SUSTAINABLE SUPPLY CHAIN MANAGEMENT AND OPERATIONAL PERFORMANCE OF MEDIUM AND LARGE SUPERMARKETS IN NAIROBI, KENYA

BY

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2019

DECLARATION

STUDENT'S DECLARATION

I would like to make a declaration that this is my original work and it has not been submitted to any learning institution apart from the University of Nairobi for the sole purpose of examination.

Signature: ……. **Date**……

DENNIS ODUOR OKETCH

D67/7593/2017

SUPERVISOR'S DECLARATION

This project has been submitted with my authorization as the University Supervisor for examination purpose.

Signature…….…. **Date**…….

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DEDICATION

To my beloved parents, Mr. Benard Anyango Oketch and Mrs. Edwina Adhiambo Oketch for their patience, understanding, encouragement and support both emotionally and financially and for their unending support in my academic journey and being a source of inspiration to me. I wouldn't have done this without them. To my future wife and kids. It is because of them that I had to work hard and achieve this so that I can give them a better future.

My brother Samuel Ochieng Osewe, thank you for always being there for me the most when all seemed lost. You supported me with all that you had and believed in me when most people didn't. I will forever be indebted to you. Thanks for your words of encouragement, prayers and always giving me hope when all seemed lost.

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ABBREVIATIONS AND ACRONYMS

CIPS - Chartered Institute of Procurement and Supply

GSCM - Green Supply Chain Management

CSR - Corporate Social Responsibility

GDP - Gross Domestic Product

KNBS - Kenya National Bureau of Statistics

RL - Reverse Logistics

SPSS - Statistical Package for Social Sciences

SSCF - Sustainable Supply Chain Foundation

SSCM - Sustainable Supply Chain Management

SSCM - Sustainable supply chain management practices

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ABSTRACT

This study set out to establish the influence of Sustainable Supply Chain Management Practices on the performance of Medium and Large Supermarkets in Nairobi, Kenya. The study was steered by two objectives; To establish the the extent to which SSCM practices have been adopted by medium and large supermarkets in Nairobi; and to determine the correlation between SSCMP and performance of Supermarkets in Nairobi. The paper embraced Descriptive research design and information was collected using questionnaires. Complete enumeration of all 43 medium and large supermarkets was carried out. Analysis was executed by descriptive statistics and regression analysis guided by SPSS 20.0. The findings show that Stakeholder Engagement, Green Procurement, Green Manufacturing and Reverse Logistics have been adopted to a large extent by the supermarkets. The findings also show that through adoption of SSCMP, the Supermarkets in were able to gain considerable Speed, produced Quality Products and were able to save on Cost. This implies that SSCMP had a relevant and affirmative impact on performance. The study recommends that the supermarkets not practicing SSCM should start doing it if they want to improve on their performance and to gain competitive edge. The study also recommends that other sectors should also engage in Sustainable Supply Chain Management. Not all the questionnaires were returned hence there was not 100% return rate on the respondents. There was inadequate time and resources to cover all the supermarkets hence the study was only limited to Medium and Large Supermarkets in Nairobi, Kenya. Further studies can focus on SSCM in other industries. A study should also be done to explore the barriers and drivers faced by organizations in realizing the SSCM Practices

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Due to globalization, there has been increased competition, scarcity of resource, need for efficiency and effectiveness, increased demand for environmental protection and changes in customer's preferences and tastes (Muller, Dosantos & seuring, 2009). This has posed a lot of challenges to organizations and they are trying to come up with ways of averting these milestones. Sustainable Supply Chain Management (SSCM) is vital in guaranteeing that the integrity of any given brand is upheld and at the same time be able to manage the operational costs of an entity to ensure that there is continuity as observed by Sarkis et al. (2011). Designing of products need to be done in a way that the product is sustainable and can help achieve the operational performance on an organization. Sustainability concept has become relevant in managing the supply chains as entities respond to external and internal pressures (Schaefer et al., 2006). Babiak and Trendafilova (2011) opine that pollution of water and air, global warming and ozone layer and deficiencies of resource are as a result of environmental degradation which has increased attention on sustainability all over the world. Porter and Van der Linde (1995) posit that organizations which are Environmentally responsible can enjoy better utilization of resources, improved corporate image and gain reputation. They add that sustainable products plays an important part in ensuring that an entity avoids cost of litigations, increases demand for the product and lead to customer satisfaction

Supermarkets provide diverse products at a subsidized price as compared to small retailers and at times some wholesalers due to the economies of scale and sourcing globally (Nair & Chisoro, 2015). The supermarkets are also in a better position to offer their clients additional service like a one roof shop where one can purchase all their needs, packaging different collection of items being sold simultaneously thus enabling the customers to have value for their money (Nair & Chisoro, 2015). Kenyan supermarkets are entering urban food retail and are rapidly expanding from the traditional small market of the middle class to markets of lower income class (Neven & Reardon, 2014). The effects of pollution, depletion of resources that are natural and cannot be renewed, and change in climate has

made companies more so supermarkets and communities become environmentally aware (Douglas, 2006). This is seen by the increased environmental awareness in the current market places by both the organization and the consumers. Consumers are beginning to realize that their buying behaviors have a big impact on many environmental problems. Sustainability can help in various areas such as conserving of energy, health and safety of workers and their working conditions and water conservation as put forward by Porter and Kramer (2011). Shopping malls and supermarkets accounts for over 30 per cent of the retail requirement and at the same time provide employment opportunities thus eliminating poverty (Keana, 2015).

Theories that support the implementation of SSCM in organizations include the systems theory, Dynamic Capabilities Theory, Contingency Theory, Triple-Bottom-Line Theory, Institutional Theory, Natural Based Resource View and Social Exchange Theory (Walker, 2015). Ahmed and Wang (2007) opine that Dynamic Capabilities entails an organization having the ability to be able to renew, reconfigure, integrate and recreate resources and capabilities in while responding to the ever-changing environment that they operate in. It is clear that SSCMP is an emerging trend and companies are trying by all means to incorporate these practices in their daily activities now more than before.

1.1.1 Sustainable Supply Chain Management

Seuring and Muller (2008) define SSCM as the managing of raw materials, flow of capital and information both forward and backwards coupled with collaborations with diverse entities along the chain. They add that in so doing, the entities should give special considerations to the three features of sustainability. These are the social, ecological and economical dimension. This is done so as to realize the requirement and needs of their shareholders and end users. Sustainable Supply Chain Foundation (SSCF, 2014) asserts that SSCM is basically merging financial and environmental practices which are deemed viable by a company for example re-use and recycling, managing of waste, energy and water conservation and audits. These practices are integrated into the Supply Chain Cycle from product development until the last stage where it gets to the customer. CIPS (2014) posits that sustainability is having the capability to settle the requirements of the current

generation without necessarily interfering with the needs of the subsequent one. Sustainable key pillars otherwise known as the TBL or the Triple Bottom Line mainly focuses on the Economic (profit), social (people) and ecological (planet) (Elkington, 2004).

Mukanga (2011) is of the opinion that Social sustainability deals with worker's health and safety, better working conditions and better payment of employees. Walker et al. (2008) add that making sure that the community has access to better and affordable education, access to social resources in an equitable manner, employees having rights to bargain collectively and forming of unions to address employee's plights plays an important part in achieving social sustainability. Economic Sustainability are strategies put in place to ensure that in as much as the firm engages in both social and ecological practices, eventually it is able to gain or make profit for the running on its activities (Sarkis et al., 2011). This can be achieved through equal allocation and distribution of the available resources to ensure long-term continuity and profitability (UNGC Accenture, 2013). Sarkis et al. (2011) add that environmental sustainability puts into account things like water conservation, energy and land conservation, use of natural resources, solid and toxic waste management. This occurs when the organization engages in processes that reduce the effect of harmful products or emissions to the environment thus conserving it (Seuring & Muller, 2008).

Sustainability is a holistic approach towards technologies, innovations and processes that are involved in supply chain and it focuses on more than just the costs (Elkington, 2004). Products that are responsible sustainably are good for the environment as well as the firm's corporate strategy as observed by Walker et al. (2008).

1.1.2 Operational Performance

Voss et al. (2012) describe Operational Performance as that part of an entity's processes which can be measured. The researchers add that it involves aspects like managing of inventory, cycle and lead times, overall productivity, agility of an entity, timely deliveries, quality, speed and reliability. The performance of SC of an entity can be measured by how a supplier performs in his duties, how the consumer rates your product and services, how

efficient the deliveries are, cycle time and the availability and accessibility of the product (Srinivasan et al., 2011). Voss et al. (2012) add that measuring of performance entails the process involved in quantifying how effective and efficient the operations of a firm are (). Gunasekaran and Kobu (2007) define effectiveness as the rate which the requirement of the clients is fulfilled. Efficiency on the other hand is ensuring that those resources which are used to fulfill the customer's needs are used properly and, in the process, saving cost as opined by Shepherd and Gunter (2010).

Birach (2011) came up with some parameters for measuring performance and they include measuring of lead time, inventory, quality, delivery time, order fill rates, response rate, flexibility and order fulfillment. Total Quality Management is relevant for a firm that wants to improve its performance, has efficiency and increases its bottom line hence firms practicing TQM have a competitive edge compared to those that do not (Elisa et al., 2013). The management therefore has the responsibility of integrating all the members along the chain for them to ensure that all functions and processes work in unison.

Salem (2003) notes that a firm's performance largely rest on how effective and efficient its operations are run. Operational performance entails the ability that a firm has in achieving its mission by way of governing and how they are dedicated to achieve their set objectives and goals (Elisa et al., 2013). Operational performance basically involves how a firm performs against its set goals like reducing waste, its productivity and complying with ecological standards, rules and regulations (O'Brien, 2009). Operational control is the goal which the operational performance is trying to achieve. It is that process which makes sure that a firm is able to follow through actions while aiming to meet its objectives. Hubbard (2009) conclude that a company that achieves these goals excels in its operational performance.

1.1.3 Medium and Large Supermarkets in Nairobi, Kenya

Appel (1992) defines a Supermarket as a building that occupies at least 2000 square feet selling space with more than four cashiers and the store is mainly run on a self-service basis. The stores main components are food stuffs, materials for cleaning and things that

can be used in households. A supermarket is a large-scale retailing firm with different subsections that operates on a self-service (Kibera & Waruinge, 1998). Stanton and Futrell (1987) opine that it's a large departmental retail store that offers different merchandise and operates on self-service with minimal customer service. Most of the supermarkets source their products mainly from manufacturers and do not depend on middlemen. A distribution channel that a manufacturer will adopt mainly determines where the product will be picked (Ng'ang'a, 2000).

A medium supermarket is a retailing store with different subdivisions below one roof that operates on a self-service basis and with a low of 10 to 15 workers and a minimum of three selling points or cashiers while a large supermarket is that which has more than 20 employees with a minimum of six selling points (Mithamo, Marwa & Letting, 2015). They further posit that most of the medium and large supermarkets deals with food stuffs, electronics, cosmetics, clothes and shoes.

Supermarkets in Kenya mainly started in big cities like Nairobi and Mombasa and then started spreading gradually to other smaller towns in the country. Supermarkets then spread from Kenya to other countries with little urbanization like South Sudan, Burundi, Rwanda and Uganda (Mukuria, 2011). Mainstream supermarkets mainly cover square meter foot of between 10,0000-60,000 with more than 50 employees (Njenga, 2006). Supermarkets are gradually and steadily growing from urban areas and spreading beyond their initial targeted market area to lower earning groups (Kiumbura, 2000). Kenya follows South Africa as the advanced country in the continent with more than two hundred and six supermarkets and eighteen Hypermarkets (Economic Survey, 2009).

Oxford Business Group (2017) ranked the Kenyan retail market as the continent's second best developed economy. They go further and state that Kenya has the most rapid growth of retail industry in Africa and they are only second to south Africa. The consultancy firm also acknowledges that there is an increase in interest from outside investors who want to invest in the retail industry due to its rapid growth. The retail sector has expanded by 13 percent in the past three years which translates to a total retail spending of Sh1.8 trillion in

2016 (Procter & Gamble, 2016). The increase in spending is attributed to 30 percent of Kenya's GDP in 2016. The growth is due to the entrance of international retailers like Carrefour, Massmart Holding's Game and Botswana's Choppies. Kenya's retail market had an aggregate yearly GDP development rate of 5.6% from 2009 to 2014.

The supermarkets contribute to the economy, provide employment opportunity for many people and act as a convenience to many shoppers since they provide almost all household things under one roof (Karuga, 2017). In as much as there has been continuous growth in the industry, the retail sector cannot sustain itself going by a study conducted KNBS Survey (2015). Local supermarkets that are established like Nakumatt, Ukwala, and Uchumi are struggling to maintain their Supply Chains and are sinking in debts. The sector is being faced by some challenges like Pilferage which can be directly attributed to annual loss of up to Sh2.5 billion in retail industry (Karuga, 2017). He further states that adopting devolution policies has made taxes to increase and the move to increase excise taxes on foodstuff coupled with depreciation in currency just adds onto the challenges.

1.2. Research Problem

Sustainability is one of the areas identified by researchers which has a massive potential to boost efficiency and reduce costs of most manufacturing firms (Kovacs, 2014). Organizations use effective and efficient sustainable supply chain networks to reduce their overall cost of products and producing products of high quality to customers (Sarkis et al., 2011). There is a growing concern from the public based on how businesses affect the ecology and the society as a whole and it is forcing many supermarkets to embrace the adaption of SSC network. This is achieved by embracing the social, economic and ecological aspects as opposed to the traditional SC network. Supermarkets in Nairobi are facing significant challenges from customers which forces them to adopt SSCM Practices. Customers are becoming aware of the environmental and social harms instigated by organizations using traditional SCM since it does not put into consideration the environmental and social facets of sustainability. Supermarkets therefore are finding it difficult to effectively and efficiently respond to customer needs with their traditional

supply chain network (Ng'ang'a, 2000). Different studies on SSCM have been done locally and globally.

Globally, Chanikova (2016) did a study on SSCM in food retailing. The findings indicate that maintaining good relationship with the supplier, having flexible processes in production and having effective and efficient and effective internal operations positively affects the organizations performance. The researcher adds that embracing new and current technologies to speed up the operations, having continuous improvement and integrating all the supply chain players goes a long way in having a sustainable supply chain among food retailing entities. Walker and Jones (2012) did a study on SSCM of the UK private sector. Their findings reveal that majority of UK firms in the private sector have sustainability policies and are working hard to be able to achieve the sustainability goals. Fawad (2016) studied on the Effects of GSCM on Sustainability Performance of ISO 14001 in SMEs. She found that Green Procurement, Corporate Social Responsibility, Employee's Welfare, and carrying out Financial Audits all contributed to sustainability performance.

Locally, Mukanga (2011) conducted a study on Sustainability strategies that international NGOs based in Nairobi adopt. The researcher found that organizations adopted strategies such as engaging in consultancy work, adopting a strategic plan, product innovations, and engaging in income generating activities. Other strategies that NGOs use to boost their performance include engaging in partnerships and collaboration, capacity building and empowerment of communities, good management practice, reverse logistics and green procurement. Mulwa (2015) did a study on SSCMP and how they influence performance at United Nations Agencies. Her findings show that Green Manufacturing, carrying out Environmental Audits, Lean Practices, adopting Total Quality Management, Green procurement and reverse logistics are some of the sustainability practices which influenced UN`s performance in Nairobi. She concluded that SSCMP positively influence the performance of United Nations Agencies. Okello and Were (2014) focused on the influence of SSCMP on competitiveness. Their studies indicated that Technology, Product development, cycle time and managing of inventory gives the firm a competitive edge. On another study, Mugo (2015) focused on how Operational Performance is influenced by

SSCM Incentives in the food franchising industry. The study identified regulatory restrictions, social and environmental responsibility, economic benefits, external pressure, competition and green purchasing as some of SSCM incentives.

The purpose of the study was to establish the relationship between sustainable supply chain management practices and operational performance of medium and large supermarkets in Nairobi, Kenya. Based on the above-mentioned studies and the researcher's point of view, it is clear that although research has been done pertaining sustainability, no known study has been done on SSCMP in Supermarkets hence making a gap for the current study. Therefore, this study sought to answer the subsequent questions: To what extent have Supermarkets in Nairobi adopted Sustainable Supply Chain Management practices and what is the correlation between Sustainable Supply Chain Management and Operational Performance of Supermarkets in Nairobi, Kenya?

1.3 Research Objectives

The key objective of the paper was to establish the correlation between SSCMP and Performance of Supermarkets in Kenya. The precise objectives are to;

i. Establish Sustainable Supply Chain Management Practices used by supermarkets in Kenya.
ii. Determine the relationship between Sustainable Supply Chain Management Practices and Operational Performance of Supermarkets in Nairobi, Kenya.

1.4 Value of the Study

Results of the paper can be very instrumental to the supermarkets in linking their SSCMP to its performance. The outcome of the study can also be imitated by different Kenyan organizations which may not necessarily be supermarkets simply because sustainability can be practiced by all sectors in business and in the competitiveness of those organizations in almost a similar way.

The study will benefit the Top Management of organizations since it will help them in embracing SSCMP when they see that it positively influences the performance of

organizations. Top managers can know which sustainable practice to employ to be able to have a competitive edge towards other organizations and to also be able to improve on their image and reputation.

The study also aims at adding more knowledge to the existing one on sustainability management and its practices. Analysis will help in providing conclusion which is relevant to the Supply Chain Practitioners, professionals and academicians.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section reviewed several work that have been previously done. The subsections of this chapter include Theoretical Framework, a broader view of SSCM Practices, SSCM and Operational Performance, review of past Studies and Conceptual Model.

2.2 Theoretical Framework

SSCM practices are important to any organization as they improve an organizations image in the market, profitability and also help in conserving the environment (Wisner, 2001). A number of theories explain the SSCM practices concept including the Systems theory, Resource-Based-View Theory, Dynamic Capability Theory and Contingency Theory.

2.2.1 Systems Theory

Martinelli (2001) states that systems theory views an event as a whole and not the components of its individual systems. A system is comprised of sub systems that has a relationship with each other and the subsystems depends, affects and are affected by one another (Steele, 2003). An entity relies on the surroundings in which it does it`s work in thus putting into consideration the suppliers, competitors and customers according to Mason (2007). The theory incorporates different supply chain variables which in turn form a single Supply Chain Network (Fowler, 2000).

Sustainability can be seen from the systems view concept theory. Sustainability has three facets of social, economic and environmental which are interdependent of one another to achieve the greater view of sustainability as one large goal in the organization. Systems theory therefore puts forward the importance of all the tree facets of sustainability in working together in harmony so that they can be able to achieve total sustainability. The supermarkets therefore have to find a way of incorporating social, economic and environmental practices to work as one complete system and not as standalone.

2.2.2 Resource-Based-View Theory

Based on this theory, organizations which own resources that are strategic in nature have significant competitive advantage as compared to those that don`t. Strategic resource is a that which is valuable, hard to imitate, rare to find and that cannot easily be substituted (Barney & Chi, 1991). A valuable resource is that which can influence an entity in coming up with strategies that takes advantage of opportunities to be able to beat stiff competition. This theory highlights the benefits a company acquires by having the necessary resources required for its survival. The resources may be in form of financial muscle, physical locations, human labor and effort, technological advancements among other capabilities and engaging in sustainable practices.

These resources and capabilities set a firm apart from the rest and forms part of its competitive advantage. Supermarkets need to possess products and services with unique characteristics or specific and detailed work procedures which will enable them shut out competition for firm's resources and capabilities (Prahalad & Hamel, 1999). Supermarkets can make can take advantage of sustainable practices and use them as a unique resource to enable them meet the end goal of achieving operational performance. A supply chain that is well managed and is sustainable is important in creating a competitive edge and adding value at the same time (Lambert & Cooper, 2000).

2.2.3 Dynamic Capability Theory

Ahmed and Wang (2007) define DC as the ability of the entity to be able to renew, reconfigure, integrate and recreate capabilities and resources to be able to react to the uncertain working conditions. By virtue of aligning the resources, abilities and capabilities of an entity to the changes in environment, the firm is able to boost its operational performance and at the same time giving the entity a competitive edge. Capabilities, based on Teece et. al. (1997), is the means that an entity uses to obtain and accrue different competencies and skills which are fairly new and have not been tried. The new capabilities which have been acquired help to ensure that resources that the firm has is used effectively and efficiently for them to be able to achieve Operational Performance.

This theory is useful in sustainability in that it gives room for reconfiguring, renewing, recreating and integrating useful materials which are sustainable and also policies that can be adopted in meeting the sustainability goals. Supermarkets can therefore benefit through the incorporation of the said abilities in their daily operations aiming at being sustainable. Upon achieving the sustainability goal, the supermarkets will be in a better position to make profits, save on cost, conserve the environment and be effective in their operations.

2.2.4 Contingency Theory

This theory argues that under different situations, different solutions are needed (Antal, 2010). Instead of applying common management principles, the theory seeks to demonstrate that different circumstances require different organizational set ups and infrastructure (Baranyi, 2001). Organizations are limited by different factors like size of the firm, environment in which its operating in and information technology. These contingencies are designed for developing the specific structures and functions for an organization (Lee, 2001).

Supermarkets in Kenya operate in a competitive environment and therefore Contingency theory is a key SSCM driver in planning and aligning their operations towards improving operational performance. It is relevant in this study in that it gives insight to the fact that not all sustainable practices will work in all the organizations. They have to keep trying and changing to see the best fit for the organizations and have an alternative in case some of the practices fail to pay off. This implies that some practices might working other organizations but not in supermarkets and some practices might work well better that others hence the management of the supermarkets needs to keep trying and establish which best practices suits their supermarkets. This might call for a trade off at some point.

2.3 Sustainable Supply Chain Management Practices

There are many SSCM Practices but this paper covered only a few of the practices namely Green Manufacturing, Green Procurement, Reverse Logistics and Supplier Engagement.

Green Manufacturing involves making or manufacturing of goods which are friendly and has little harm on the environment that surrounds us (Walker & Jones, 2012). They add that this will result to reduced cost of raw materials used in the manufacturing process, reduction in expenses incurred through occupational safety which will lead to improved reputation and image of the company at large Wamalwa (2014) notes that Green Manufacturing is made in such a way that it will reduce negative effect of the product towards the environment on the process of manufacturing**.** Firms can implement the practice of Green Manufacturing through activities like using raw materials that can be recycled, use of natural energy like solar and using energy sources that are biodegradable (Amemba et al., 2013).

Green Procurement is about all the activities involved in purchasing of services and products that has little effect on the environment. It puts into consideration both the environment and the health of living beings be it animals or humans by ensuring that they produce products of high quality at affordable prices (Lee & Klassen, 2008). Green Procurement basically entails purchasing of products or raw materials that is environment friendly and has minimal effect on the environment. The organization that is involved has to measure the effect of the product its purchasing to the environment across its lifecycle. For this to happen the following costs has to be considered: disposal, transportation, handling, warehousing and inventory, procuring and lastly the cost of securing the initial raw materials for manufacturing (Lee & Klassen, 2008). Green procurement influences the production of quality products (Walker & Jones, 2012)

Reverse Logistics (Gandolfo & Sbrana, 2008) is the process by which a manufacturer aids the retrieval of its products, materials or even parts from downstream to upstream for the sake of disposal, recover its value or re use it. Hawks (2006) defines RL as the procedure involved in planning, implementing and controlling the movement of material, work in process, end products and information from the end user to the focal company with the aim of disposing it properly or to recapture its value. RL guarantees efficient and sustainable environment by making sure that any unused product is taken back to the focal company. Reverse Logistics also includes processing of recalling products, stock that are seasonal,

recalls, items that can be salvaged and excess stock being held by companies. RL can also include recycling of programs, disposal of materials that are obsolete, toxic material and recovering of assets (Baenasa et al., 2010).

Supplier Engagement is how the organizations deals with its suppliers through the formation of a good and working association among the two parties (Walker et al., 2008). For the success of the entity, the firm often consents to form a relationship with its key distributors on a long-term base to achieve financial stability and at the same time have a sustainable relationship (Baenasa et al., 2010). It involves making sure that the suppliers are educated on each and everything that the company requires of them. This means that the suppliers work closely with the organization to be able to integrate sustainable policies and beliefs into their corporate strategy and their day to day operations. The company does this to ensure that there is trust between them and the suppliers which will make them have a shared thinking regarding sustainable issues and being able to build one another thus improving the overall performance (Sarkis et al., 2011). Walker and jones (2012) add that formation of good relationship with the suppliers helps reduce unnecessary cost, improves product quality and enhances delivery speed of materials to the company.

2.4 Sustainable Supply Chain Management Practices and Operational Performance

Kinyua (2013) defines Performance as the skill of the organization to be able to achieve the requirement of a job. Performance is measured by results achieved by that job. Performance is the ability of an entity to be able to perform or having the capacity to achieve the desired results (Neeley et al., 1995). Beske (2012) in his definition states that it is the process of an entity identifying parameters that an entity uses to reach its desired goals. Sustainable supply chains performance measurement is threefold meaning that it's not only measured by its economic performance but also according to its environmental and social parameters.

The modern supply chain is tremendously complex. For a firm to maximize operational performance, it must look into their supply chain with a keen eye for them to realize a considerable performance. The firm must also be flexible in responding rapidly to

disruptions and uncertainties hence being agile in their operations. At the same time, organizations, supermarkets in particular, need to come up with ways of identifying and adapting to emerging SSCM trends. Organizations need to monitor more than inventory levels, date of delivery, order processing rate, fill rates and cycle time for them to manage the performance along the SC. The firms have to understand the consequence or end result of supply chain alterations on the cash flows or the total cost and be in a position to optimize the efficiency and effectiveness of SC for better outcome (Oloruntoba & Gray, 2005).

For supermarkets, their performance expectations are to serve clients in a way which they will keep coming back due to satisfaction of service offered and the quality of goods purchased. Literature in most cases tries to give a difference between economic sustainability, ecological sustainability and social sustainability following the TBL model (Elkington, 2004). Loannou (2011) carried out research on how Corporate Sustainability impacts on an Entities Performance. The study established that companies which concentrates on sustainability metrics performs better compared to those who do not. Hasan (2012) lists some of the sustainable practices that organizations may adopt for their performance to improve. These SSCMP dimensions have been based on the past literature that addressed several aspects of SSCM.

2.5 Empirical Literature Review

The evaluation of the literature has given studies to help us better understand the impact that SSCM practices have on the performance of different organizations. Table 2.1 lists the summarized studies done on SSCM.

Table 2.1 Summary of Studies on Sustainability

Author(s)	The study Focus	Methodology	Research Findings	Research Gap
Walker and Jones, (2012).	SSCM across the UK Private sector.	Descriptive Survey	Majority of UK firms are dedicated to Sustainability	The study was conducted for private sector companies therefore a need to study it in other areas.
Wamalwa (2014)	SSCM as a strategic tool for competitiveness	Descriptive Survey	SSCMP competitive advantage positively	Focused on the tea industry in Kenya and left out other areas-
Fawad Habib, (2016)	Effects of SSCM practices on sustainability performance of ISO14001 SMEs	Survey Research Design	GSCM positively affects performance of sustainability	concentrated on SMEs and GSCM but gave little attention to sustainability management and practices.
Chkanikova, Olga, (2016)	SSCM in food retailing	Descriptive Survey	Most food retailers engage in SSCMP	Mainly focused of food industry but did not cover other retailing outlets.
Mulwa (2015)	SSCP and their influence on performance of United Nations Agencies	Descriptive Survey	The adopted SSCP are stakeholders engagement, diversity , ethical sourcing and safeguarding the health of employees	Study only focused on UN agencies only but failed to cover other sectors.
Okello and Were (2014)	The influence of SSCMP on competitive advantage	Descriptive Survey Design	Technology, Product development, cycle time and managing positively influenced organizational performance	Study compared SSCM practices to competitive advantage leaving a gap for comparison between SSCMP and operational performance.
Mugo (2015)	SSCM Incentives and Operational Performance of food franchising outlets in Kenya	Descriptive Survey Design	The study identified regulations, competitors, pressure from customer as some of the SSCM incentives	Focus of the study was only on food franchising and the study mainly focused on environmental sustainability and left out other facets of sustainability of economic and social.

Source: Own compilation (2019)

2.6 Conceptual Framework

The sole goal of a conceptual framework is to clearly bring out the relationship that exists between two variables under study (Tabachnick & Fidell, 2007). This conceptual framework therefore demonstrates the correlation between independent variable (SSCMP) and dependent variable (operational performance). Operationalization was done on the main concepts with Sustainable Supply Chain Management Practices dimensions being Green Manufacturing, Green Procurement, Reverse Logistics and Supplier Engagement and operational performance dimensions were Cost, Quality and Speed. The given constructs and how they relate with one another is illustrated by Figure 2.1.

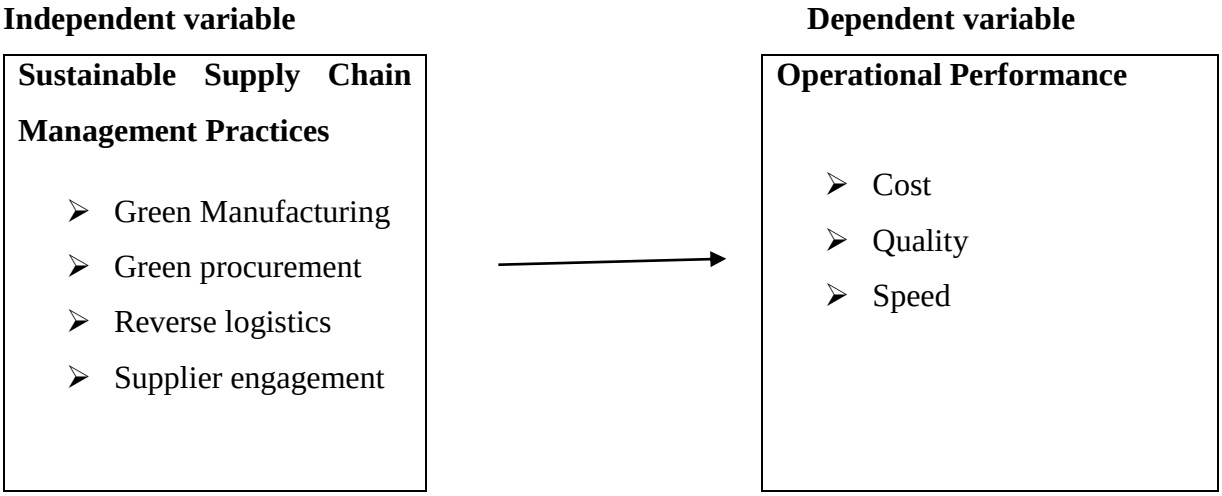

Figure 2.1: Conceptual Model

Source: Own Compilation (2019)

Figure 2.1 shows that Green Manufacturing, Green Procurement, Reverse Logistics and Supplier Engagement has a relationship with Cost, Quality and Speed.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The section mainly covered the design that was employed, the Targeted Population or the recipients and how the data was collected and analyzed**.**

3.2 Research Design

Descriptive research design was embraced to determine the influence of SSCMP on the performance of supermarkets. This design aids in confirming and help to define the features of the variables being studied (Sekaran, 2006). Cauvery et al. (2003) add that it showcases the features of a certain situation and it its flexible and accurate.

3.3 Targeted Population

Nairobi City Council licensing department (2017) places the number of Medium and Large supermarkets at forty-three (43) as at 2017. Kibubi (2017) adds that the forty-three supermarkets have the largest market share of Supermarkets in Nairobi. The targeted population was therefore all the thee forty-three Supermarkets. Since the population was studied as a whole, census was the appropriate method to be used in this study hence it was adopted. Nairobi was chosen because it acts as the headquarter of most supermarkets and the supermarkets are densely populated in the area with high income (Kibubi, 2017).

3.4 Data Collection

Primary data was adopted and information gathered by use of questionnaires. The questionnaires mainly contained statements and questions drafted from the paper`s objectives. The Questionnaire had three units as per the objectives. Section A had general information, Section B contained SSCM Practices and Section C consisted of the statements on operational performance outcome upon the adoption of SSCM Practices. The questionnaire had both open ended and closed-ended questions to simplify the analysis and facilitate the researcher in obtaining in-depth response from the respondents (Kothari, 2008). Data collection instruments were executed through a drop and pick later mode. The

questionnaires targeted the Top Management and Supply Chain Officers or any other person who held a similar position in the supermarkets.

3.5 Data Analysis

The filled questionnaires were returned and had the data to be analyzed. The data was analyzed based on different sections of the questionnaire. Section A which contained background information was analyzed using percentages. Section B of the questionnaire was used to analyze objective one of the study and descriptive statistics was by applying mean and standard deviation. Section C of the questionnaire was used to analyze objective two of the study and regression analysis was employed used with SSCMP as the Independent Variables and Operational Performance as the Dependent Variable. Four regression models were run

Regression model that was used for data analysis was;

$$Y = a + b1X1 + b2X2 + b3X3 + b4X4 + e$$

Where:

Y = Operational Performance

a = constant

b_1 =is the regression weights attached to the variable's constants

X_1 = Green Procurement

X_2 =Green Manufacturing

X_3= Reverse Logistics

X_4= Supplier Engagement

e is the error term

Table 3.1: Data Collection and Analysis Summary

Objectives	**Data to be collected**	**Method of data collection**	**Analysis needed**
Section A	Background information	Structured questionnaire	Descriptive statistics(frequencies)
Sustainable practices used by supermarkets in Nairobi, Kenya.	Extent of SSCMP adoption	Structured Questionnaire	Descriptive Statistics
SSCMP and Operational Performance	Response rating of various operational efficiency measures	Structured questionnaire	Regression analysis

Source: Own Compilation (2019)

Table 3.1 provides the guidelines on the sections of the questionnaire, how data was collected and how each section was analyzed.

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.1 Introduction

This section presents the data analysis, interpretations and discussion of findings.

4.2 Response rate

This study targeted 43 Supermarkets in Nairobi. Complete data was obtained from 37 supermarkets which represented 86.04% of the respondents. This response rate was deemed sufficient. Yin (2017) notes that a reply rate of over 70 % is adequate to analyze, present and inteprate the findings of any given study.

4.3 General Information

This was divided based on the respondent's positions in the organization, period of service in their present position and the period which the supermarkets have been operational in Nairobi as contained in Table 4.1.

Table 4.1 General Information

Position in the organization	**Frequency**	**Percentage (%)**
Supply chain managers	21	56.76
Supply chain officers	16	43.24
Others	0	0
Length of service(years)		
1 -2	6	16.3
3 -5	9	24.3
5 -10	15	40.5
Over 10	7	18.9
Total	**37**	**100**

Source: Research Data (2019)

Table 4.1 show that 57% of the respondents were supply chain managers while the other 43% of the respondents were supply chain officers. This means that most of the respondents were better suited to give information that can be relied upon and had knowledge on the area of study.

On the length of service, 40.5% had worked for a period of between 5 and 10 years in their current positions while 24.3% had served for periods between 3 - 5 years and 16.3% had served for 1- 2years while the remaining 18.9% had worked for over 10years. Thus 83.7% had served for more than three years which imply that they had experience and knowledge of answering the questions.

4.4 Period of Existence

The respondents were requested to state how long their supermarkets had operated in Nairobi and Table 4.2 shows their response.

Table 4.2 Period of Existence

Period of existence (years)	Frequency	Percentage (%)
1 -5	14	37.8
5 – 10	13	35.1
Over 10	10	27.1
Total	**37**	**100**

Source: Research Data (2019)

Table 4.2 reveals that 38% of the supermarkets have been operating for one to five years, while 35 percent have been operating for a period between five to ten years and the remaining 27% have been operational for over ten years. This indicates that most of the supermarkets (63%) have been operational for more than five years which is a significant duration showing that they were qualified to give relevant feedback to this study.

4.5 Sustainable Supply Chain Management Practices

The paper wanted to ascertain the level of adoption of SSCM practices by the supermarkets in Nairobi. The rating was done using a Likert scale of 1 to 5 where 1= to a very small extent, 2= to a small extent, 3= to a medium extent, 4= to a large extent and 5= to a very large extent. The subsequent sub sections present the SSCMP which were further subdivided into four categories of Green Manufacturing, Green Procurement, Reverse Logistics and Supplier Engagement.

4.5.1 Green Manufacturing

The respondents had to rate the adoption of Green Manufacturing on a Likert scale of one to five and Table 4.3 gives their response.

Table 4.3 Green Manufacturing

Green Manufacturing Practices	Mean	Std. Dev
We consider environmental issues during the design of products	4.1622	0.98639
We control production processes so as to reduce environmental pollution	4.0541	0.99850
We use environmentally friendly supply chain inputs in manufacturing products	4.0270	0.98563
My company collaborates with its suppliers to find the best solution in elimination of the negative effects of operations towards the environment	3.9459	1.02594
We produce outputs that can easily be re-used and recycled throughout their useful lives	3.8541	1.15280
Overall score	**4.0087**	**0.99583**

Source: Research Data (2019)

From Table 4.3, respondents affirmed their supermarkets practiced the consideration of environmental issues while designing their products to a large extent (M= 4.16, SD= 0.99). Use of environmental friendly supply chain inputs while manufacturing had a mean of 4.03 and a SD of 0.99 which shows adoption of the practice to a large extent while collaboration with suppliers to find solutions for elimination of negative effects towards the environment had a mean of 3.95 and SD of 1.026 which denotes that it was adopted to a medium extent. Lastly to a medium extent (Mean=3.85, SD=1.15), the respondent opined that their company produces outputs which can easily be recycled and re used throughout their lifecycle.

Adoption of Green Manufacturing plays a significant part in an entity as seen from the literature. Amemba et al. (2013) note that Green Manufacturing involves making or manufacturing of friendly and less harmful goods to the environment that surrounds us which helps in conserving the environment. Walker and Jones (2012) add that Green Manufacturing practices will result to reduced cost of raw materials used in the

manufacturing process, reduction in expenses incurred through occupational safety and improved reputation and image of the company.

4.5.2 Green Procurement

The mean and the standard deviation for Green Procurement were calculated and are shown in Table 4.4. The green procurement practices that were rated include ethical sourcing and production, buying environmentally friendly raw materials, being ISO 14000 certified, sourcing from local suppliers and having a diverse supplier network.

Table 4.4 Green Procurement

Green Procurement Practices	Mean	Std. Dev
We practice Ethical sourcing, production & distribution	4.0541	1.15340
We buy raw materials which are environmentally friendly	4.0541	1.07873
We are ISO-14000 certified	4.0000	1.08012
We source from local suppliers	3.7838	1.05765
We have a Diverse supplier network	3.7027	1.15145
Overall score	**3.9189**	**1.10427**

Source: Research Data (2019)

From Table 4.4, practicing ethical sourcing, production and distribution and buying environmentally friendly raw materials were adopted to a larger extent with the mean of 4.05 and SD of 1.15. This was followed by the supermarkets being ISO-14000 certified (Mean= 4.0, SD= 1.08) which was also adopted to a large extent while sourcing from local suppliers with mean of 3.78 and SD of 1.06 was adopted to a medium extent. Having a diverse supplier network had a mean of 3.70 and S.D of 1.15 which implies that it was adopted to a medium extent.

The outcome are buoyed by Lee and Klassen (2008) who posit that the adopting green procurement practices aids in reducing cost involved in disposal, transportation, handling, warehousing and inventory, procuring and lastly the cost of securing the initial raw materials for manufacturing. Walker and Jones (2012) add that green procurement considers both the environment and the health of living beings thus ensuring that the product they produce are of high quality and affordable prices.

4.5.3 Reverse Logistics

Results for Reverse Logistics are shown in Table 4.5.

Table 4.5 Reverse Logistics

Reverse Logistics Practices	Mean	Std. Dev
Products collected from field are assessed after which they are remanufactured	3.9189	1.08981
Recycling helps my company to recover value in returned materials	3.7027	1.15145
Biodegradable materials are used during packaging in my company	3.6216	1.16312
Unused or partially used products are reused in my company	3.5405	1.09531
There is recycling of materials in my company	3.5405	1.19244
Overall score	**3.6648**	**1.5714**

Source: Research Data (2019)

From Table 4.4, products that are returned are assessed and remanufactured had a mean of 3.92 and SD of 1.09 implying that it was adopted to a medium extent. Recycling to obtain value (3.70, SD= 1.15) and use of biodegradable materials in packaging (M=3.62, SD=1.16) were also adopted to a medium extent by supermarkets. Other Reverse Logistics Practices that were adopted to a medium extent are re-use of unused products and recycling of material which tied with the mean of 3.54 and SD of 1.19.

From the literature, it is clear that the adoption of reverse logistics plays a vital role in an entity. Gandolfo and Sbrana (2008) argue that RL aids in retrieving products, materials or even parts from the end user to the focal firm so that it can be properly disposed and its value recovered. Hawks (2006) adds that Reverse Logistics aids to plan, implement and control materials movement, work in progress, end products and information from the end user to the focal company. Baenasa et al. (2010) conclude that RL guarantees efficient and sustainable environment by making sure that any unused product is taken back to the focal company.

4.5.4 Supplier Engagement

The respondents had to rate how their respective supermarkets cultivate good relationship with their suppliers, having joint trainings and seminars with their suppliers, financing their supplies, mutual sharing of risk and rewards and use of supplier relationship management software. Table 4.6 gives the outcome.

Table 4.6 Supplier Engagement

Supplier Engagement	Mean	Std. Dev
My organization cultivates good relationship with its suppliers	4.2973	0.87765
Having joint trainings and seminars with suppliers	4.2432	0.72286
Financing suppliers	4.1622	0.95782
We mutually share rewards and risks with suppliers	4.1622	0.86646
Use of supplier relationship management software	4.1351	0.88701
Overall score	**4.2000**	**0.8578**

Source: Research Data (2019)

Table 4.6 presents supplier engagement practices where organizations cultivating good relationship with its suppliers was adopted to a large extent with the mean of 4.29 and SD of 0.88 while having joint trainings and attending seminars with suppliers was also adopted to a large extent with the mean of 4.24 and SD of 0.722. Other supplier engagement practices that were adopted by the supermarkets to a large extent were financing the suppliers and sharing of risks and rewards between the company and suppliers which had a joint mean of 4.16 and the SD of 0.96. Lastly there was the use of Supplier Relationship Management (SRM) software which was adopted to a large extent (M=4.14, SD=0.89). The SRM software helps in managing the relationship between the suppliers and the supermarkets.

The literature supports the adoption of supplier engagement. Supplier Engagement has a significant part in ensuring that there is good working relationship between the two parties as Walker et al. (2008) observe. The researchers add that the formation of strategic alliances on a long-term basis helps a firm in achieving financial stability and at the same time have

a sustainable relationship. Sarkis et al. (2011) note that Supplier engagement helps in building of trust between the company and the suppliers which will make them have a shared thinking regarding sustainable issues and being able to build one another.

4.5.5 Ranking of the extent of Sustainable Supply Chain Management Practices adoption

The extent to which the SSCMP was adopted in supermarkets were ranked from the top to the lowest based on the rate of which each of them was being practiced. Table 4.7 shows the overall ranking of the Practices adoption by supermarkets in Nairobi, Kenya.

Table 4.7 Ranking of extent of SSCM Practices adoption

SSCM practices	Mean	Std. Dev	Ranking
Supplier engagement	4.2000	0.8578	1
Green manufacturing	4.0087	0.99583	2
Green procurement	3.9189	1.10427	3
Reverse logistics	3.6648	1.5714	4

Source: Research Data (2019)

The Sustainable SSCMP that was majorly adopted to a larger extent was Supplier Engagement (M=4.20, SD=0.86). This agrees with the literature review as an entity can gain support for its actions and avoid negative repercussion through supplier engagement. Close association with suppliers helps an entity in identifying and addressing their issues which in the end will help solve a dispute or misunderstanding that might occur allowing the firm to operate well with its suppliers (Loannou, 2011).

This was followed closely by Green Manufacturing with the grand mean of 4.01 and the Std. Deviation of 0.99. This shows that supermarkets have adopted green manufacturing to a large extent. This concurs with Yan Li (2011) who found that companies have shown an increased awareness towards the environment due to competition, trainings and regulations imposed to them by the regulatory authority. Carter and Carter (1998) found out that entities that use manufacturing resources that are easy to recycle and reuses boost their overall operational performance. Green procurement was adopted to a large extent with the

score of 3.92 and the Std. Deviation of 1.10. These findings concur with the literature review as Seuring (2014) established that green procurement is vital in an organization since it helps in reducing cost and at the same time be ethical towards purchasing of raw materials. He further opines that green procurement enables entities to tap into innovation, flexibility, cost savings and support generation of local economic.

Lastly ranked is Reverse Logistics with the mean of 3.66 and SD of 1.57. This shows that most Supermarkets do practice Reverse Logistics to a large extent. This is in sync with the literature by Hervani et al. (2005) who observe that most companies do not put into consideration what happens after their products leave the company. Most of them do focus on sales and do not put much effort in the backward flow of both returns and information. They also noted that much of the efforts is put towards removing the product from the company and little efforts is put towards handling of the customer's complaints. However, there is a contradicting study done by Seuring and Muller (2008) who noted that reverse logistics is very vital to any organization that wants to achieve sustainability.

The outcome on objective one are supported by the contingency theory in that we find some of the sub-practices have been adopted to a medium extent while others have been adopted to a large extent. Contingency theory is of the opinion that not all practices will yield the same results and thus the entity needs to keep trying the practices out to find the best fit. The theory explains why supplier engagement and green manufacturing have been adopted to a large extent while green procurement and green logistics have been adopted to a medium extent by supermarkets in Nairobi.

4.6 Sustainable Supply Chain Management and Operational Performance.

A linear regression analysis was deployed to determine the correlation between SSCMP and operational performance and the outcome are shown in the subsequent sections.

4.6.1 Sustainable Supply Chain Management and Cost

Regression analysis was done to establish the correlation between SSCM Practices and Cost and the outcome are as shown in Table 4.8. The SSCM Practices under study are

Green Procurement (X_1), Green Manufacturing (X_2), Reverse Logistics (X_3) and Supplier Engagement (X_4).

Table 4.8: Regression Coefficient

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.210	1.857		1.734	.003
	X_1	.317	.425	.382	2.745	.013
	X_2	.026	.268	.055	2.098	.021
	X_3	.207	.274	.372	3.756	.021
	X_4	.189	.556	.141	4.340	.000

a. Dependent Variable: cost

Source: Research Data (2019)

From Table 4.8, Sustainable Supply Chain Management Practices (Green manufacturing (t=2.74, P<0.05), Green Procurement (t=2.709, P<0.05), Reverse Logistics (t=3.75, P<0.05) and Supplier Engagement (t=4.34, P<0.05) all have an affirmative and relevant correlation with cost as indicated by the P value which is less than 5%. This therefore means that Green Manufacturing, Green Procurement, Reverse Logistics and Supplier engagement all influence cost of supermarkets.

Table 4.9: Model Summary

Model	R	R square	Adjusted R square	Std. Error of the Estimate
I	. 754[a]	.714	.703	.69583

a. Predictors:(Constant), Green Manufacturing, Green Procurement, Reverse Logistics, Supplier Engagement

Source: Research data (2019)

From Table 4.9, the coefficient of determination (R^2) is 0.71. This translates to 71% which implies that 71.4% of variation in cost is attributed to the SSCMP. This denotes that the regression model has a statistical relevance.

Table 4.10: ANOVA Analysis

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.703	3	3.941	16.372	.031[b]
	Residual	3.574	33	.387		
	Total	13.277	36			

a. Dependent Variable: cost

b. Predictors:(Constant), Green Manufacturing, Green Procurement, Reverse Logistics, Supplier Engagement

Source: Research Data (2019)

The F statistics value (at degree of freedom of 3, 33) of 16.37 was relevant as depicted by the fact that p value (0.31) was lower than 0.05 a sign that the model is sound and relevant. The P value is less than 5% (0.031< 0.05) implying that SSCMP have a statistical relevant relationship with cost in supermarkets in Nairobi. The finding agrees with the literature review since Lee and Klassen (2008) establish that implementing green procurement lead to the reduction of cost involved in disposal, transportation, handling, warehousing and inventory, procuring and lastly the cost of securing the initial raw materials for manufacturing. Amemba et al. (2013) note that Green Manufacturing result to reduced cost on materials used in the production process and improves the reputation and image of the company

Walker and Jones (2012) had a contrasting finding in their study. They opined that some of the sustainable material might be costlier as compared to their alternatives in the market thus making the customers go for cheaper materials. They however go ahead and explain that achieving sustainability is costly in the short duration but in the long haul, it becomes more effective and efficient. Hasan (2013) adds that it is hard in some situations to obtain sustainable raw materials which are needed for production. This thus increases the demand for the said materials and since they are scares, it will increase the cost of purchasing them and in the end making them expensive as compared to their alternatives.

4.6.2 Sustainable Supply Chain Management and Quality

The results on the correlation between SSCM Practices and Cost are in Table 4.11.

Table 4.11: Regression Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.652	.827		3.672	.001
	X_1	.171	.349	.231	4.459	.040
	X_2	.081	.318	.231	3.656	.031
	X_3	.171	.211	.450	1.139	.021
	X_4	.057	.197	.102	6.159	.000

a. Dependent Variable: Quality

Source: Research Data (2019)

From Table 4.11, Sustainable Supply Chain Management Practices (Green manufacturing (t=4.459, P<0.05), Green Procurement (t=3.656, P<0.05), Reverse Logistics (t=1.139, P<0.05) and Supplier Engagement (t=6.159, P<0.05) all have an affirmative and relevant relationship with Quality as indicated by the P value which is less than 5%. This therefore means that Green Manufacturing, Green Procurement, Reverse Logistics and Supplier engagement all influence the Quality of supermarkets in Nairobi.

Table 4.12 Model Summary

Model	**R**	**R square**	**Adjusted R square**	**Std. Error of the Estimate**
I	.749[a]	.725	.653	.56310

a. Predictors:(Constant), Green Manufacturing, Green Procurement, Reverse Logistics, Supplier Engagement

Source: Research data (2019)

From Table 4.12, R^2 is 0.725. This translates to 73% which implies that 72.5% of variation in quality is attributed to the adoption of green manufacturing, green procurement, reverse logistics and supplier engagement. This points out that the model has a statistical relevance. The findings of the ANOVA are displayed in Table 4.13.

Table 4.13 ANOVA Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.546	3	3.231	5.009	.021[b]
	Residual	2.951	33	.095		
	Total	**12.497**	**36**			

a. Dependent Variable: Quality

b. Predictors:(Constant), Green Manufacturing, Green Procurement, Reverse Logistics, Supplier Engagement

Source: Research Data (2019)

The F statistics value (at degree of freedom of 3, 33) of 5.009 was significant as shown by the p value (0.021) of less than 0.05 a predictor that the model is sound and relevant. The P value is less than 5% (0.021< 0.05) implying that SSCM Practices have a statistically relevant relationship with Quality and influences the quality in supermarkets in Nairobi. This concurs with literature review that improved performance is enhanced by having quality products which can be achieved through sourcing raw materials that are friendly to the environment and being ethical while sourcing which makes the products to be more appealing to customers and entices a greater percentage of competitor's clients which will eventually result to increased profits (Walker & Jones 2012). Sarkis et al. (2011) add that organizations use effective and efficient sustainable supply chain networks to reduce their overall cost of products and producing products of high quality to customers.

4.6.3 Sustainable Supply Chain Management Practices and Speed

Regression was run to establish the correlation between SSCM Practices and Speed. The SSCM Practices under study are Green Procurement (X_1), Green Manufacturing (X_2), Reverse Logistics (X_3) and Supplier Engagement (X_4). The outcome is displayed in the subsequent Tables.

Table 4.14: Regression Coefficient

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.545	1.502		3.452	.000
	X_1	.296	.344	.356	.680	.001
	X_2	.281	.217	.573	1.351	.021
	X_3	.358	.222	.517	1.352	.031
	X_4	.275	.450	.252	5.432	.000

a. Dependent Variable: Speed

Source: Research Data (2019)

From Table 4.14, Green manufacturing (t=0.68, P<0.05), Green Procurement (t=1.351, P<0.05), Reverse Logistics (t=1.352, P<0.05) and Supplier Engagement (t=5.432, P<0.05) all have an affirmative and relevant correlation with speed as indicated by the P value which is less than 5%. This therefore means that Green Manufacturing, Green Procurement, Reverse Logistics and Supplier engagement all influence speed of activities of supermarkets.

Table 4.15 Model Summary

Model	R	R square	Adjusted R square	Std. Error of the Estimate
I	609[a]	.771	.707	.48368

a. Predictors:(Constant), Green Manufacturing, Green Procurement, Reverse Logistics, Supplier Engagement

Source: Research data (2019)

From Table 4.15, R^2 is 0.77. This translates to 77% which implies that 77% of variation in speed is attributed to the SSCMP. This is an indication that the model has a statistical relevance. The findings of the ANOVA are shown in Table 4.16.

Table 4.16 ANOVA Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.381	3	1.276	12.180	014[b]
	Residual	2.339	33	.234		
	Total	6.720	36			

a. Dependent Variable: Speed

b. Predictors:(Constant), Green Manufacturing, Green Procurement, Reverse Logistics, Supplier Engagement

Source: Research Data (2019)

The F statistics value (at degree of freedom of 3, 33) of 12.180 was significant as shown by the p value (0.14) of less than 0.05 a sign that the model is sound and relevant. The P value is less than 5% (0.14< 0.05) implying that SSCM Practices have a statistically significant correlation and influences speed in supermarkets in Nairobi.

The outcome agrees with the literature as companies that embraced and implemented Sustainable Supply Chain Strategies and Sustainable Practices in their manufacturing processes had greater competitive edge in terms of goodwill, returns on investment and increased speed of delivery (Wamalwa, 2014). Colicchia et al. (2011) found out that to minimize environmental impact a firm must then collaborate with its suppliers via green purchasing and supplier engagement. This will eliminate a lot of unwanted costs and time thus increasing the speed of delivery and reduce cycle time which in the end will eventually boost the performance of the firm. Walker and jones (2012) add that formation of good relationship with the suppliers improves product quality and enhances speed of delivery of materials to the company. Chanikova (2016) concludes that integrating all the supply chain player**'s** aids in having a sustainable SC and increasing flexibility and speed among food retailing entities.

4.7 Sustainable Supply Chain Management Practices and Overall Operational Performance

The regression was done to establish the correlation between SSCMP and the overall performance of supermarkets and the results are displayed below.

4.7.1 Correlation Coefficient Matrix

The coefficients of Pearson correlation assume values from +1 to -1 (0= no relationship and 1= a robust correlation amongst the variables) according to Wong and Hiew (2005). The outcome indicates that there is a great correlation as portrayed in Table 4.17.

Table 4.17: Pearson Correlation Coefficient Matrix

Pearson correlation	**Operational performance**	**Sustainable supply chain management practices**
Operational Performance	1.00	.684
Sustainable supply chain management practices	.684	1.00

Source: Research Data (2019)

4.7.2 Regression Model Summary of SSCMP and Performance

The overall model summary of the paper is displayed in Table 4.18.

Table 4.18: Regression Model Summary

Model	R	R square	Adjusted R square	Std. Error of the Estimate
I	.891	.793	.745	.194

a. Predictors: (Constant), Sustainable supply chain practices

b. Dependent Variable: Operational performance

Source: Research data (2019)

From Table 4.18, the coefficient of determination is 0.79. This translates to 79% which infers that 79.3% of variation in the firm's performance is attributed to the SSCMP. This is a good fit since only 20.7% of the variance in operational performance is unexplained.

4.7.3 Analysis of Variance of SSCMP and Operational Performance

The analysis of variance is used in determine the values of F and P and Table 4.19 shows the outcome.

Table 4.19: ANOVA Analysis

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	7.392	3	1.233	19.151	.000[b]
	Residual	0.837	33	0.064		
	Total	**8.229**	**36**			

Source: Research data (2019)

The F statistics value (at degree of freedom of 3, 33) of 19.15 was significant as portrayed by the p value (0.00) of less than 0.05 a declaration that the model is sound and relevant. The P value is less than 5% (0.000< 0.05) implying that SSCMP have a statistically relevant correlation with Operational Performance in supermarkets in Nairobi. The p value of 0.000 infers that the model has a 0.000 likelihood of generating an unreliable prediction. These findings are consistent with Chkanikova (2016). In her study, she concluded that SSCM has an affirmative impact on Operational Performance in the Food Retail Industry.

4.7.4 Regression Coefficients of SSCMP and Operational Performance

Regression coefficients was used to establish the value of SSCM Practices, the constant, the t values and the p value and the outcome are displayed in Table 4.20.

The established linear regression equation becomes:

Y = 4.595 + .509X1 + 0.201X2 + 0. .397X3 + 0. .215X4

Where

Y = operational performance

X1= Green Manufacturing

X2= Green Procurement

X3= Reverse Logistics

X4= Supplier Engagement

Table 4.20: Coefficients Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.595	1.745		2.633	0.01
	Green Manufacturing	0.509	0.143	0.344	3.559	0.01
	Green Procurement	0.201	0.068	0.563	2.956	0.00
	Reverse Logistics	0.397	0.08	0.439	4.963	0.02
	Supplier Engagement	0.215	0.035	0.376	6.143	0.00

Source: Research Data (2019)

From Table 4.20, Sustainable Supply Chain Management Practices (Green manufacturing (t=03.559, P<0.05), Green Procurement (t=2.956, P<0.05), Reverse Logistics (t=4.963, P<0.05) and Supplier Engagement (t=6.143, P<0.05) all have a positive and relevant correlation with operational performance.

The model shows that when all variables are held at zero (constant), the value of Operational Performance would be 4.95. Holding other aspects constant, one unit change in Green Manufacturing would lead to a 0.51 rise in Operational Performance, one unit change in Green Procurement would lead to a 0.20 boost in Operational Performance, one unit change in Reverse Logistics would lead to a 0.39 rise in Operational Performance and one unit change in Supplier Engagement would lead to a 0.26 surge in Operational Performance.

From the above findings, SSCMP were noted to have statistically significant relationships with operational performance. The findings are consistent with that of Mulwa (2015) where in her study she established that SSCM practices contributed to performance among United Nation firms in Kenya. In another study, Mugo (2015) found that SSCMP like Green Purchasing, Social and Environmental Responsibility, Corporate Social Responsibility and Reverse Logistics contributed greatly to Operational Performance of Food Franchising Industry. Porter and Van der Linde (1995) posit that organizations which are

Environmentally responsible can enjoy better utilization of resources, improved corporate image and gain reputation. They add that sustainable products plays an important part in ensuring that an entity avoids cost of litigations, increases demand for the product and lead to customer satisfaction**.**

The findings are supported by Resource based view theory as the theory gives relevance to the adoption of rare resources by entities who want to influence the performance of their organization. The supermarkets are using Green Manufacturing, Supplier Engagement, Green Procurement and Reverse Logistics as the rare resource which influences their performance.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The section covers the summary of findings, conclusions, recommendations and limitations and suggestions for future research.

5.2 Summary

The main objectives of the paper were to determine the SSCM practices adopted by supermarkets in Kenya and to establish the correlation between Sustainable Supply Chain Management Practices and operational performance in supermarkets in Kenya. It was established that Supermarkets in Nairobi, Kenya have adopted SSCMP to a large extent. The SSCM practices that were adopted to a large extent are Supplier Engagement, Green Manufacturing, Reverse Logistics and Green Procurement. This shows that objective one was fulfilled. From the outcome of the paper, we can conclude that there is an affirmative and relevant correlation between Sustainable SSCM and Performance. This is clearly shown by the positive correlation between dependent variable (Speed, Cost and Quality) and independent variables (Green Manufacturing, Green Procurement, Reverse Logistics and Supplier Engagement). This means that objective two of the study has been realized.

The approach of ethical sourcing, production and distribution ensures better quality and sustainable products are produced. Having a diverse supplier network and ensuring suppliers sustainability policy plays a big role in making sure that the company gets what they need from the suppliers at the exact time and place. This will enhance customer satisfaction since the firm will be better placed to deliver the customers products as and when needed. As earlier indicated, supermarkets have managed to consolidate and sustain its market leadership position over the year and as confirmed by the respondents of this study, adopting SSCM practices has had positive impact on performance.

5.3 Conclusions

Considering the outcome of this paper and the literature behind it, it is conclusive that there exists is an affirmative correlation between SSCM and operational performance in many organizations which have adopted SSCM practices in their entities. The study therefore concludes that adopting SSCM Practices affects how the organization performs to a greater extent. The improved performance is reflected through cost savings, increased speed, better quality of product and reduction in adverse environmental effect. This shows that SSCM contributes greatly in meeting the customers ever fluctuating needs and preferences and to deal with the ever-stiff market competition.

5.4 Recommendations

The researcher recommends to all Supermarkets in Nairobi and in the country at large that there is need to adopt SSCM practices so as to influence their performance as its been observed that there exists a relevant relationship among SSCM Practices and operational performance

Supermarkets in Kenya should strive to be ISO certified. This is one way to show quality compliance and loyalty. Health and safety are very important in supermarket hence the need for them to be ISO certified to ensure that employees are protected and well taken care of. The customers' needs have to be fulfilled. Supermarkets in Kenya should also strive to adopt the use of supplier engagement which enhances collaboration between the suppliers and the parent company. This leads to customer satisfaction and at the same time builds a good relationship between the suppliers and the company. This can help in information sharing and helping the company in letting the suppliers know what exactly they want and at what time. There is need to boost awareness on SSCM on the enhancement of Operational Performance in the supermarkets in Kenya, this will assist in proper planning and utilization of resources. The study recommends that clear policies should be formulated, monitored and implemented fully for sustainability to be fully achieved.

5.5 Limitations

It was difficult to achieve 100% return rate on the questionnaires since some were not returned. Some of the reasons given for this was the claims that they were too busy to participate while others were of the opinion that it was against the company rule to share information about their organization. The researcher aimed to reach out to Supply Chain Managers or their equivalents to respond to the questionnaires. However, they were not found in all supermarkets and sometimes, they delegated this duty to junior employees that were not necessarily informed to give reliable answers to the questionnaire. Hence, not all questionnaires contained accurate position of the supermarket with regard to adoption of SSCM Practices. Owing to the mentioned limitations, the quality of the study was not affected.

5.6 Suggestions for Further Research

From the research that was carried out, it is necessary to further establish the factors that could be hindering the supermarkets in Kenya from SSCM to improve their operational performance. This research only aimed at finding out the correlation between adopting SSCM Practices and Operational Performance. Other studies should be done comparing SSCM and Competitive Advantage or even Supply Chain Performance. The study only adopted four SSCM practices and the researcher suggests that other studies should be done on other SSCM Practices that were not covered by this paper and establish why they are not widely adopted by supermarkets. SSCM should be carried out in other areas apart from the supermarkets and also in other parts of the country apart from Nairobi.

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APPENDIX 1: QUESTIONNAIRE

Please supply the required data by filling in the blanks where space is provided or by ticking against the most appropriate answer.

SECTION A: Biographic information

1. Please state the name of your supermarket.

……

……

2. Please state your job title.

……

3. How long have you worked for your organization?

a) 1 – 2 years ( )

b) 3 – 5 years ( )

c) 5 -10 years ( )

c) Over 10 years ( )

4. For how long has this supermarket operated in Kenya?

a) Less than 5 years ( )

b) 5 – 10 years ( )

c) over 10 years ( )

SECTION B: Extent of adoption of Sustainable Supply Chain Practices

5. Has your company adopted sustainable supply chain practices?

a) Yes ( )

b) No ( )

6. The following are some of the practices adopted by organizations that are committed to sustainability. Please indicate the extent to which the following Sustainable Supply Chain

Practices have been adopted in your organization. Please rank in a scale of 1-5; (where: 1- to a very small extent, 2- to a small extent, 3- to medium extent, 4- to a large extent and 5- to very large extent). Tick as appropriate.

Sustainable Supply Chain Practices **Rating**

GREEN MANUFACTURING	**1**	**2**	**3**	**4**	**5**
We consider environmental issues during the design of products					
My company collaborates with its suppliers to find the best solution in elimination of the negative effects of operations towards the environment					
We control production processes so as to reduce environmental pollution					
We use environmentally friendly supply chain inputs in manufacturing products					
We produce outputs that can easily be re-used and recycled throughout their useful lives					
GREEN PROCUREMENT	**1**	**2**	**3**	**4**	**5**
We source from local suppliers					
We practice Ethical sourcing, production & distribution					
We are ISO-14000 certified					
We buy raw materials which are environmentally friendly					
We have a Diverse supplier network					
REVERSE LOGISTICS	**1**	**2**	**3**	**4**	**5**
Biodegradable materials are used during packaging in my company					
Unused or partially used products are reused in my company					
There is recycling of materials in my company					
Recycling helps my company to recover value in returned materials					

Products collected from field are assessed after which they are remanufactured					
We refurbish some materials collected from field					
SUPPLIER ENGAGEMENT	**1**	**2**	**3**	**4**	**5**
My organization cultivates good relationship with its suppliers					
Having joint trainings and seminars with suppliers					
Financing suppliers					
Use of supplier relationship management software					
We mutually share rewards and risks with suppliers					

Others (please specify)

…….....

.....

.....

SECTION C: Performance outcomes of implementing Sustainable Supply Chain Practices

7. The following are some of the performance outcomes which are experienced by organizations which have adopted Sustainable Supply Chain Management Practices. Please indicate the level to which the following outcomes are experienced in your organization. Please rank in a scale of 1 – 5, (where: 1- strongly disagree, 2- disagree, 3- not sure, 4- agree, 5- strongly agree). Tick as appropriate.

Performance Outcomes **Rating**

COST	**1**	**2**	**3**	**4**	**5**
Energy bills has been decreasing					
Water bills water bills have been decreasing					
Cost of labour has been decreasing					
Raw materials damage and spoilage has been reducing.					
MARKET SHARE	**1**	**2**	**3**	**4**	**5**
Reduced time in serving clients					
Efficient communication					
Reduced cycle time					
Increased delivery rate					
QUALITY	**1**	**2**	**3**	**4**	**5**
Conformance to specifications					
Effective quality control process					
Reduction in number of defects and returns					
Having ISO 9001 suppliers					

Any other (please specify)

…….....

.....

.....

8. Would you recommend adoption of Sustainable Supply Chain Practices to other organizations?

a) Yes ( )

b) No ( )

If yes please give a reason

……

THANK YOU!

APPENDIX II: LIST OF SUPERMARKETS

1. Acacia Supermarket	25. Nakumatt Supermarket
2. Chandarana Supermarket	26. Ng`Ororgaa Supermarket
3. Cleanshelf Supermarket	27. Pakmatt Supermarket
4. Choppies supermarket	28. Quickmart Supermarket
5. Eastmatt Supermarket	29. Rikana Supermarket
6. Easy Mart Supermarket	30. Saltes Supermarket
7. Galmart Supermarket	31. Selfridge Supermarkets
8. G-Mart Supermarket	32. Seraben Supermarket
9. Home Depo Supermarket	33. Skymart Supermarket
10. Ibrahims Supermarket	34. Society Store Supermarket
11. Ibrahims Electronics Supermarket	35. Stage Mart Supermarket
12. Jaharis Supermarket	36. Stop and Shop Supermarket
13. Jds Supermarket	37. Suntec Supermarket
14. Jeska Supermarket Ltd	38. Tumaini Supermarket
15. Karrymart Supermarket	39. Tuskys Supermarket
16. Kassmart Supermarket	40. Uchumi Supermarket
17. Kibao Supermarket	41. Ukwala Supermarket
18. Kimsa Supermarket	42. Wagon Shopping Limited
19. Leestar Supermarket	43. Waiyaki Way Supermarket
20. Maathai Supermarket	
21. Maguma Andu Supermarket	
22. Mesora Supermarket	
23. Midas Supermarket	
24. Naivas Supermarket	

Source: Yellow Pages (2017)