GREEN SUPPLY CHAIN MANAGEMENT PRACTICES AND OPERATIONAL PERFORMANCE OF COMMERCIAL BANKS IN KISUMU

URBANUS MWANZIA MUTHUKA

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SUPERVISOR

ONSERIO NYAMWANGE

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DECLARATION

This research proposal is my original work and has never been presented in any other University or College for the award of degree or diploma or certificate in any University or College.

Signed..... Date.....

Urbanus Mwanzia Muthuka

Reg. No. D61/68113/2013

This research proposal has been submitted for examination with my approval as the University supervisor.

Signed..... Date.....

Onserio Nyamwange

School of Business,

University of Nairobi

DEDICATION

This Project is dedicated to my late mum Monica Juliana Muthuka who taught me to never give up in life, my family, friends and classmates who have always stood by me.

ACKNOWLEDGEMENT

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ABSTRACT

The study sought to establish the role of green supply chain management practices on operational performance among commercial banks in Kisumu. Towards the achievement of the objectives, the study adopted a descriptive research design which involved distribution of questionnaires to the banks. It was suitable to examine and describe the GSCM practices and their effect on operational performance. Since the population was relatively small a census study was the most appropriate for this research where all the commercial banks in Kisumu were studied. Data was collected using questionnaires through the drop and pick later method. The findings were presented on tables. A good response rate of 86.2% was realized. The study also established a regression and correlation analysis between the dependent variable and the independent variables.

The findings of the study were that different banks adopt different green supply chain practices depending on the activities that they are engaged in. The GSCM practices studied were; green purchasing, eco-design, reverse logistics and legislations and regulations. It also established that most of the banks' green supply chain practices involved green purchasing, eco design, and reverse logistics. The study concluded that incorporation of green practices in the operations of organizations should form part of long term strategy of the organizations to gain a competitive advantage. It has therefore been recommended that organizations should consider adopting green supply chain fully as the potential benefits to be realized are enormous compared to the initial and operational cost of implementing the practice.

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LIST OF ABBREVIATIONS

SC: Supply Chain

SCM: Supply Chain Management

GSCM: Green Supply Chain Management

NEMA: National Environmental Management Authority

CBK: Central Bank of Kenya

KBA: Kenya Bankers Association

MFC: Mortgage finance company

CRB: Credit reference bureaus

MRP: Money Remittance Provider

EU: European Union

RDT: Resource dependence theory

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

This chapter provides the conceptual and contextual background of the study by introducing the idea of Supply Chain, supply chain management and Green supply chain Management Practices in relation to the operational performance of commercial banks in Kisumu.

A supply chain can be defined as a set of organizations directly linked by one or more of the upstream and downstream flows of products, services, finance and information from the source to the customer. Supply chain management (SCM) requires the integration and coordination of business processes and strategy alignment throughout the supply chain for satisfying the final customers of the supply chain (Green, Whitten and Inman, 2008; Green, McGaughey and Casey, 2006).

Supply Chain Management is the systematic process that involves the coordination of the business functions within a particular company and across businesses within the supply chain with the aim of improving the long term performance of the individual companies and the supply chain as a whole (Mentzer, Dewitt, Keebler, Min, Nix, Smith, and Zach, 2001).

The term supply chain comes from a picture of how organizations are linked together. The idea of supply chain management is to apply a total systems approach to managing the entire flow of information, materials, and services from the raw materials suppliers through factories and warehouses to the end customer.

Organizations and governments are becoming more aware of the need to conserve the environment. Thus green principles have stretched to many organizations and departments within organizations and governments. This idea covers every stage in

manufacturing from the first to the last stage of the product life cycle, i.e. from product design to recycle or disposal. This defines the aspect of green supply chain.

1.1.1 Green Supply Chain Management (GSCM)

GSCM can be defined as the improvement on the environmental effect, which is achieved by the management of raw materials, parts/ components and processes from suppliers through manufacturers to customers.

Zhu and Sarkis (2004) argue that GSCM is the addition of the green component to SCM and that it involves addressing the influences and relationships between SCM and the natural environment. According to them, GSCM practices stretch from green purchasing to integrating green SC, flowing from supplier, to manufacturers and finally to customers. There is evidence from the available literature that, there is a lack of consensus on the effects of GSCM on performance outcomes.

This conflict was recognized and discussed in different studies including those by Eltayeb, Zailani, and Ramayah, (2011) and Zhu, Sarkis, and Lai, (2012). Zhu, Sarkis, and Lai, (2012) argued that the conflicting findings have the potential of becoming a barrier for organizations that intend to implement GSCM practices.

Firstly, the type of green supply chain practices implemented can affect on performance differently (Azevedo, Carvalho, and Machado, 2011). Secondly, there is a variety of performance measures in use and this variation leads to a complex relationship between practices and outcomes (Zhu et al., 2012). Lastly, implementing GSCM practices in different settings can result in different performance outcomes (Koh, Gunasekaran, and Tseng, 2012).

While some studies such as Diabat and Govindan (2011) argued that GSCM practices comprise green design, reducing energy consumption, reusing/recycling material and packaging, reverse logistics and environmental collaboration in the supply chain, others such as Wu et al. (2011) claimed that green practices include cleaner production, number of patents, internal service quality, green design, green purchasing and green innovation. Zhu et al. (2005) suggested that green practices include the sale of excess inventory, sale of scrap and used material, environmental auditing programs, commitment from senior managers and total quality environment management. This study will investigate the effect of both pro-active and re-active practices in the implementation of GSCM. These include: Pro-active practices – eco-design practices, green purchasing practices, reverse logistics practices and Re-active practice – legislation and regulations.

This "green" approach requires that manufacturers, suppliers, and customers within supply chains work together to develop environmental solutions and monitor the implementation of those solutions (Gnoni, Felice, and Petrillo, 2011). Further, the green supply chain management (GSCM) practices have been developed by various organizations as a practical means to implement an environmentally focused strategy. According to Wilkerson (2010), companies are likely to face a number of challenges when practicing GSCM, which consists of the following; Various standards have to be met in order to implement GSCM, Creation of awareness and educating the members of the supply chain also pose another challenge in implementing the GSCM, Companies may be restricted in adapting GSCM practices because of the conflict that may arise among the members in the supply chain as a result of the introduction of the new concept of GSCM, which also lacks metrics and available data for measuring green practices across a global supply chain.

Business experts may find it difficult to plan for the development strategies that are essential for sustainable growth of a business enterprise. While organizations incur higher costs in abating environmental pollution and thus increasing the total costs of some goods and services, the benefits associated with a cleaner environment far outweigh the costs (Elliot, 2011).

1.1.2 Operational Performance

Operational performance relates to the firms' capabilities to more efficiently produce and deliver products to customers (Zhu et al, 2008a). It refers to the strategic dimensions by which a company chooses to compete (Narasimhan and Das, 2001). There seems to be a universal agreement in literature that quality, delivery, flexibility and cost are the core and most often mentioned operational performance areas (Ward et al., 1998; Naras imhan and Jayaram, 1998; Pagell and Krause, 2002).

Companies should integrate environmental aspects into both product and process design in order to respond to customer demand (Thun and Müller, 2010). GSCM with customers help firms to integrate technological organizational innovations, thus providing for simultaneous improvements in operational performance (Lai et al., 2010).

Environmental cooperation with customers usually generates benefits in terms of cost, quality, flexibility and delivery (Klassen and Vachon, 2003; Klassen and Whybark, 1999; Vachon and Klassen, 2008). With regard to cost, customers' support for product acquisition facilitates product return for recycling processes of manufacturers. In terms of quality, GSCM with customers lead to product-based performance in the form of conformance to specifications and durability. Vachon and Klassen (2008) found that environmental cooperation with customers is significantly and positively

associated with greater quality improvement. If quality performance is manufacturing's primary strategic objective, then GSCM with customers can offer a further synergistic mechanism to achieve competitive quality gains (Vachon and Klassen, 2008). With regard to flexibility and delivery, Vachon and Klassen further identified a positive relationship between GSCM with customers and flexibility, but environmental cooperation with customers becomes insignificant when upstream collaboration is introduced in their model. Integrating ecological concerns into SCM has become increasingly important for a firm to achieve a competitive advantage and superior firm performance (Van Hoek, 1999; Rao and Holt, 2005; Zhu et al., 2008a).

1.1.3 GSCM and Operational Performance

In recent years, GSCM has been evolved as the intra and inter-firm management of the upstream and downstream supply chain, which has the capability to cut the overall environmental impact of both the forward and reverse flows (Zhu and Sarkis, 2004; Klassen and Johnson, 2004; Zhu et al., 2008a; Green et al., 2012). Suppliers, manufacturers, customers and disposal companies must be incorporated in implementing GSCM practices (Thun and Müller, 2010).

Previous studies exploring ecological initiatives have focused primarily on selected functional areas (Sarkis, 1999; Rao and Holt, 2005). The incomplete and developing conceptualizations have generated unconvincing results about the relationship between GSCM and firm performance (Rao and Holt, 2005; Vachon and Klassen, 2006; Green et al., 2012; Zhu et al., 2007; Lai and Wong, 2012; Zailani et al., 2012). To explore the conceptualizations of GSCM and its impact on performance, there is a need to investigate how individual dimensions of GSCM are related to selected dimensions of operational performance (Vachon and Klassen, 2008).

In order to fully understand GSCM, it is important to focus GSCM study on the totality of the supply chain from both upstream and downstream sides and internal processes (Rao and Holt, 2005; Vachon and Klassen, 2006). Cross-functional integration within a firm and integration with suppliers and/or customers on implementing environmental management practices is required to achieve sustainable firm performance (Green et al., 2012; Vachon and Klassen, 2006; Zhu and Sarkis, 2004).

1.1.4 Banking Sector in Kenya

The Banking industry in Kenya is governed by the Companies Act, the Banking Act, the Central Bank of Kenya Act and the various prudential guidelines issued by the Central Bank of Kenya (CBK). The banking sector was liberalized in 1995 and exchange controls lifted. The CBK, which falls under the Cabinet Secretary for The National Treasury docket, is responsible for formulating and implementing monetary policy and fostering the liquidity, solvency and proper functioning of the financial system. As at 31st December 2013, the banking sector comprised of the Central Bank of Kenya, as the regulatory authority, 44 banking institutions (43 commercial banks and 1 mortgage finance company - MFC), 7 representative offices of foreign banks, 9 Microfinance Banks (MFBs), 2 credit reference bureaus (CRBs), 1 Money Remittance Provider (MRP) and 101 forex bureaus. Out of the 44 banking institutions, 30 locally owned banks comprise 3 with public shareholding and 27 privately owned while 14 are foreign owned. The 9 MFBs, 2 CRBs and 101 forex bureaus are privately owned. The foreign owned financial institutions comprise of 10 locally incorporated foreign banks and 4 branches of foreign incorporated banks.

Over the last few years, the banking sector in Kenya has continued to grow in assets, deposits, profitability and products offering. The growth has been mainly underpinned

by an industry wide branch network expansion strategy both in Kenya and in East Africa community region as well as automation of a large number of services and a move towards emphasis on the complex customer needs rather than traditional 'off-the-shelf' products.

The CBK annual supervision report of 2011 emphasizes that the banking institutions will need to cope continuously with changing business environment and a continuous flood of new requirement via a robust ICT platform, while staying sufficiently agile. Consumers will continue to demand individualized services, and to demand them faster than ever. Hence banks will continue to aggressively design new products that leverage on ICT to remain competitive. Efforts on green banking have generally focused on energy efficiency, conservation of natural resources, new environmentally friendly building materials and also revolutionary changes in concepts of design, procurement and management processes to bring about greater reductions in overall environmental effect of buildings (Chau et al., 2010). In the recent past several commercial banks in the country have adopted green supply chain practices which has included putting up buildings that are environmentally friendly from the construction material used to the adoptions of solar power as a source of energy.

Notable banks that have gone this path include Standard chartered and Kenya commercial bank. The benefits of green buildings that have been pointed out include increased productivity and health, focusing on end-users' behaviors towards green building development, as well as increased occupants' comfort and satisfaction. Nevertheless, while the two most dominant economic factors adopting green practices are reduced energy costs and increased productivity, some banking industry stakeholders still demonstrate resistance to the adoption of sustainable practices. 29

commercial banks out of the 44 have branches in Kisumu as per the Kenya bankers' association branches 2014.

1.2 Research Problem

In recent past, there has been an increasing interest in understanding the role of GSCM practices in improving operational performance. However, empirical examinations of the relationship are still not very clear (e.g., Green et al., 2012; Zhu et al., 2007; Vachon and Klassen, 2008). The inconclusive and, at times, contradictory results demand further examination of the connection between GSCM practices and operational performance.

The Kenyan banking industry has continued to grow both in terms of new local and foreign entrants, customer and deposit base, regionalization and increased scrutiny from the regulators specifically the Central Bank of Kenya. This new shift in the Kenyan banking industry can be attributed to the liberalization of the sector, increased adoption of information technology and improved business environment due to reforms being undertaken in the political, economic, social and cultural fields. Local banks have had to shift their attention to differentiating factors such as practicing green supply chain in their organizations. These changes call for efficiency in operations for the banks to remain competitive and/or maintain their market share.

Wiengarten (2014) did a study on integrated green supply chain management and operational performance in the Chinese automobile industry. The applicability of his findings can be tested in a different culture and industry. Therefore, this study sought to advance on the green supply chain management practices and their effect on operational performance in the Kenyan banking sector.

A number of studies have been undertaken locally in the area of green supply chain. Obiso (2011) undertook a study on GSCM practices in the petroleum marketing firm in Kenya. He found out that adoption of GSCM practices had a positive relationship with the environmental performance of the petroleum marketing firms. Further, the study found out that the government has had a great influence in adoptions of GSCM practices in the sector.

Omonge (2012) did a study on the green supply chain management practices and competitiveness of commercial banks in Kenya. He noted that at present there lacks a comprehensive framework on the GSCM practices and as a result different organizations adopt different practices that they deem suitable to their business context. As a result, there is no green supply chain practice that can be said to be universally accepted.

This study looked at the GSCM practices and the operational performance of commercial banks in Kisumu. The above studies brought out the following questions; what are the generally accepted GSCM practices, what are the effects of such practices on the operational performance of a firm, do they apply across different continents, nations, culture and industries?

1.3 Research Objectives

The objectives of this study were:

i. To examine the GSCM practices adopted by the commercial banks in Kisumu;
ii. To examine the relationship between the GSCM practices and operational performance of the commercial banks in Kisumu; and

iii. To examine the challenges in implementing GSCM practices in the commercial banks in Kisumu.

1.4 Value of the Study

The findings of this study will be valuable to the management in the banking sector and other firms in the service industry in identifying the benefits and challenges of GSCM practices. This will help them take advantage of any opportunities that would come with these practices and be able to address the challenges in implementing the same. It will also go a long way in assisting policy makers like National Environmental Management Authority; NEMA, The Central Bank of Kenya; CBK, Ministry of environment and Natural resources, Kenya Bankers Association; KBA and the County and Central governments in drafting policies that promote environmental conservation as well encouraging investment. It will also provide information to current and potential scholars on GSCM practices by adding value to the available literature on the same. The findings can be used as a basis for further research on GSCM practices.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter provides information from publications on topics related to the research problem. It examines findings from various scholars and authors about GSCM practices. The chapter covers GSCM practices, operational performance and conceptual framework for the study.

2.2 Theoretical Orientation

This section focused on the theoretical underpinnings of the study including the information theory, institutional theory and resource dependence theory.

2.2.1 Information Theory

Information theory proposed by Spence (1973) states that companies seek to communicate their environmental performance to outside **s**takeholders, but may not always find this easy to do since they may lack full knowledge of the products, processes and materials flowing through their supply chains. Typically, suppliers may hold more information about their environmental performance and the impact is to be experienced by the customers. A major advantage of greening supply chains is derived from the capability to market and sell green products. Such capability potentially develops new products and hence builds competitive advantages for enterprises. Yet, companies may not be able to reap this image benefit due to the information asymmetry arising from consumers' inability to distinguish how green the products or materials from the supply chain are (Delmas & Montiel, 2009).

Information sharing is significant for coordinating a supply chain (Wong, Lai, & Cheng, 2009). The control and sharing of information is important not only for issues related to image, but also for international regulatory requirements.

Enterprises are thus heavily dependent on suppliers to disclose environmental information about raw materials, semi-manufactured products, and other resources needed, e.g., energy and water. If the environmental influences from further upstream in a supply chain occur, it becomes more important to collect information from suppliers (Erlandsson & Tillman, 2009). It is easier for firms with greater power and closer relationships to acquire this information. Thus, with more power, greater trust, or coordination, the likelihood of high information asymmetry is lessened (Lai, 2009).

One way that mitigates information asymmetry is signaling theory. It suggests mechanisms for the transfer of information to another party with the target to resolve information asymmetries (Spence, 1973). An example of signaling that a supply chain is environmentally sound is to have the ISO 14001 certification standard implemented among supply chain partners (González, Sarkis & Diaz, 2008).

Research has shown that enterprises are more likely to certify their practices when information asymmetries with their stakeholders (e.g., customers and suppliers) are high (Jiang & Bansal, 2003). This certification is a signal to the market that firms within the supply chain operate with recognized environmental management practices. However, it has been found that a significant portion of ISO 14001 certification are not awarded to the best environmentally performing enterprises. Thus, the idea of 'satisfying signaling' has been proposed where poorly performing multi-plant organization adopt ISO 14001 to signal to the market that they are improving operations, but this is usually confined to well-performing units (Terlaak, 2007). Recently, some work on how signaling from the adoption of environmental management systems has changed because green practices become more prevalent as revealed by recent investigation (Etzion, 2009). There is significant opportunity to

study satisfying and dynamic signaling theory applications to GSCM practices and the performance implications.

2.2.2 Resource Dependence Theory

Resource dependence theory (RDT) postulated by Godfrey (1998) suggests that, in the supply chain, member firms should be dependent and collaborate to seek higher performance gains in the long-run instead of pursuing short-term benefits at the expense of others. In RDT, firms are dependent on resources provided by others in order to sustain growth, as well as other organizations that may be dependent on them (Paloviita & Luoma-aho, 2010). One important assumption of the RDT is that firms cannot be fully autonomous with regards to strategically critical resources for survival. In GSCM, eco-design of products and materials recovery are exemplary organizational resources requiring supply chain partnership to enhance performance. On the other hand, firms need to control or access critical resources, e.g., standards, procedures, enabling technologies, material sources and distribution channels, to implement GSCM practices and fully realize the potential gains.

The interdependency of supply chain partners as well as the quality and effectiveness of their collaboration that determine the success of implementing GSCM should not be ignored. One important insight from RDT is that firms lacking the required resources to attain their goals are likely to develop relationships with others for acquisition of the resources. This perspective considers customer and supplier relationships as important linkages for firms to reduce the uncertainty surrounding their operating environment. In many instances, inter-organizational relationship is essential for managing the internal and external coordination for GSCM to gain the performance outcomes (Zhu & Sarkis, 2007), where partner coordination and resources sharing are beneficial for environmental and productivity improvements.

The power development aspect of resource dependence argues for the diffusion of environmental practices through the supply chain. For example, it has been found that larger firms, given their power over smaller firms, will require environmentally sound practices to be adopted by small supplier firms.

2.3 Green Supply Chain Management Practices

Firms cannot ignore environmental issues due to increasing governmental regulations and stronger public mandate for environmental accountability which have brought these issues into strategic planning. Firms have now found it necessary to integrate their supply chain processes to lower costs and meet both environmental and customer expectations.

The GSCM practice has moved from a mere public relations strategy, to a necessary means of deriving real economic value and compliance. To establish their environmental image, enterprises have to re-examine the purpose of their business. GSCM may provide new opportunities for competition, and new ways to add value to core business programs (Hansmann and Claudia, 2001).

While some studies such as Diabat and Govindan (2011) argued that GSCM practices comprise green design, reducing energy consumption, reusing/recycling material and packaging, reverse logistics and environmental collaboration in the supply chain, others such as Wu et al. (2011) claimed that green practices include cleaner production, number of patents, internal service quality, green design, green purchasing and green innovation. Zhu et al. (2005) suggested that green practices include the sale of excess inventory, sale of scrap and used material, environmental auditing programs, commitment from senior managers and total quality environment management.

This study will investigate the effect of both pro-active and re-active practices in the implementation of GSCM. These include: Pro-active practices – green purchasing practices, eco-design practices, reverse logistics practices; and Re-active practices – legislation and regulations.

2.3.1 Green Purchasing

The adoption of green purchasing is one of the commonly accepted dimensions of GSCM practice. According to Lee (2008), a buying organization with a green supply chain initiative will pay attention to green practices of their suppliers, especially the small and medium-sized enterprises. In order to ensure that suppliers meet their environmental objectives, the buying and selling firms may collaboration in activities like training, sharing environmental information and joint research.

Other organizations may adopt a different approach by simply demanding that their suppliers adopt environmental management systems such as ISO 14001. Green purchasing might enhance issues such as using environmental friendly transportation, cost reduction, material substitution and waste minimization of hazardous materials.

2.3.2 Eco-design

The importance of eco-design was identified by Buyukozkan and Cifci (2012) when they revealed that about 80 percent of product- related effects on the environment can be influenced at the designing stage. Eco-design practices can be divided into two main categories – product-related design and packaging-related design.

With respect to product design, Min and Galle (2001) suggested that cost saving opportunities at the beginning of the supply chain tend to be greater and that buying organizations need to actively seek for opportunities to utilize recycled and reused components.

However, Wu et al. (2011) stressed that the environmental effects of a product occur at all stages of its lifecycle and identified lifecycle assessment as a commonly used attribute of GSCM.

2.3.3 Reverse Logistics

Recognition of the strategic importance of reverse logistics has been described as a significant trend in GSCM and it has been shown that efficient reverse logistics networks can provide lucrative economic benefits and improve organizational competitiveness (Buyukozkan and Cifci, 2012; Murphy and Poist, 2003).

Although the influence of reverse logistics on greening the supply chain is significant, development of the reverse logistics function typically lags other aspects of GSCM (Xie and Breen, 2012). Parameters of a transportation system such as type of transport, fuel sources, infrastructure, operational practices and organization, can be considered.

2.3.4 Legislation and Regulation

The involvement of governmental agencies and other regulatory bodies in GSCM is evident in the available literature. This is a reactive practice where firms adopt the GSCM standards to comply with the law. Chung and Wee (2011) noted that effective green regulation and incentive programs have been developed as a result of government intervention in several countries. Chen and Sheu (2009) went further to suggest that relevant public policies are central to substantiating the greening of the supply chain.

Some of the regulatory practices are the standards set locally by NEMA, and internationally by environmental management standards (ISO 14000 series).

There has been a need to develop operational guidelines and standards to assist organizations in moving towards ecologically sustainable business practices. The ISO 14000 series standard is designed to address these needs.

2.4 Challenges in Implementing Green Supply Chain Management Practices

A number of barriers have been identified that deter the operations of GSCM practices in organizations. As a result of these challenges, GSCM practices processes have in some circumstances been poorly managed or not implemented at all. To be effectively implemented, GSCM practices will need to be managed through partnership with all stakeholders; both internal and external. The factors that affect implementation of green supply chain can be broadly categorized as either external or internal.

2.4.1 Internal Challenges to Green Supply Chain Management Practices

The importance of green supply chain practices in a company's business strategy plays a significant role in determining the GSCM practices in the organization. Enterprises which regard GSCM practices mainly as an extended producer responsibility or a need to abide by laws and those which see it as a strategic weapon to gain long-term profit will adopt totally different approaches. According to Stock (2001), organizations which tend to corroborate that self-support system or joint management approach will likely be used when green supply chain is regarded as a source of long-term profit. If reverse logistics is implemented mainly for observing environmental laws and regulations, outsourcing is usually used to allow the company to focus resources on its core competency.

Financial considerations comprising investment, profitability, and cost is yet another internal factor that affects adoption of green supply chain management processes.

Developing a self-support system, for example, will involve heavy financial investment because treatment of returned products requires special equipment and facilities.

However according to Rogers and Tibben-Lembke (1999) outsourcing some of this functions may help shift the risk to third parties and save the company significant equipment and infrastructural costs. On the other hand, higher profitability can be achieved under the self-support model due to lower material cost and better customer service and corporate image in the long run. Further, the use of third parties as providers for reverse logistics to comply with environmental laws and regulations can reduce risk and cost though it could only realize relatively low or even no profit to the firm.

According to Wu and Cheng (2006), an organizational management skill is yet another internal factor that can affect the adoption of green supply chain in organizations. Management skills refer to the knowledge and capabilities to manage the facilities, equipment, people, and information involved in the different reverse supply chain systems. To run a self-support system, the demand for management skills is high as the company will be responsible for everything ranging from maintenance of equipment and facilities, training of staff, internal communication among departments, to proper management of information for integrating both forward and reverse logistics of the whole supply chain.

For information management, self-support system requires mainly internal communication whereas the outsourcing and the collaborative approaches demand effective joint management and information sharing among partners (Wells and Seitz, 2005).

2.4.2 External Challenges Affecting GSCM Practices

The external barriers are closely linked together and a set of comprehensive improvement measures requiring efforts from both the government and the firms are needed to remove the obstacles (Hult et al., 2005). Lack of public awareness on the need to return some of the used products has been found to be a factor in the process of green supply chain.

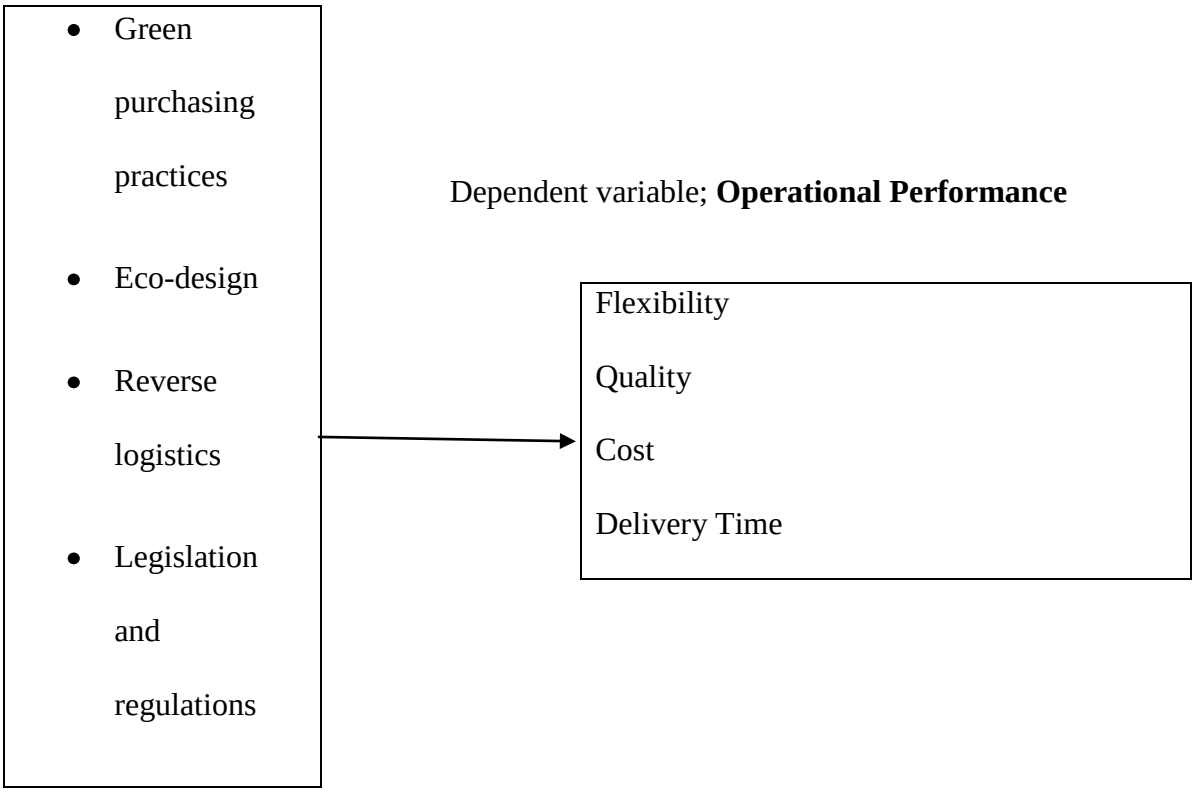
While awareness of sustainable development and extended producer responsibilities are relatively high for large corporations, public awareness of environmental protection and conservation needs to be enhanced as end-of-life returns from consumers for recycling are still relatively small in volume (Wu and Cheng, 2006). In this regard, the government can improve the situation by educating citizens on the need for waste reduction and recycling and promoting the use of environmental friendly products. It can also assist in establishing return collection channels and setting up collection points to encourage wider public participation. Manufacturers should also adopt more green designs for their products to reduce the use of unsafe materials and to facilitate recycling.

Another barrier to green supply chain management practice in most of the countries is legislation that has led to a lack of enforceable laws and regulations. According to Park and Ungson (2001) for example, the growth in the Chinese economy over the last decade has made the central government to be hesitant to impose stringent environmental legislations to overly restrain economic growth. After all, small manufacturers competing on cost will find it difficult to maintain their competitive advantage or even survive if they are mandated to set up costly reverse logistics systems to handle returns.

For long-term sustainable development and competitiveness in the global market, however, the government has to set up regulations to promote, control, and standardize reverse logistics management practices. It should also introduce to the industry corresponding laws and directives for end- of – life products like those implemented by the EU. They recommend that the government should play the role of coordinator or facilitator by stipulating rules and regulations on the sharing of responsibilities and obligations among manufacturers, distributors, and end-users.

2.5 Conceptual Framework for the Study

Independent variable(s); **GSCM Practices**



The conceptual frame work gives the Independent variable(s); GSCM practices and the Dependent variable; Operational performance.

The idea is to examine and describe the relationship between the two variables i.e. the effect of the independent variable(s) on the dependent variable.

Operational performance was measured in terms of cost reduction, waste reduction, internal standards adopted by the banks, time spend in service delivery and the ability to adjust to customer needs and wants.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter describes the research methods that were used. This includes the research design, the target population, sampling design, data collection instruments and the techniques for data analysis.

3.2 Research design

A descriptive survey was used. It was suitable to examine and describe the GSCM practices and their effect on operational performance. Since the population was relatively small a census study was the most appropriate for this research where all the commercial banks in Kisumu were studied. Abuko (2011) used the design in his research. This design was deemed appropriate as it allowed the researcher to draw conclusion on the link between GSCM practices and performance**.**

3.3 Population of Study

The population in this study was all the commercial banks in Kisumu. This comprises of 29 banks as per the Association of Kenyan bankers report 2014.Thus the research was a Census study.

3.4 Data collection

The data for the research was sourced mainly from primary data. Self administered questionnaires were used through the drop and pick method. The questionnaire sought data from the operations manager in each bank. This implies that there was one respondent per bank.

3.5 Data Analysis

Mass of raw data was collected and systematically organized in a manner that facilitated analysis. The data was analyzed using statistical methods and the results, displayed using tables, charts and graphs where applicable.

Descriptive statistics mainly frequencies, percentages, and mean was used to summarize the responses. This was used to analyze objective (i) Examination of GSCM practices among commercial banks in Kisumu and objective (iii) the challenges that commercial banks in Kisumu face while adopting GSCM Practices.

The researcher also used multivariable regression analysis to address objective (ii) the relationship between GSCM Practices and operational performance. The regression equation assumed the following form:

$Y=\beta o + \beta ixi + \ldots + \beta nxn + \varepsilon$

Where Y= Operational performance

βo = Constant factor

Xi = Green supply chain management practice adopted

X1 - Green purchasing practice

X2 - Eco-design

X3 - Reverse logistics

X4 - Legislation and Regulation

βi = coefficient

ε = error term

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The major aim of the study was to determine the green supply chain management practices and the operational performance of the commercial banks in Kisumu. The study targeted the 29 commercial banks in Kisumu and out of the 29, 25 respondents gave their feedback which represented 86.2% response rate.

4.2 Socio-Demographic Information

From the sampled 25 interviewees, 10 did not disclose the bank they worked for. 14(56%) were female forming the majority of the respondents as seen in the figure below: the ratio of the male to female respondents was 11:14 making the females more dominant in the banking sector in Kisumu.

The respondents were also required to give their age. The mean age was 32 years which revealed that the workforce in the banking sector was still young and energetic which could be one of the reasons why banking sector is fast growing and very competitive.

When asked for how long they had worked in those branches, 20% had worked for less than 2 years, 52% between 2-5 years, 20% between 6-10 years and 8% had worked for over 10 years. Those that had worked for less than 2 years were either fresh graduates, changed careers or changed banks. For those that had worked in that bank for 2-5 years were the majority followed by work experience of 6-10 years and lastly over 10 years. These respondents are believed to have known the operations of the bank and could disclose the information as required.

Most of the banks had only one branch in the town with only 3 respondents stating that their banks had 2 branches and one respondent stating that their bank had 3 branches in the city.

The banks had been existence in the town as follows: less than 5 years were 44%, 6-15 years were 40%, 16-25 years were 12% and over 25 years were 4%. This meant that the banking sector in Kisumu had been long established and also was on a fast growing state if the majority of the banks were newly established and that the people of Kisumu were embracing commercial banks.

4.3 Green Supply Chain Management Practices

All the respondents agreed that their banks were using the green supply chain management. When asked for how long they had been using the green supply chain management system, 3(12%) said that they were considering it currently, 4(16%) used it for one year, 11(44%) for two years, 4(16%) for three years and 3(12%) for more than 4 years.

In order to calculate for the central measure of tendency, mean was calculated. As seen in the table below, the respondents were agreeing on the green purchasing practices adopted by the bank since the mean spread around 2. The adoption of these practices would imply that the banks were using the green supply chain management practices that would positively influence the banks performance.

4.3.1 Green Purchasing

To have a comprehensive report on the green purchasing effects on the banks way of operation, the factors were analyzed using the mean as the measure of central tendency, standard deviation as the measure of distribution and skewness as the measure of dispersion. A standard deviation close to zero indicated that the data points were spread out over a small range making the data statistically significant. Skewness: indicator used in distribution analysis as a sign of asymmetry and deviation from a normal distribution. Skewness > 0 - Right skewed distribution - most values are concentrated on left of the mean, with extreme values to the right.

Skewness < 0 - Left skewed distribution - most values are concentrated on the right of the mean, with extreme values to the left. Skewness = 0 - mean = median, the distribution is symmetrical around the mean.

Table 1: Green purchasing

	Green Purchasing	**Mean**	**S.D**	**Skewness**
1	The bank has included GSCM strategies in its strategic planning process	2.12	0.666	-0.134
2	The bank has integrated suppliers in the supply chain in order to reduce costs and improve customer service	1.52	0.77	1.117
3	The bank purchases biodegradable materials	2.16	0.624	1.005
4	Your bank provides design specification to suppliers that include environmental requirements when purchasing an item	2.08	0.862	0.686
5	Your bank conducts joint research with suppliers on products	2.24	1.012	0.786
6	Your bank requires suppliers to meet some ecological standards to trade with them	2.4	0.824	0.183

The above table indicated that the surveyed banks had minimal involvement with the suppliers in conducting a joint research. This would have a challenge to the management in the bank's operations. All the data variables were positively skewed posing a positive effect of using the green chain practices except in the inclusion of the green chain strategies in the bank's strategic planning. GSCM practices in the banking industry have been unable to display consistency and stability in performance as the inclusion of the strategies has been limited during the management planning as it was seen by the negative skewness.

4.3.2 Eco-design practices

The mean of the banks that were purchasing eco-designed products was 2.06 and a standard deviation of 0.682. All yielded a positive skewness and a strong standard deviation as well.

The positive skewness in the distribution analysis indicated that the data was asymmetric since there was no zero value. Most values were concentrated on the left of the mean with extreme values to the right.

When asked if the banks cooperate with the suppliers for them to produce/supply them with materials which are fit for the environment, the response concentrated in the value of agreeing. This meant that the banks had started realizing the potential benefits and importance of cooperating with the suppliers with the purpose of purchasing the ecologically acceptable products which would minimize on the wastage hence improving on the performance.

Table 2: Eco- design

	Eco-design	**Mean**	**S.D**	**Skewness**
1	The bank purchases eco-designed products for reduced consumption of material/energy	2.06	0.682	1.373
2	Your bank cooperates with suppliers for green design	2.00	0.913	0.714
3	Your bank cooperates with suppliers for green packaging	2.12	0.726	0.522
4	Your bank cooperates with suppliers for environmental objectives	1.96	0.812	0.66

4.3.3 Reverse Logistics

With the purpose of managing the supply chain actions for realizing improvement in enterprise performance of the banks, it was found necessary to improve the planning and management of activities such as reverse flow of materials, safe environment packaging and distribution, controlling environmental risks associated with suppliers operations and proper utilization of materials by the customers as most of the banks surveyed had adopted these strategies as seen in the table 3 below.

Table 3: Reverse Logistics

	Reverse logistics	Mean	S.D	Skewness
1	The bank manages reverse flow of material, environment packaging and distribution that might enhance the environmental performance of the bank which may in turn lead to a reduction in operational cost	2.08	0.909	0.556
2	The bank controls environmental risk associated with suppliers operations	2.04	0.79	1.031
3	Assuring proper utilization of materials by customers	1.68	0.988	1.282

4.3.4 Legislation and Regulation

They banks were inflexible and susceptible to disruption since they were unable to swiftly and suitably respond to emerging environmental audit, certification requirements, and to governmental and regulatory changes. This was seen in table 4 below that revealed that the banks did not conduct the environmental audit on the suppliers (mean=4.24), had not fully attained the ISO 14000 on environmental safety (mean=3.36) and rarely organizes green chain supply seminars and workshops (mean=3.24)

Table 4: Legislation and Regulations

	Legislation and Regulation	Mean	S.D	Skewness
1	The bank conducts environmental audit for suppliers	4.24	2.97	-2.263
2	The bank has attained ISO14000 certification on the environmental management	3.36	2.15	-1.641
3	The suppliers to the bank have to comply with particular regulations such as emissions caps, hazardous materials labeling and product specification which may cut on costs and increase efficiency in the bank	2	1.155	1.412
4	The bank organizes green supply chain seminars and workshops	3.24	2.2	-2.069
5	Your bank requires its customers to meet some environmental management standards before trading with them	2.32	1.314	0.786

4.4 Operational Performance

Even though operational performance has not reached its potential, the banks still have a lot to do in order to reach the peak. However, the adoption of the greening practices has helped reduce the operational costs through reducing material wastage, embracing the customer needs, avoiding time wastage through ordering materials from the suppliers and delivering services to the customers has been a boost to the performance.

Table 5: Operational Performance

	The relationship between GSCM practices and Operational Performance	**Mean**	**S.D**	**Skewness**
1	Organizational operational efficiency has improved due to the adoption of the green supply chain practices by the bank	2.00	.866	.418
2	GSCM adoption has reduced operational Costs	1.84	0.800	0.838
3	Adjustment to customer needs has improved with GSCM practices in place	2.08	0.862	0.262
4	The organization has been able to reduce the level of waste since it adopted the green supply chain practices	1.6	0.764	1.464
5	Suppliers have adhered to supply of environmental friendly goods	1.68	0.802	1.197
6	The time of service delivery to customers has improved	1.76	0.879	2.112
7	Order time has reduced	2.12	1.13	0.688
8	Quality of products has been enhanced	1.92	0.954	1.735
9	Staff is able to determine goods that are environmentally friendly	2.04	0.79	0.479

4.5 Challenges in Adopting of GSCM Practices

The study revealed that the banks were not just using the green supply chain management practices from within their decision but pressure from the regulating authorities and the government.

In addition, the top management did not completely support the greening process of the bank. The implementation of the ISO certification has not been easy as even the suppliers have not fully adhered to the laid regulations. From the survey, not all the customers are aware of the greening environment regulations.

Credit services were seen to be mostly automated and payments promptly done by the sampled banks. This was an operational performance indicator on the positive side. Table 6 below gives the insight of the challenges discussed above.

Table 6: Challenges in Adopting the Green Supply Chain Management

	Challenges in adopting GSCM Practices	**Mean**	**S.D**	**Skewness**
1	GSCM practices in your bank is a result of pressure from regulation and legislation e.g. NEMA and ISO requirements	2.68	0.952	-0.758
2	Your organization has capacity to handle the GSC activities which include facilities, people, equipment and information	2.56	0.87	-0.612
3	There is top management support in GSCM practices	3.0	0.913	0.714
4	Automated credit services to avert time wastage and ensure timely delivery of services	1.76	0.879	0.913
5	There is an automated ordering system to minimize cost and time spend	1.76	0.723	0.405
6	Payments are promptly done	1.64	0.569	0.135
7	Implementation of the ISO certification-14000 series on environmental management in the organization has been easy	3.16	1.028	-0.595
8	Suppliers are aware of ISO certification-14000 series on environmental management	2.08	0.909	1.279
9	Suppliers have adhered to environmental Management Act and policies.	2.52	0.714	1.789
10	Your organization finds government regulations on environment management enforceable	2.76	0.881	1.340
11	All players in the supply chain are cooperative	2.12	1.054	0.440
12	A decision by one member of the supply chain is adopted by all other members	3.16	1.028	0.405
13	Customers are aware of environmental management requirements	3.52	0.714	-0.449

4.6 Relationship between Operational Performance and GSCM Practices

A multiple regression was carried out to determine the relationship between the dependent variable which in our case was the Operational performance of the banks with the independent variables which were green purchasing, eco-design, reverse logistics and legislation & regulations practices.

4.6.1 Estimated Model Coefficients

Given the general form of the equation to predict Operational performance of the bank from Green purchasing, Eco-design, Reverse logistics, Legislation and regulation, to be:

$Y=\beta o + \beta_1 X_1 + \beta_2 X_2 + \beta_4 X_3 + \beta_4 X_4 + \varepsilon$

Where Y= Operational performance

βo = Constant factor

Xi = Green supply chain management practice adopted

X1 - Green purchasing practice

X2 - Eco-design

X3 - Reverse logistics

X4 - Legislation and Regulation

βi = coefficient

ε = error term

Predicted operational performance(Y) = 0.008(constant + error) + (0.681*Green purchasing) + (0.098*Eco-design) + (0.265*Reverse logistics) - (0.016*Legislation & Regulation)

This is obtained from the **Coefficients** table, as shown below:

Table 7: Dependent and independent variables coefficients

Coefficients[a]

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	.008	.445		.017	.986	.937	.921
Green purchasing	.681	.235	.575	2.904	.009	.192	1.171
Eco design	.098	.228	.092	.431	.671	.574	.378
Reverse logistics	.265	.202	.308	1.310	.205	.157	.686
Legislation and Regulation	-.016	.177	-.022	-.089	.930	-.384	.353

a. Dependent Variable: Operational performance

Unstandardized coefficients indicate how much the dependent variable varies with an independent variable when all other independent variables are held constant. From our study, the green purchasing factor was 0.681. The unstandardized coefficient β_1 for green purchasing is equal to 0.681, (see **Coefficients** table above). This meant that for each green purchasing factor adopted, there was a positive/increase of 0.681 on Operational performance of the bank.β_2 =-0.098. For every eco-design practice adopted by the bank, the performance would decrease by 0.098. This meant that the bank was not entitled to practicing the eco-design factors rather leave them to the suppliers or the customers. The other coefficients could be interpreted just as above.

4.6.2 Statistical significance of the Independent variables

We also tested for the statistical significance of each of the independent variables. The *t*-value and corresponding *p*-value are located in the "**t**" and "**Sig.**" columns, respectively, as highlighted in the table below:

Only the green purchasing had a p< 0.05 meaning that it was statistically significant to zero. Eco-design, reverse logistics and legislation and regulation had p>0.05 which meant they had a reversed statistical significance different to zero.

Table 8: t-test and the significance level

Coefficients[a]

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	.008	.445		.017	.986	.937	.921
Green purchasing	.681	.235	.575	2.904	.009	.192	1.171
Eco design	.098	.228	.092	.431	.671	.574	.378
Reverse logistics	.265	.202	.308	1.310	.205	.157	.686
Legislation regulation	-.016	.177	-.022	-.089	.930	-.384	.353

a. Dependent Variable: Operational performance

From the regression analysis a model summary of how it fit was as below:

R=0.71, R^2=0.504, Adj R^2=0.405, S.E of Estimate=0.558

R (multiple correlation coefficients) was 0.71 meaning that there was a good level of prediction of the dependent variable (Operational performance). R^2 (coefficient of determination) was 0.504 which means that our independent variables explain 50.4% of the variability of our dependent variable, operational performance. The adjusted R square, adj.R^2 was 0.405. Since the adj. R^2 was lower than the R squared but not a big difference then it meant that the shrinkage level was minimal and the regression equation was of good fit to the sample.

Statistical Significance

Table 9: ANOVA

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.331	4	1.583	5.081	.005[b]
	Residual	6.229	20	.311		
	Total	12.560	24			

a. Dependent Variable: Operational performance

b. Predictors: (Constant), Legislation and Regulation, Green purchasing, Eco design, Reverse Logistics

The *F*-ratio in the tests in the ANOVA table above explains whether the overall regression model is a good fit for the data.

The table showed that the independent variables were statistically significant and predicted the dependent variable, F (4, 20) = 5.081, p <. 05 (i.e., the regression model is a good fit of the data).

4.7 Correlation

All the factors were analyzed using the pearsons 1- tailed correlation. The green purchasing factors had a positive correlation of 0.668 with the operational performance of the banks. The correlation was significant at 0.05 since the p-value was 0.00 which is less than 0.05.

Eco-design factors correlated positively with the operational performance of the banks by 0.376. This would have been brought by the fact that the bank may not fully be dictatorial to the suppliers and manufacturers on the type of products they required. However, purchasing these environmentally friendly products would reduce the operational cost hence increasing the operational performance of the bank.

The reverse logistics positively correlated with the operational performance by 0.532.

Legislation and regulations also had a correlation with the operational performance of 0.414 while the challenges correlated by 0.667.These are shown in the table below.

Table 10: Correlation

		Operational performance	Green purchasing	Eco design	Reverse logistics	Legislation and Regulation	challenges
Operational performance	Pearson Correlation	1	.668**	.376*	.532**	.414*	.667**
	Sig. (1-tailed)		.000	.032	.003	.020	.000
	N	25	25	25	25	25	25
Green purchasing	Pearson Correlation	.668**	1	.553**	.502**	.472**	.674**
	Sig. (1-tailed)	.000		.002	.005	.009	.000
	N	25	25	25	25	25	25
Eco design	Pearson Correlation	.376*	.553**	1	.532**	.601**	.396*
	Sig. (1-tailed)	.032	.002		.003	.001	.025
	N	25	25	25	25	25	25
Reverse logistics	Pearson Correlation	.532**	.502**	.532**	1	.715**	.648**
	Sig. (1-tailed)	.003	.005	.003		.000	.000
	N	25	25	25	25	25	25
Legislation and Regulation	Pearson Correlation	.414*	.472**	.601**	.715**	1	.439*
	Sig. (1-tailed)	.020	.009	.001	.000		.014
	N	25	25	25	25	25	25
Challenges	Pearson Correlation	.667**	.674**	.396*	.648**	.439*	1
	Sig. (1-tailed)	.000	.000	.025	.000	.014	
	N	25	25	25	25	25	25

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of findings, conclusions and recommendations. It is organized as follows: first it presents the summary of findings, then the conclusions drawn from those findings and finally policy recommendations, limitations of the study and suggestions for further study.

5.2 Summary

The successful study carried out on the GSCM practices adoption by commercial banks in relation to operational performance and the challenges faced revealed an interesting finding that the majority of the bankers were young making the banking sector remain one of the competitive industries in the economy of the country. The highest percentage of women participation was another point that was keenly noted meaning that the women would be more interested in the banking sector that gave personality and presentation as another factor, not under this study though, that could be used for operational performance of the banking sector.

All the sampled banks had adopted the GSCM practices in their operations. The time of adoption differed from one bank to another with a few, 12%, considering it currently and 12% having the longest experience of using the practices. All the four greening factors were found to be of paramount importance on the operational performance of the banks.

The first strategy towards adoption of GSCM practices was found to be first planning to include it in the operations which would pave way for integrating the suppliers for obtaining the biodegradable as well as eco-designed materials which would ensure that the supply and the consumption is of the same interest.

Including the reverse flow of materials and proper utilization of materials by the consumers were also other factors that every bank was found to use in order to reduce the operational cost and enhance its performance.

The study revealed a legislation gap between the bank and the enforcement agencies e.g. NEMA. There was also a lapse of knowledge on greening the environment from the customers thus creating a question of who should be responsible for that.

The top-level managers also are needed in the creation of the incorporation of the sustainable environment as part of its goals in creating, developing and delivering environmentally friendly services and products throughout the levels of management.

5.3 Conclusion

The study reveals that operational performance is directly proportional to the green purchasing since it saves on time, energy and resources. Cooperation of the bank with the suppliers and manufacturers will lead to the bank purchasing the required materials and minimizing on loss and wastage from the distributors which in turn will lead to an improved performance not only on the banks but also in the whole supply chain.

However, the effect of the legislation and regulation on the operational performance was insignificant. This could be attributed to the fact that the government may not have carried out enough research on the users of these practices before imposing legislation on them and taking an awareness creation to all the stakeholders.

The government should create a kitty for the awareness creation but not leaving the whole task to the bank or the suppliers/manufacturers. This would minimize on the expenses of the bank thus improving on its performance.

In addition, the audits ought to be carried out by the government thus giving a lift up of the bank's performance through minimizing on the responsibilities and time wastage which will be cost effective.

In addressing the challenges, there is need to create a rapport among all the stakeholders on the importance of having a greener safe environment without being forced. This would create a sense of ownership and improve on customers' responsibility on maintaining a green environment. This was seen when most respondents were of the opinion that their banks did not have capacity that would handle GSC activities.

5.4 Recommendations

Several recommendations have been suggested after conducting this survey. A greener environment would be achieved if all the banks completely adopt the GSCM practices. The government should not act as a watchdog only for legislating laws but create awareness to all stakeholders as well.

The study further recommends on the usage of the GSCM practices not only to the banks but also on all other sectors. By doing so, all sectors would observe GSCM practices that will see the country at a better place.

There is need for information sharing on the green supply chain management practices and their importance. This was revealed when the study showed that the banks do not create awareness to their customers since they complained of insufficient facilities to do so. This could be realized if all the stakeholders like the government, suppliers/manufacturers and the banks collaborate to offer this information.

5.5 Limitations of the study

The researcher had an uphill task to convince the respondents to participate in the study. The respondents were Managers who are busy and had inadequate time to respond to the questionnaires. The findings of this study and application thereof are limited to the banking sector in Kisumu. It is therefore important to note that the findings of this study can only be used for comparative purposes. Again, this study did not include all GSCM practices.

5.6 Suggestions for Further Study

Areas of further study identified by the study involve studies in GSCM practices adoption by the banks in other counties, other sectors of the economy, studies that would relate GSCM with other aspects for instance financial performance and studies to explore more GSCM practices adoption other than green purchasing, eco-design, reverse logistics and legislation and regulations.

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APPENDICES

APPENDIX 1: QUESTIONNAIRE

You are requested to fill this questionnaire to the best of your knowledge. It will be seeking to obtain information from the heads of operations of commercial banks in Kisumu. This information is intended for academic purposes only and will be treated with confidentiality. Please complete all sections of this document. All questions are interrelated and are equally important for the study.

Part A: Bio data

1. Name of the respondent (optional)…….

2. Name of the bank……

3. Gender: Male [ ] Female [ ]

4. How long has your bank been in operation in Kisumu?

a) Under 5 years [ ]

b) 6-15 years [ ]

c) 16-25 years [ ]

d) Over 25 years [ ]

5. How long have you worked in this bank?

a) Less than 2 years [ ]

b) 2-5 years [ ]

c) 6-10 years [ ]

d) Over 10 years [ ]

6. How many branches does your bank have in Kisumu?

a) 0-5 [ ]

b) 6-10 [ ]

c) 11-15 [ ]

d) 0ver 15 [ ]

Part B: Green supply chain management practices (GSCM)

7. How long has your organization established GSCM?

a) Considering it currently [ ]

b) 1 year. [ ]

c) 2 years. [ ]

d) 3 years. [ ]

e) More than 4 years [ ]

8. Please tick appropriately the extent to which your organization has been practicing the following green supply chain practices. (Use the scale to tick the most appropriate response)

1) Strongly agree 2) Agree 3) Moderate extent 4) Disagree 5) strongly disagree

	Green Purchasing	**1**	**2**	**3**	**4**	**5**
1	The bank has included GSCM strategies in its strategic planning process					
2	The bank has integrated suppliers in the supply chain in order to reduce costs and improve customer service					
3	The bank purchases biodegradable materials					
4	Your bank provides design specification to suppliers that include environmental requirements when purchasing an item					
5	Your bank conducts joint research with suppliers on products					
	Eco-design	**1**	**2**	**3**	**4**	**5**

1	The bank purchases eco-designed products for reduced consumption of material/energy					
2	Your bank cooperates with suppliers for green design					
3	Your bank cooperates with suppliers for green packaging					
4	Your bank cooperates with suppliers for environmental objectives					
	Reverse logistics	**1**	**2**	**3**	**4**	**5**
1	The bank manages reverse flow of material, environment packaging and distribution that might enhance the environmental performance of the bank which may in turn lead to a reduction in operational cost					
2	The bank controls environmental risk associated with suppliers operations					
3	Assuring proper utilization of materials by customers					
	Legislation and Regulation	**1**	**2**	**3**	**4**	**5**
1	The bank conducts environmental audit for suppliers					
2	The bank has attained ISO14000 certification on the environmental management					
3	The suppliers to the bank have to comply with particular regulations such as emissions caps, hazardous materials labeling and product specification which may cut on costs and increase efficiency in the bank					

4	The bank organizes green supply chain seminars and workshops					
5	Your bank requires its customers to meet some environmental management standards before trading with them					

Part C: Operational Performance

9. To what extent do you agree with the following statements regarding green supply chain practices in your organization? The scale below will be applicable:

1) Strongly agree 2) Agree 3) Moderate extent 4) Disagree 5) strongly disagree

	The relationship between GSCM practices and Operational Performance	**1**	**2**	**3**	**4**	**5**
1	Organizational operational efficiency has improved due to the adoption of the green supply chain practices by the bank					
2	GSCM adoption has reduced operational Costs					
3	Adjustment to customer needs has improved with GSCM practices in place					
4	The organization has been able to reduce the level of waste since it adopted the green supply chain practices					
5	Suppliers have adhered to supply of environmental friendly goods					
6	The time of service delivery to customers has improved					

7	Order time has reduced					
8	Quality of products has been enhanced					
9	Staff is able to determine goods that are environmentally friendly					

Part D: Challenges faced in adopting GSCM practices.

10. To what extend do you agree with the following statements regarding implementation of SCM practices

1) Strongly agree 2) Agree 3) Moderate extent 4) Disagree 5) Strongly disagree

	Challenges in implementing GSCM Practices	**1**	**2**	**3**	**4**	**5**
1	GSCM practices in your bank is a result of pressure from regulation and legislation e.g. NEMA and ISO requirements					
2	Your organization has capacity to handle the GSC activities which include facilities, people, equipment and information					
3	There is top management support in GSCM					
4	There is an automated ordering system to minimize cost and time spend					
5	Payments are promptly done					

6	Implementation of the ISO certification-14000 series on environmental management in the organization has been easy					
7	Suppliers are aware of ISO certification-14000 series on environmental management					
8	Suppliers have adhered to environmental Management Act and policies.					
9	Your organization finds government regulations on environment management enforceable					

Thank you for your response.