and support its processes (Rogers, Farlow, Doody, Mohs & Friedhoff 1998). Information



support helps developing linkages to achieve efficient green logistics. It manages the supply chains effectively by proper handling of information flow related to forward and backward movement of materials and other resources .Lack of IT therefore is a key barrier to green logistics implementation (AlKhidir & Zailani, 2009).. There is also lack the right persons for implementation. Staff encouragement by organizations training and education is a key requirement in successful green logistics implementation (Ravi & Shankar, 2005). Quality human resources are innovative and bring onboard new ideas, learn new technologies fast, are willing to share information with others and solve problems using new technologies (Yu Lin & Hui Ho, 2008). Therefore poor quality of personnel is a key barrier to green logistics implementation.

Government regulations can also encourage or discourage innovations as governments set environmental policies, programs and regulations for industries (Scupola, 2003). Government institutions are considered as barriers to green logistics practice because they give very little support to new ideas such as implementation of green logistics practices. The tendency of government to resist change and support outdated methods is key barrier (AlKhidir & Zailani, 2009).Lack of governmental support therefore is a key hinderance to effective and effective green logistics implementation.

Most companies are aware but are reluctant to implement green logistics practices. Lack of implementation is therefore another challenge to green logistics. Innovative green practices are associated with great expertise, intensive green knowledge, firm's encouragement and quality human resources which firms are unwilling to commit (Yu Lin &Hui Ho, 2008). Implementing green logistics practices initially includes high investment. Due to limited financial resources, firms try to resist green logistics to implementation (Ravi & Shankar, 2005).

Top management commitment and support are key for any strategic programs success (Sarkis& Zhu, 2007). It is useful for the implementation of strategic practices such as green logistic practices. It is the mandate of management to encourage, help in formation and ensure implementation of green practices in the entire firm. (Saris, 2009). It gives endless support to green logistics practices by incorporating the thinking in to the strategic plans, programs and action strategies (Ravi & Shankar, 2005).

Cost is another hindrance or challenge of green logistics. Cost has been a key performance indicator (KPI) for organizations. Usually, high cost involved in green logistics planning and execution is a big challenge to firms as compared to the traditional supply chain management practices. High initial investment is required for implementation of green practices. Transaction and direct costs represent a significant barrier to green logistics implementation (AlKhidir & Zailani, 2009). Cost is therefore a major barrier to efficient green logistics practices implementation.

Suppliers' resistance to change towards green logistics practices is due to traditional thinking and conflicting interests between those of the suppliers and those of the total supply chain (Mudgal et al, 2010). All players in the supply chain such as the manufacturers and suppliers need to work together to produce and present green products to the market. For a good strategic relationship suppliers ought to meet the requirement of the buyers. So Supplier resistance to change is a very key barrier to implementation of green logistics practices. It is a challenge for many businesses in the rapidly growing world population where natural resources are being depleted at an alarming rate. Food processing industry particularly is associated with lots of negative environmental impact, from pollution, poor waste disposal, use of unclean energy and technology to environmental degradation. Of particular concern is how slow companies are

embracing sustainability measures such as green logistics. This study seeks to determine the impact of adopting green logistics practices on customer value of food processing companies with specific focus on the firms located in Mombasa County.

## 2.6 Summary of Literature Review

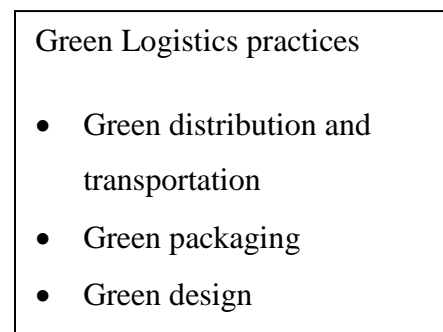
In summary, the need for green logistics practices was quite evident but few researches had been recorded for the Kenyan situation. Firms were expected to be at different stages of green logistics practices adoptions was evidenced by the practice in other countries. Beacon (1999) highlighted some of the stages as problem solving characterized by traditional approaches, compliance-oriented, managing for assurance where the emphasis is on balancing risk versus environmental costs, pollution prevention (eco-efficiency) and finally environmental quality view (fully integrated) in that order. Moreover, there was lack of consensus between the impacts of green logistics practices on customer value since; each given type of practice had a different impact. The literature had also reviewed the challenges of implementing GLP and the impact of green logistics practices and customer value.

## 2.7 Conceptual Framework

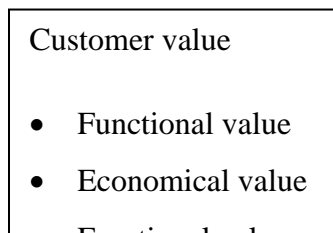
Figure 2.1. shows the conceptual framework to link green logistics practices and Customer value .In the study, the dependent variable was the Customer value while Green logistics practices was the independent variable. Green logistics practices were expected to have impact on customer value in the food processing firms in Mombasa County.

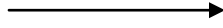
**Fig 2:1 Conceptual Framework**

### Independent Variable



### Dependent variable





## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter outlines the study methodology that was used to obtain answers to the research questions in chapter one. It discussed the research design, study population, data collection procedures and data analysis.

### **3.2 Research Design**

The design used for this study was a descriptive cross-sectional survey. This type of research design is concerned with determining and reporting the current status of the subjects in a study. Mugenda, (2003) emphasized that; “research design examines the relationship between variables of interest as they exist in a defined population at a single point in time and requires the collection of quantifiable information from a sample population”. Thus this design was appropriate.

### **3.3 Population of the study**

The study population included all the food processing firms in Mombasa County. According to KMED (2017), there were seventy three (73) food processing firms in Mombasa. This study was a census.

### **3.4 Data Collection**

Primary data was obtained through questionnaires that were dropped and picked later. The questionnaires sought data from production, operations and marketing and logistics managers. The questionnaires were keenly structured in a comprehensive manner so as to obtain the relevant information through open and closed ended questions. The questionnaire was most appropriate instrument because of its power to collect a huge amount of information in short

period of time (Kothari, 2007). It is for the noted reason that it was selected as a reasonable instrument for this research. The questionnaire was divided into four parts. The first part consisted of the company's general information; the second part consisted of questions relating to green logistics practices. Part C comprised of questions on customer value while Part D consisted of questions on challenges of green logistics adoption.

### 3.5 Operationalization of Study Variables.

Latent construct	Sub-constructs		Source/ Authority	Measurement scale	Questionnaire item	
Green logistics practices	Green distribution and transportation	Route optimization Utilize fuel usage Reduced mileages Alternative fuel like natural gas.	Mwaura, et al 2016 Ninlawan ,et al 2010	Likert scale	Interval	Section B
	Green packaging	Reduce environmental problem Reduce layers of packaging Recyclable content Use of minimal materials to reduce packaging cost	Zhang, et al 1997 Karia&Asaari2016			
	Green design	Use of Environmentally Conscious Design (ECD), Life Cycle Assessment analysis (LCA)				
	Green storage and warehousing	Layout optimization. Minimize movement Green equipment which Save energy				
	Green management system	Top management commitment Practicing eco-friendly stationery. Electric saving air conditioner				
Customer value	Functional	Functional utility. Quality to customer. Satisfying the customer needs.	Wang, Po Lo Chi, & Yang 2004). Gruen, Osmonbekov&Czaplewski 2006	Likert scale	Interval	Section C
	Economical	Measure of the benefit provided by a good or service				
	Emotional	Positive feeling in purchasing a certain product				
	Social	Self expressive benefits. Communicating self image				

### **3.6 Reliability and Validity Tests**

Reliability test was done by graphing the data in a scatter plot and computing Pearson's r to look at test-retest correlation between the two sets of variables. Criterion validity was done for testing the validity of the research.

### **3.5 Data Analysis**

The collected data was checked for accurateness, comprehensiveness and consistency then coded for analysis. To analyze the data the researcher used descriptive statistics (percentages, frequency, average scores and standard deviations). This is because the data collected will be descriptive in nature. The percentages and frequencies were used to examine the company's bio information. Mean scores and standard deviations of the survey were used to determine the effect of implementing green distribution activities among food processing firms in Mombasa County. Correlation model was used to test the degree of relationship between the variables in this study. Pearson Product-Moment correlation (r) was used since the variables were measured in interval scales and are continuous. Regression analysis was performed to show how the independent variables affect customer value.

This was of the form;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$$

Where;

Y = Customer value

$\beta_0$  = Constant

X<sub>1</sub> = Green distribution and transportation.



X2 = Green packaging

X3 = Green design

X4 = Green storage and warehousing

X5 = Green management systems.

## CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

### 4.1 Introduction

The aim research study was to determine the impact of green logistics practices on customer value among food processing firms in Mombasa County. This chapter presents the analysis of data collected and interpreted on the Green logistics practices. SPSS version 22 was used to summarize and produce descriptive statistics. The study findings were then presented in graphs and tables. Discussions for each objective were done according to the study investigations and interpretation of the inferential as well as the descriptive data. The chapter kicks off by starts by analyzing the response rate of the respondents.

### 4.2 Response Rate

The target population for the study was 73 food processing Firms in Mombasa County. The key respondents comprised the production, operations, marketing and logistics managers. The table 4.1 below shows that out of 73 questionnaires administered, 59 questionnaires were duly filled and returned. However, 3 questionnaires were incomplete and therefore not used in the analysis. The received questionnaires response from the 59 firms represented a response rate of 80.8 %.

**Table 4.1**Response rate

<b>Distributed questionnaires</b>	<b>Frequency</b>	<b>Percentage</b>
Returned	59	80.8%
Not returned	14	19.2%
<b>Total</b>	<b>73</b>	<b>100%</b>

### 4.3 Diagnostic Tests

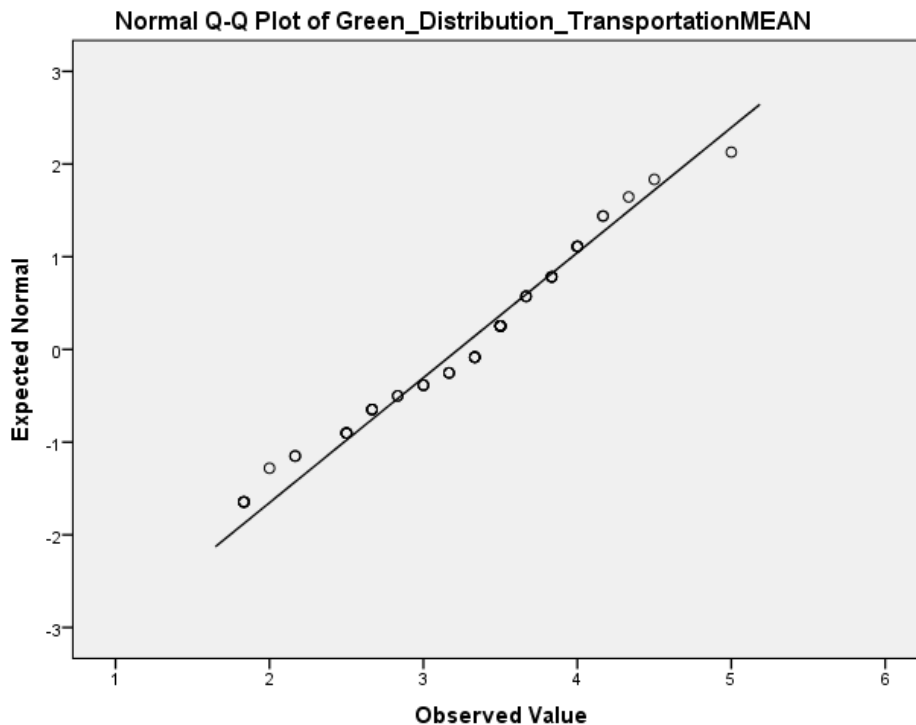
This section presents tested diagnostics which include multicollinearity, the test of normality , linearity test, heteroscedasticity , autocorrelation, reliability and validity.

### 4.3.1 Test of Normality using Normal Q-Q plot

The Null hypothesis that data is normally distributed was tested using the normal Q-Q plot. The other hypothesis is that the data does not come from a normally distributed population.

A normal Q-Q plot is the graphical way of testing normality. If the data are from a normal distribution, the data points will be near to the diagonal line and they will be scattered away from the line if the data are not normally distributed. The normal Q-Q plot below, indicates that the data is normally distributed meaning that the null hypothesis cannot be rejected.

**Fig. 4.1: Normal Q-Q Plot of Green Distribution and Transportation**



**Fig 4.2: Normal Q-Q plot of Green Packaging**

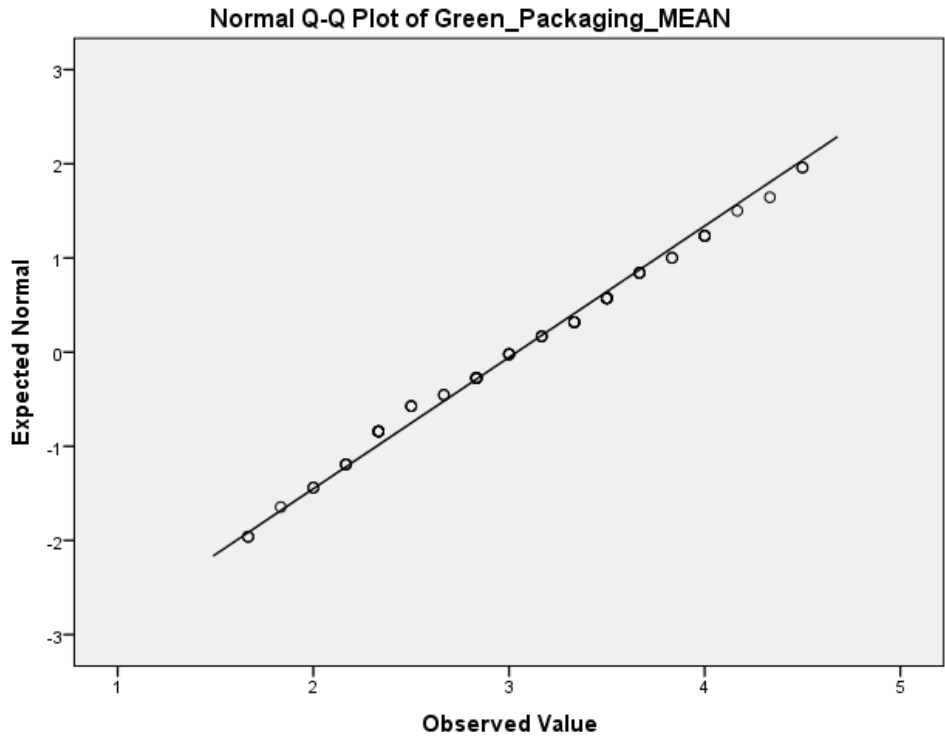


Fig. 4.3: Normal Q-Q plot of Green Design

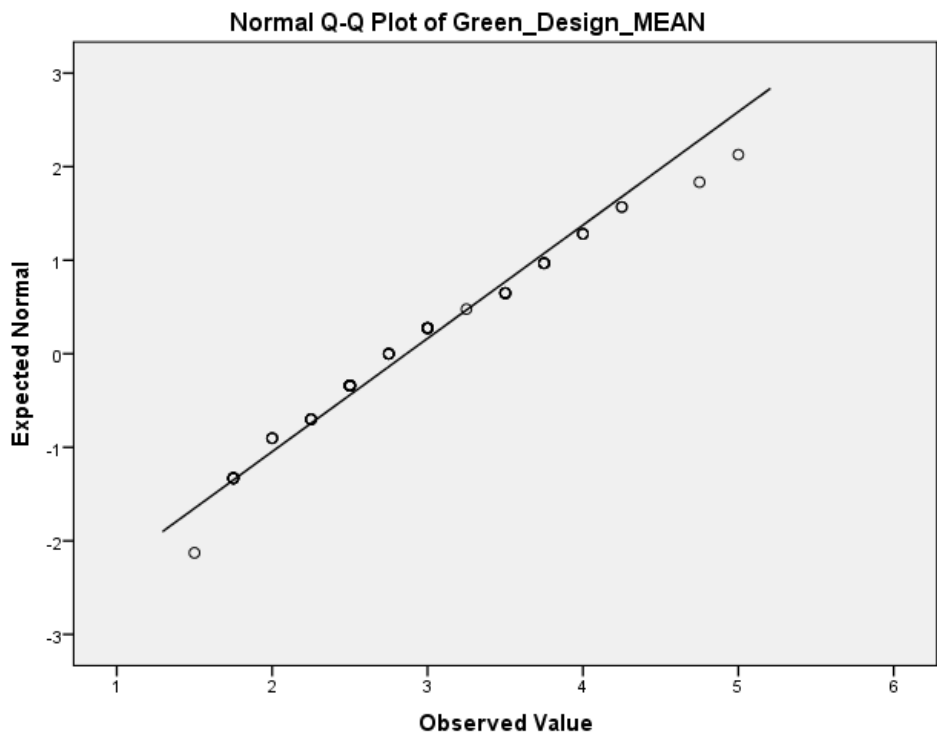
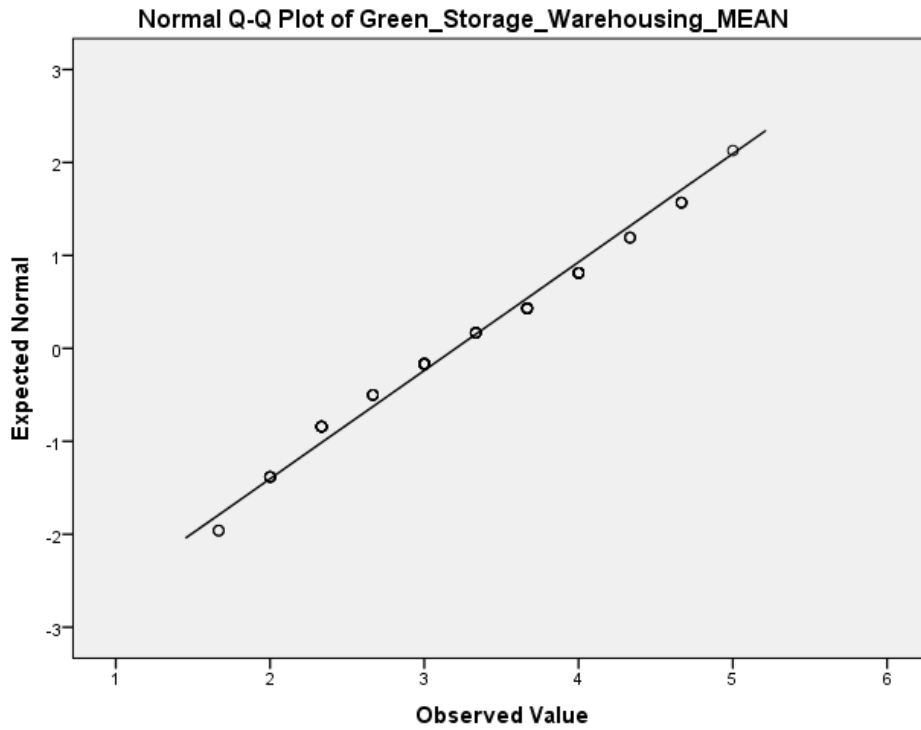
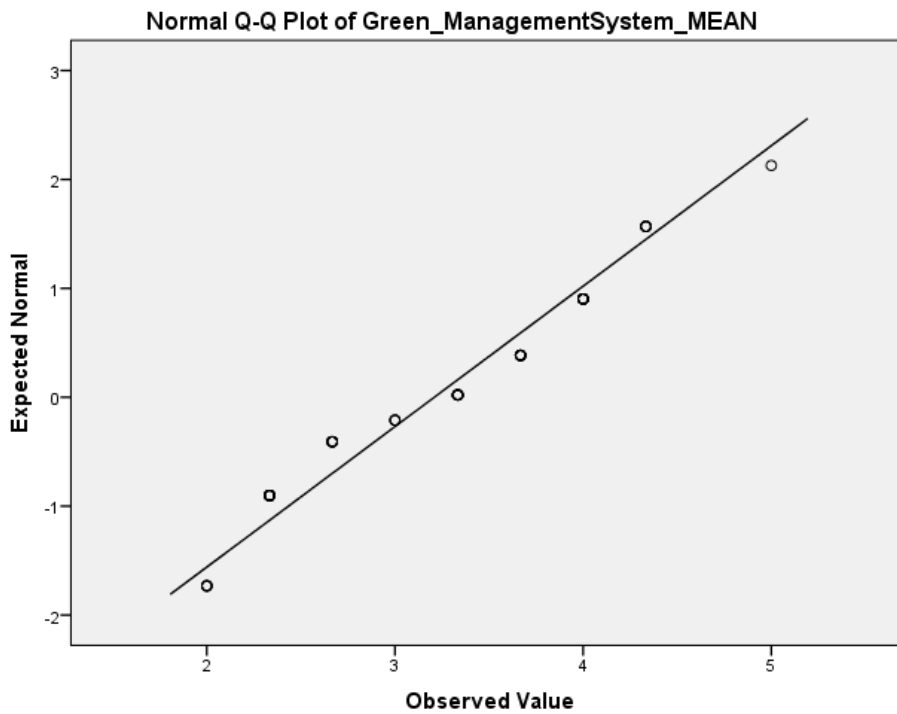


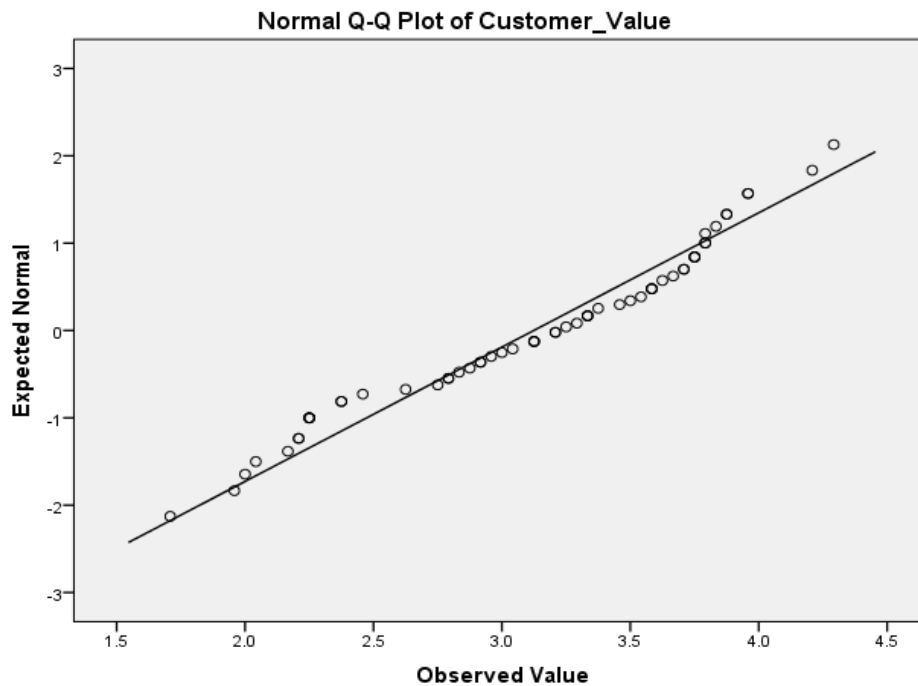
Fig. 4.4: Normal Q-Q plot of Green Storage warehousing



**Fig 4.5 Normal Q-Q plot of green management system**



**Fig 4.6: Normal Q-Q plot of Customer Value**



### 4.3.2 Linearity

Linearity is the notion that the link between variables is linear. Linearity test that reveals whether there is link between the dependent and independent variables is linear or not (Ombaka, 2014). Multiple linear regressions estimate the relationship accurately only if the association between the variables is linear in nature. The null hypothesis states that the relationship is linear against that it is not linear. Absence of a linear relationship leads to the results of regression analyses to underestimate the true relationship.

For purposes of decision making, if the value Sig. deviation from linearity  $> 0.05$ , the variables therefore have a linear relationship, but if it is  $< 0.05$ , then the relationship is not linear. From the table below, it's evident that the values did not deviate much from the expected values.

**Table 4.2 Anova Table for Green Distribution and Transportation**

ANOVA Table							
			Sum of Squares	Df	Mean Square	F	Sig.
Customer_Value * Green_Distribution_TransportationMEAN	Between Groups	(Combined)	10.738	16	.671	2.045	.032
		Linearity	7.394	1	7.394	22.532	.000
		Deviation from Linearity	3.344	15	.223	.679	.789
	Within Groups		13.782	42	.328		
	Total		24.521	58			

**Table 4.3 Anova Table for Green Packaging**

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Customer_Value * Green_Packaging_MEAN	Between Groups	(Combined)	9.849	17	.579	1.619	.104
		Linearity	5.797	1	5.797	16.198	.000
		Deviation from Linearity	4.052	16	.253	.708	.770
	Within Groups		14.672	41	.358		
	Total		24.521	58			

**Table 4.4 Anova Table for Green Design**

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Customer_Value * Green_Design_MEAN	Between Groups	(Combined)	9.518	13	.732	2.196	.026
		Linearity	7.007	1	7.007	21.017	.000
		Deviation from Linearity	2.511	12	.209	.628	.807
	Within Groups		15.002	45	.333		
	Total		24.521	58			

**Table 4.5 Anova Table for Green Storage Warehousing**

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Customer_Value * Green_Storage_Warehousing_MEAN	Between Groups	(Combined)	14.016	10	1.402	6.404	.000
		Linearity	10.379	1	10.379	47.424	.000
		Deviation from Linearity	3.636	9	.404	1.846	.084
	Within Groups		10.505	48	.219		
	Total		24.521	58			

**Table 4.6 Anova Table for Green Management System**

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Customer_Value * Green_ManagementSystem_MEAN	Between Groups	(Combined)	13.122	8	1.640	7.195	.000
		Linearity	9.527	1	9.527	41.791	.000
		Deviation from Linearity	3.595	7	.514	2.253	.054
	Within Groups		11.399	50	.228		
	Total		24.521	58			

From the results of the tables above, the values of deviation from linearity are greater than 0.05, it is therefore evident that the dependent variable (customer value) and the independent variables have a linear relationship.

### 4.3.3 Multicollinearity

Multicollinearity also known as collinearity is a point of great inter-connections and inter-relationships among the independent variables in a multiple regression model. This means the one can be predicted linearly from the rest with a substantial degree of accuracy. Multicollinearity brings about unstable estimates and inaccuracy in variances hence affecting



confidence intervals and hypothesis tests. The null hypothesis is that the coefficient of a variable is zero. It assists to explain the high correlations of 2 or more independent variables and accurately knows the effects of independent variables with the used of regression analysis. Multicollinearity in SPSS can be checked through Tolerance and VIF (Variance Inflation Factor). There is no multicollinearity if the VIF value lies between 1 – 10.

**Table 4.7 Coefficients table of Multicollinearity**

Model	Coefficients <sup>a</sup>						
	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.042	.321		3.250	.002		
Green_Distribution_TransportationMEAN	.091	.123	.103	.735	.465	.481	2.080
Green_Packaging_MEAN	.038	.127	.042	.300	.765	.483	2.070
Green_Design_MEAN	.081	.110	.102	.735	.466	.490	2.039
Green_Storage_Warehousing_MEAN	.264	.112	.348	2.356	.022	.435	2.297
Green_ManagementSystem_MEAN	.186	.139	.222	1.333	.188	.343	2.912

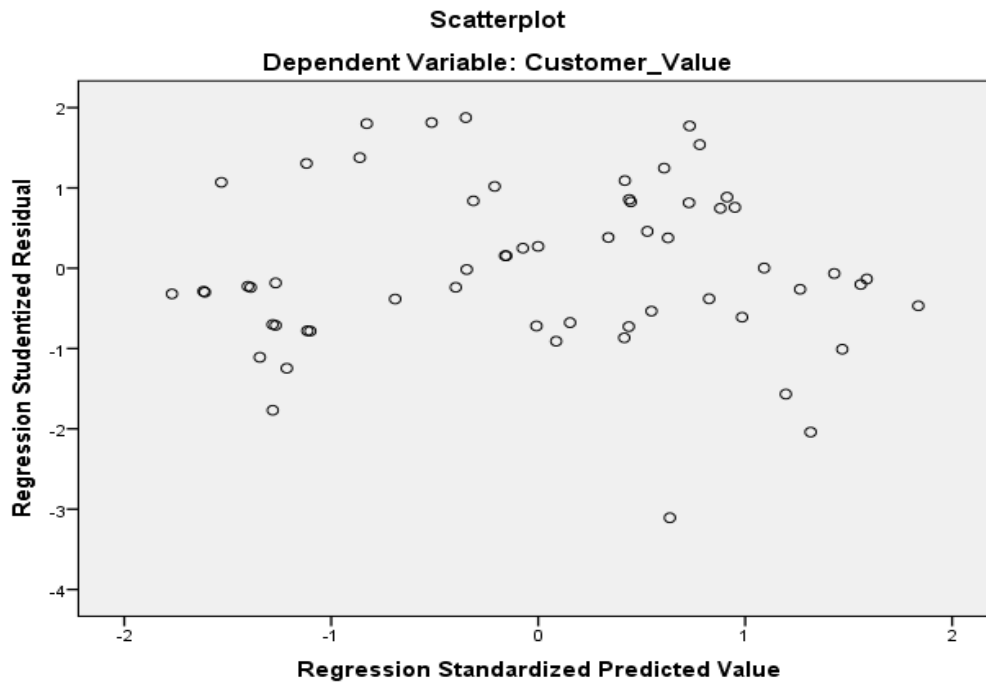
From the results of the table above, the values of VIF range from 2.039 and 2.912 which means it can be concluded that there is no existence of multicollinearity. These values are within the measures set by Meyers (1990), who suggested that VIF should be less than 10.

#### 4.3.4 Test of Heteroscedasticity

Heteroscedasticity means unequal scatter. A key assumption of linear regression indicates that, there must be no heteroscedasticity of residuals. In modest terms, this entails that the variance of residuals should not rise with fitted values of response variable. In regression analysis, this is in the perspective of the residuals .Heteroscedasticity can precisely be seen as a systematic modification in the spread of the residuals over the choice of measured values. Heteroscedasticity is a worry because ordinary least squares (OLS) regression accepts that all

residuals are obtained from a population with a continuous variance. A scatter plot was used to test for heteroscedasticity.

**Fig 4.7 Scatter plot for customer value**



Based on the scatter plot output above, it appears that the spots are diffused and thus do not create a clear specific pattern, so it can be decided that no presence of heteroscedasticity in the regression model.

#### **4.3.5 Autocorrelation**

Autocorrelation is an attribute of data whereby the correlation among the values of similar variables is based on linked objects. It goes against the principle of instance independence, which is the basis of most of the conventional models. It occurs in those types of data-sets in which the data is from the same locale rather than being unsystematically selected. The researcher however doesn't expect the presence of autocorrelation. Dependencies within the

data the main cause of it. The Durbin Watson Test is used to test autocorrelation in residuals from regression test analysis. The Durbin Watson is used to report a test statistic, that has a value from 0 to 4. 2 means that there is no autocorrelation, 0 to <2 means there is positive autocorrelation and >2 to 4 means there is negative autocorrelation. The principle is that test statistic values which range from 1.5 to 2.5 are relatively normal. Values outside of these brackets could raise an alarm. Field (2009) recommends that values below 1 or larger than 3 are the exact grounds for concern.

**Table 4.8 Models for Autocorrelation Summary**

<b>Model Summary</b>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.705 <sup>a</sup>	.497	.449	.48261	1.605

From the results of table 4.8 above, The Durbin-Watson  $d = 1.605$ , a figure that lies between  $1.5 < d < 2.5$  therefore being evident that in our multiple linear regression data, there is no first order linear auto-correlation,.

#### **4.3.6 Data Reliability and validity**

Data reliability is a situation that occurs when data is error free and adequately complete to be definite for its reason and context. Apart from being reliable, data must also sustain other tests for evidence. It also relates to consistency and repeatability of the results. In this case the reliability of the measurement scales was tested by calculating Cronbach's alpha coefficient.

Table 4.9 below present results of the reliability tests;

**Table 4. 9Summary of reliability Tests of the Variables**

<b>Section of Questionnaire</b>	<b>Variable</b>	<b>Number of Items</b>	<b>Cronbach's Alpha</b>	<b>Remarks</b>
Section B	Green logistics practices	22	0.914	Reliable
Section C	Customer value	11	0.822	Reliable
Section D	Challenges of green logistics	10	0.829	Reliable

From the table above, the highest reliability was observed in Green Logistics practices at 0.914 followed by Challenges of green logistics at 0.829 while the lowest alpha was observed in Customer value which was 0.822. From the results on Table above, it was evident that the data was reliable which indicated a high level of internal consistency (The nearer the coefficient is to 1.0, the greater is the internal consistency of the items (variables) in the scale).

#### **4.4 Demographic Characteristics of Respondents**

The respondents comprised of the production managers, operations managers, marketing managers and logistics managers. The respondents were requested to give their designation in their companies and also the length of service in the company. To evaluate such characteristics, descriptive statistics mainly percentages and frequencies were used.

##### **4.4.1 Respondents Designation**

The study was aimed to establish the designation of the respondents. The frequency distribution of the respondent's population by designation is given in the table 4.10 below.

**Table 4.8 Designation of the respondents**

<b>Designation</b>		<b>Frequency</b>	<b>Percent</b>
Valid	Production Manager	17	28.8
	Operations Manager	13	22.0
	Marketing Manager	16	27.1
	Logistics Manager	9	15.3
	Total	55	93.2
Missing	System	4	6.8
<b>Total</b>		<b>59</b>	<b>100.0</b>

The results of table 4.10 above indicates that many of the respondents were Production managers who represented 28.8 per cent followed by marketing manager with 27.1 per cent. The operations managers represented 22 per cent and the least percentage of 15.3 was recorded from logistics managers.

#### **4.4.2 Other specified Designations**

This was used to capture other designations of the respondents other than the ones which were specified in the questionnaire.

**Table 4.9 Other Designations**

<b>Other Designation</b>	<b>Frequency</b>	<b>Percent</b>
	55	93.2
Engineer	1	1.7
Fork lift Driver	1	1.7
Receptionist	1	1.7
Storekeeper	1	1.7
<b>Total</b>	<b>59</b>	<b>100.0</b>

From the table above, 6.8 percent of the respondents were from other specified designations.

#### **4.4.3 Length of Service of Respondents**

This research work was set out to find out the duration of service for the respondents in their current companies. The length of service can be associated with respondents experience and knowledge acquired over time.

**Table 4.10 Duration worked in the Company**

<b>Working Duration</b>	<b>Frequency</b>	<b>Percent</b>
Less than 2 Years	15	25.4
2-5 Years	20	33.9
6-10 Years	14	23.7
10-15 Years	7	11.9
More than 15 Years	3	5.1
<b>Total</b>	<b>59</b>	<b>100.0</b>

According to table 4.12 above, 25.4 % of the respondents have been working for less than 2 years, 33.9% have been working between two and five (2-5) years, 23.7% of the respondents between six and ten (6-10) years, 11.9% of the respondents had worked for ten and fifteen (10-15) years and the remaining 5.1% of the respondents had worked for more than fifteen (15) years.

These findings show that many of the respondents had worked for less than 10 years (83%) while those who had more than 10 years were only 17 %. The category with the highest percentage of the respondent was 6-10 years, followed by category of 2-5 years.

#### **4.5 Appreciation of the Role of Green Logistics Practices**

Results from table 4.13 below illustrate the percentage of how organizations in Mombasa County do appreciate the role of Green logistics practices. The table shows that 98.3 % of the organizations do appreciate the role of green logistics practices whereas 1.7% does not appreciate. These findings indicated that majority of the organizations in Mombasa County incorporated Green logistics practices in their operations.

**Table 4.11 Appreciation role of Green Logistics Practices**

<b>Role of GLP Appreciation</b>		<b>Frequency</b>	<b>Percent</b>
Valid	No	1	1.7
	Yes	58	98.3
	Total	59	100.0

#### **4.6 Descriptive Statistics for Green Logistics Practices**

The research investigation was done to find out the level or degree of green logistics practices by companies in Mombasa County. The parties ‘were questioned to rate the range which was matched with reports on activities their companies engaged in or practiced so as to gauge their level of green logistics implementation. The measurement scale consisted of 22 items. A five-point Likert scale was used to measure the items ranging from 1 representing (not at all) to 5 representing (very large extent). Green logistics practices were defined by five (5) constructs namely: Green Distribution and Transportation, Green Packaging, Green Design, Green Storage and Warehousing and Green Management System. The aggregate score of green logistics practices was done as an average of the mean score for the five constructs. High mean indicated that the respondents were in agreement ( $> 3.00$ ) whereas the statements with a low mean is a true indication of respondents’ disagreement ( $< 3.00$ ).

According to Cooper &Schindler (2006), Standard Deviation (SD) is a measure of dispersion which shows how far away from the mean the data values are. Small SD ( $< 1$ ) indicates that many of the sample means are closer to the mean whereas a large SD ( $1>$ ) indicates that the sample mean is a not a good of the population mean. The results of the five constructs of Green Logistics practices are presented in the tables that follow.

#### 4.6.1 Green Distribution and Transportation

The results of the table 4.14 below shows that the most adopted Green Distribution and transportation practice by firms in Mombasa County is fuel utilization usage and reduction of mileages capacity and wastage with a mean score of 3.42. This was followed by route optimization and also minimal movement and increase firms productivity both with a mean score of 3.2373. The aspect of using alternative fuel like natural gas had a mean score of 3.12 being the least adopted practice. Increasing speed and shortening transport speed in operations had a mean score of 3.15 whereas practices of reducing pollution in the firms operations had mean score of 3.19.

The whole mean score for Green distribution and transportation was 3.23 which shows that most of the firms in Mombasa County are in the process of planning and implementing Green logistics practice in Distribution and transportation processes.

**Table 4.12 Means and Standard Deviations for Green distribution & Transportation**

<b>Green Distribution &amp; Transportation</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Utilize fuel usage and reduce mileages, capacity and wastage.	59	3.42	1.086
Route optimization	59	3.2373	.897
Use of fuel alternatives like natural gas	59	3.1186	1.131
Increase speed and shorten transport time	59	3.1525	.925
Reduce pollution	59	3.1864	1.279
Minimize movement and increase firms productivity	59	3.2373	1.040
Valid N (listwise)	59		
<b>Average Mean Score</b>		<b>3.2254</b>	

#### 4.6.2 Green Packaging

The results on the table 4.15 below indicate that reduction of size and layers of packaging is the most adopted practice in Green packaging with a mean score of 3.12. Practices of cooperating with suppliers to standardize packaging, reducing environmental problems through packaging



and use of bio gradable materials like plastics each had a mean score of 3.12. The aspects of promoting recycling and reuse of programs and ensuring product have recyclable content each had a mean score of 3.0 which indicates that they were the least practiced elements in green packaging.

Green packaging had an average mean score of 3.04 which can be ranked as moderate and hence this implies that firms in Mombasa County have not fully implemented the practices of green packaging.

**Table 4.13 Means and Standard Deviations for Green Packaging**

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Reducing the size and layers of packaging	59	3.1864	1.05821
Promote recycling and reuse programs	59	3.0000	.98261
Corporate with suppliers to standardize packaging	59	3.0169	1.16695
Reduce environmental problems through packaging	59	3.0169	1.00844
Ensure products have recyclable content	59	3.0000	1.08278
Using biodegradable materials including plastics.	59	3.0169	1.16695
Valid N (listwise)	59		
<b>Average Mean Score</b>		<b>3.040</b>	

#### **4.6.3 Green Design**

The Table 4.16 below indicates means score for questions regarding firms practicing green design in their structures and also on their products to ensure minimal dangerous effects on human health and the environment. The mean scores ranged between from 2.51 and 3.03. The use of environmentally conscious design had a mean score of 2.90 whereas use of life cycle analysis to evaluate environmental load had mean score of 2.51 which indicates that these are least practiced. Eco labeling which involved marking products with a unique label so that customers know that their manufacture conforms to recognized environmental requirements had

mean score of 3.03, these implied that eco labeling was the most practiced aspect of green design followed by use of energy saving equipment with mean score of 3.02.

The overall mean score for Green design was 2.90 which implies that firms in Mombasa County are in process of implementing green design in their building structures and products to ensure eco-friendly environment.

**Table 4.16 Means and Standard Deviations for Green Design**

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Use of environmentally conscious design	59	2.8983	1.21336
Use Life cycle analysis to evaluate environmental load	59	2.5085	1.16520
Use energy saving equipment.	59	3.0169	1.00844
Eco labeling	59	3.0339	.94625
Valid N (listwise)	59		
<b>Average Mean Score</b>		<b>2.8835</b>	

#### **4.6.4 Green Storage and Warehousing**

The table 4.17 below indicates means score for questions directed to respondents regarding firms practicing Green storage and warehousing which involved use ideal layout that cuts material handling costs, improves throughput, reduces space requirements, and cuts power bills; use of equipment that decrease costs and also environmental friendly in storage and warehousing of firm products.

The mean score of the questions ranged between 2.95 and 3.50. The most adopted practice was Layout optimization with mean score of 3.50 followed by firms minimizing movements to increase their productivity (3.20). Use of green equipment for storing and handling products had a mean score of 2.95 which implies that majority of the firms had not fully exploited use of green

equipment in their storage processes. The average means score for Green storage and warehousing was 3.20.

**Table 4.17 Means and Standard Deviations for Green Storage and Warehousing**

<b>Descriptive Statistics</b>			
	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Layout optimization	59	3.4576	.97064
Minimize movements to increase productivity	59	3.2034	1.01335
Use of green equipment for storing and handling.	59	2.9492	1.19516
Valid N (listwise)	59		
<b>Average Mean Score</b>		<b>3.2034</b>	

#### **4.6.5 Green Management System**

The table below shows mean score results on Green management system which entails approach of developing strategic planning, control and assessment for green logistics practices that enhance environment, economic and social sustainable development. The mean score ranged between 2.78 and 3.59, this implies that most of the respondents indicated that firms in Mombasa County have put in place green management system. The most adopted practice was on top management commitment to carry out an environmental sustainability strategy and bringing everyone on board with a mean score of 3.59 followed by firms purchasing eco-friendly stationery with mean score of 3.25. The average mean score for green management system was 3.21 which indicated that majority of the firms have implemented the systems.

**Table 4.18 Means and Standard Deviations for Green Management System**

<b>Descriptive Statistics</b>			
	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Top management commitment to carry out an environmental sustainability strategy and bring everyone on board	59	3.5932	1.06865
Purchasing eco-friendly stationery.	59	3.2542	.99296
Use of electric saving air conditioner	59	2.7797	1.00117
Valid N (listwise)	59		
<b>Average Mean Score</b>		<b>3.2090</b>	

#### **4.7 Customer Value**

The study was conducted to explore the customers value achievement associated with the firms' products. This was evaluated by use of four indicators that constituted Consumer Value namely: Functional Value, Economical value, Emotional value and Social Value. The respondents were requested to rate their Customers' value achievement with regards to the four dimensions of value. The four indicators were rated on a five point likert scale ranging from (5) Very Large Extent to (1) Not at all after when composite index was computed as the average mean score of Customer value.

The results on table 4.19 below shows mean scores of statements for rating of customer value achievement in respect to Functional Value, Economical value, Emotional value and Social Value . The mean scores ranged between 2.9576 and 3.2712. The item with the highest mean score (3.2712) was about economical value to the customer followed by functional value with (3.2288). The average mean for customer value was 3.1235.

**Table 4.19 Means and Standard Deviations for Customer value**

<b>Descriptive Statistics</b>			
	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>Average Mean Score</b>			
Functional value	59	3.2288	1.00752
Economical value	59	3.2712	1.01422
Emotional value	59	2.9576	0.89885
Social value	59	3.0367	1.06082
<b>Average mean score</b>		<b>3.1235</b>	<b>0.99535</b>

#### **4.8 Correlation Matrix for the variables**

Correlation analysis using Pearson's Product Moment technique was performed to come up with the connection between indicators of Green Logistics and Customer Value. To demonstrate the relationship between the study variables, a correlation analysis of the study variables was done.

It was done to find the quality and trend of the link between the indicators of GLP and Customer value. Values of correlation coefficient range from -1 and +1. A correlation coefficient of +1 indicates a complete positive linear relationship whereas -1 shows a perfect negatively linear relationship.

The table below shows results of the findings.

**Table 4.20 Correlation Matrix for the Variables**

		Correlations						
		1	2	3	4	5	6	
1	Customer Value	Pearson Correlation	1		.486**	.535**	.651**	.23**
		Sig. (2-tailed)		.000	.000	.000	.000	.000
2	Green Distribution Transportation	Pearson Correlation	.549**	1	.545**	.595**	.627**	.648**
		Sig. (2-tailed)	.000		.000	.000	.000	.000
3	Green Packaging	Pearson Correlation	.486**	.545**	1	.592**	.507**	.679**
		Sig. (2-tailed)	.000	.000		.000	.000	.000
4	Green Design	Pearson Correlation	.535**	.595**	.592**	1	.602**	.615**
		Sig. (2-tailed)	.000	.000	.000		.000	.000
5	Green Storage Warehousing	Pearson Correlation	.651**	.627**	.507**	.602**	1	.698**
		Sig. (2-tailed)	.000	.000	.000	.000		.000
6	Green Management System	Pearson Correlation	.623**	.648**	.679**	.615**	.698**	1
		Sig. (2-tailed)	.000	.000	.000	.000	.000	
		**, Correlation is significant at the 0.01 level (2-tailed).						
		N=59						

Table 4.20 above indicates a moderate positive relationship between Customer value and indicators of Green logistics Practices which is significant. There exist a moderate positive linear relationship between customer value and Green distribution and Transportation which is statistically significant (r=0.549, P-value <0.05).

Green packaging, Green Design, Green Storage & warehousing and Green management System all had a moderate positive relationship having (r=0.486, P-value<0.05), (r=0.535, P-value<0.05), (r=0.651, P-value<0.05) and (r=0.623, P-value<0.05) respectively.

#### 4.9 Regression Analysis for Customer Value and GLP indicators

The key drive of this research study was to examine the level to which food processing firms in Mombasa practice green logistics. Having established a positive relationship among the variables, further a regression analysis was done to establish the influence of predator variable on dependent variable.

**Table 4.21**Regression results for Customer Value and GLP indicators

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.705 <sup>a</sup>	.497	.449	.48261	.497	10.456	5	53	.000

a. Predictors: (Constant), Green\_ManagementSystem\_MEAN, Green\_Design\_MEAN, Green\_Distribution\_TransportationMEAN, Green\_Packaging\_MEAN, Green\_Storage\_Warehousing\_MEAN

Results in table 4.21 shows a strong positive relationship between Customer Value and Green logistics practices ( $r = .0705$ ) with  $R^2=0.497$ ). This case showed that Green Logistics Practices explained 49.7% of the variability in Customer Value and 50.3% variation in Customer Value being explained by other factors .The regression model was significant at  $F = 10.456$  with  $p$  value  $< 0.05$ . This implies rejection of the null hypothesis meaning that the Green Logistics practices have a significant effect on Customer Value.

**Table 4.22 Regression coefficients for the analysis on impact of GLP indicators on Customer value**

Coefficients <sup>a</sup>						
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
	B	Std. Error	Beta			
1	(Constant)	1.042	.321		3.250	.002
	Green Distribution Transportation	.091	.123	.103	.735	.465
	Green Packaging	.038	.127	.042	.300	.765
	Green Design	.081	.110	.102	.735	.466
	Green Storage Warehousing	.264	.112	.348	2.356	.022
	GreeManagement System	.186	.139	.222	1.333	.188

a. Dependent Variable: Customer\_Value

The coefficient table 4.22 above shows the beta coefficients of constructs that constitute the independent variable (Green Logistics practices) that predict the dependent variable (customer value).

The regression model equation can be represented as shown below.

$$Y = 1.042 + 0.091(GDT) + 0.038(GP) + 0.081(GD) + .0264(GSW) + 0.186(GMS)$$

Where

Y = Customer value

GDT = Green Distribution and Transportation

GP = Green Packaging

GD = Green Design

GSW = Green Storage and Warehousing

GMS = Green Management System



#### **4.10 Challenges of Green Logistics**

This section highlights the challenges which logistics firms in Mombasa faced when adopting Green logistics practices. To determine the degree to which the following challenges are faced when adopting Green logistics practices, a 5- point Likert scale was used with: 1 representing No extent at all, 2- small extent, 3-moderate extent, 4-large extent and 5- very large extent.

The results from the table below, shows that the mean score of the challenges ranged between 2.73 and 3.15. Lack of appropriate technology needed to implement green logistics practices in the firms had the highest mean score of 3.15 which implies that most of the firms lack the latest technology needed to apply green logistics practices. Lack of knowledge among the employees, retailers and suppliers had a mean score of 3.14, this implied that all the firm stakeholders need training and awareness on green logistics practices.

Lack of tools and techniques for measuring GL performance had a mean score of 2.9, Suppliers or vendors reluctance in applying Green logistics practices had a mean score of 2.8, many of the respondents indicated that Strict government rules and regulations with mean score of 2.9 affected green logistics adoption in a small extent. Majority of the respondents indicated that challenge of Lack of effective communication (2.86) among the supply chain team moderately affected the practices. The outcome on the table below clearly shows that much of the challenges are faced in moderate extent.

**Table 4.23 Means and Standard Deviations for Challenges of Green Logistics**

<b>Descriptive Statistics</b>			
	N	Mean	Std. Deviation
Lack of appropriate technology needed to implement green logistics practices	59	3.1525	1.20077
Lack of awareness among the employees, retailers and suppliers	59	3.1356	1.02482
Lack of tools and techniques for measuring GL performance	59	2.8983	.95943
Suppliers or vendors reluctance in adopting Green logistics practices	59	2.7966	1.04683
Strict government rules and regulations	59	2.9661	.92785
Lack of top management support	59	2.8136	1.00815
Difficulties in complying with the organizational standards	59	2.7627	.93475
Poor planning of implementation of the sustainability program	59	2.8814	1.03532
Lack of effective communication among the supply chain team	59	2.8644	1.10575
Lack of integrating green logistics optimization efforts with green supply chain.	59	2.7288	1.04767
Valid N (listwise)	59		
<b>Average Mean Score</b>		<b>2.9</b>	

## **CHAPTER FIVE: SUMMARY, CONCLUSIONS**

### **ANDRECOMMENDATIONS**

#### **5.1 Overview**

This chapter discusses the findings of the research work, conclusions drawn and recommendations made. The presentation of the discussion is made according to the study objectives. In view of the discussions, conclusions to the research questions are thereafter drawn. This chapter ends by highlighting suggestions and recommendation's for further exploration.

#### **5.2 Summary**

The main reason of the research was to reveal the extent to which food processing firms in Mombasa practice green logistics, To explore the extent to which green practices define customer value and lastly to disclose the challenges that the food processing firms in Mombasa face in adopting green logistics practices. A conceptual framework was developed and tested guided by the three objectives of the study. The study established that majority of the organizations in Mombasa County incorporated Green logistics practices in their operations. It was also established that most of the firms in Mombasa County are in the process of planning and implementing Green logistics practice in Distribution and transportation processes. Majority of the firms practiced green packaging but it was evident that the practice is not fully implemented.

On customer value the study findings established that a large number of those who responded were in agreement with the functional value associated with the products. Also the findings established that the customers get enough benefits to justify the associated costs in the products.

On Challenges that firms face in green logistics adoption, the study found out that firms in Mombasa county face a lot of challenges which hinder them from going green in their operations, lack of appropriate technology was the most challenging . The findings also established that lack of awareness among the stakeholders especially the suppliers and staff was also a challenge. Tough administration rules and regulations also constrained adoption of the green logistics practices.

### **5.3 Conclusions**

The study's main purpose was to determine the extent to which food processing firms in Mombasa practice green logistics and the outcome of the study revealed that food processing firms in Mombasa County have adopted green logistics practices but not to a very large extent. The study outcomes are consistent with Mwaura et al (2016), who revealed that most of the firms are practicing green logistics for purpose of cutting down costs, improve in their performance, and also conserve the environment and gain a good competitive advantage. The study also revealed that majority of the firms which have not adopted the green logistics practices are in planning and implementation stages.

The study was also to explore the rate to which green logistics practices determine customer value, and according to Ottman (1993) and from the study findings, the correlation between customer value and green logistics practices revealed that there exists statistical significant relationships which influence the customer perception towards the firm products and services.

The study also concludes that majority of the food processing firms in Mombasa County face a lot of challenges in the process of adopting green logistics practices, the major challenges identified were lack of advanced technology, lack of awareness among the stakeholders and strict government policies.

#### **5.4 Recommendations**

Based from the drawn conclusions from 5.3, the researcher recommended that there is urgent need for firms in Mombasa to go green by incorporating green logistics practices which will help deal with environmental issues such as pollution and environmental degradation. There is also need for awareness among stakeholders on knowhow and advantages associated with green logistics practices. In order to fully implement green logistics practices the government should not only impose strict regulations but also should provide funding to enable the firms acquire the required equipment with the latest technology. In order to curb the challenges faced by the firms, it's recommended that the firms to develop green logistics policy which will act a guide in planning and also implementing the required practices.

#### **5.5 Limitations of the Study**

Although the study was successful, it was faced by few limitations. Some respondents did not fill the questionnaires for fear of not exposing their firms' confidential information. Secondly, some of the questions on the questionnaires were left unanswered which affected the outcome of the study. Finally time and resources were limited

#### **5.6 Suggestions for further Research**

The study findings serves as a reference point to those who would wish to further do research on level of implementation of green logistics in Kenyan firms. I would suggest a more comprehensive research on how the government policies affect implementation of green logistics and also remedial measures to address the issue.

Further, it is recommended that future studies within the same scope should focus on solutions for challenges faced by firms in implementing green logistics practices and all level of management should be incorporated.

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# APPENDICES

## APPENDIX 1: RESEARCH QUESTIONNAIRE

This questionnaire was designed with the aim of collecting data on the Green Logistics Practices and the impact to Customer value in the Food Processing Firms in Mombasa County. The information will be treated as confidential and will be useful for academic purposes only. Kindly answer the questions as appropriate.

### SECTION A: GENERAL INFORMATION

1. What is your designation in the company?

- Production manager
- Operations manager
- Marketing manager
- Logistics manager
- Others.....

2. For how long have you worked in the company?( Tick in the box)

- Less than 2 years
- 2-5 years
- 6-10 years
- 10-15 years
- More than 15 years

3. As an organization, do you appreciate the role of Green Logistics Practices?

(Yes/No) .....

**SECTION B: PRACTICES OF GREEN LOGISTIC PRACTISES.**

4. Below is a list of Green logistics practices. Please tick appropriately the extent to which each of them is practiced in your company.

(1) Very Large Extent (2) Large Extent (3) Moderate (4) Small Extent (5) Not at all

<b>GREEN LOGISTICS PRACTICES</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Green Distribution and Transportation</b>					
Utilize fuel usage and reduce mileages, capacity and wastage.					
Route optimization					
Use of fuel alternatives like natural gas					
Increase speed and shorten transport time					
Reduce pollution					
Minimize movement and increase firms productivity					
<b>Green Packaging</b>					
Size and layers reduction of packaging					
Promote recycling and reuse programs					
Corporate with suppliers to standardize packaging					
Reduce environmental problems through packaging					
Ensure products have recyclable content					
Using biodegradable materials including plastics.					
<b>Green Design</b>					
Use of environmentally conscious design					
Use Life cycle analysis to evaluate environmental load					
Use energy saving equipment.					
Eco labeling					
<b>Green Storage and Warehousing</b>					
Layout optimization					
Minimize movements to increase productivity					
Use of green equipment for storing and handling.					

<b>Green Management System</b>					
Top management commitment to carry out an environmental sustainability strategy and bring everyone on board					
Purchasing eco-friendly stationery.					
Use of electric saving air conditioner					

Others (please specify).....

**SECTION C: CUSTOMER VALUE**

5. Please tick appropriately how you rate your Customers’ value achievement with regards to the parameters listed.

(1)Very large extent (2) Large extent (3) Moderate extent (4) Small extent (5) Not at all

IMPACT	1	2	3	4	5
<b>Functional Value</b>					
Satisfied and exceeded customer expectations					
Term your services better compared competitors					
<b>Economical Value</b>					
Get enough benefits to justify the associated costs in your products					
<b>Emotional Value</b>					
Customer experience of owning and using the product					
Emotional attachment to product					
<b>Social Value</b>					
Take pride or feel cool in use of a product.					
Improve the reuse and recycling opportunities					
Appreciate a decrease of hazardous and toxic materials in products					
Improved environmental environment of the customer					



Reduce the occurrence for environmental accidents					
Reduced environmental burdens					

Others (please specify).....

**SECTION D: CHALLENGES OF GREEN LOGISTICS**

6. Determine the extent to which the below challenges are faced during adoption of Green logistics .

(1) Very large extent (2) Large extent (3) Moderate extent (4) Small extent (5) Not at all

<b>CHALLENGES</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Lack of sufficient technology to implement green logistics practices					
Unawareness amongst the stakeholders.					
Lack of tools and techniques for measuring GL performance					
Suppliers or vendors reluctance in adopting Green logistics practices					
Strict government rules and regulations					
Lack of top management support					
Difficulties in complying with the organizational standards					
Poor planning of implementation of the sustainability program					
Ineffective supply chain communication.					

Others (please specify).....

**THANKS FOR YOUR COOPERATION!**