

# **Perception Survey on Assessment of Barriers to Implement Green Supply Chain Management in Commercial Bank of Ethiopia: the case of South Addis District**



**A Research Thesis Submitted for the Award of Masters in Logistics and Supply Chain Management to Addis Ababa University School of Commerce**

**Prepared by: MURUTS ABERA GSE0525/07**

**Supervisor: ABEBE EJIGU (PHD)**

May, 2017

Addis Ababa, Ethiopia

---

## DECLARATION

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

Signature \_\_\_\_\_ Date \_\_\_\_\_

**MURUTS ABERA NEWAY**

ID.No. GSE0525/07

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

Signature  \_\_\_\_\_ Date \_\_\_\_\_

**ABEBE EJIGU (PHD)**

**Addis Ababa University,**

**School of Commerce**

**Addis Ababa University, School of commerce**

**Logistics & Supply Chain Management Department, MA  
program**

**Barriers to implement green supply chain Management in  
Commercial Bank of Ethiopia: the case of South Addis  
District**

**By: Muruts Abera**

**Approved by board of examiners**

Advisor \_\_\_\_\_ Date \_\_\_\_\_ Signature \_\_\_\_\_

Internal Examiner  Date \_\_\_\_\_ Signature 

External Examiner \_\_\_\_\_ Date \_\_\_\_\_ Signature \_\_\_\_\_

## **Acknowledgement**

It is impossible to see the end results of this research paper without the support and guidance of different individuals from my company and the academic institution. Directly or indirectly their contribution and valuable assistance was helpful in completing this research thesis. First, my deepest appreciation goes to my supervisor A/Professor Abebe Ejigu for the productive comments, suggestions, tolerance and guidance that aid me paying attention from the beginning of the paper to the end. Second, my appreciation goes to Mr. Desalegn Worku CBE, Sengatera Branch Manager for his great support in having enough room to attend my education and do my study properly. Third, my positive reception goes to the employees of CBE that work in Sengatera branch along with me for their cooperative assistance and encouragement. Finally, I admire my friends for their support and back-up.

I thank you very much, may God bless you all!

## **ACRONYMS**

<b>ATM</b>	<b>Automatic Teller Machine</b>
<b>CBE</b>	<b>Commercial Bank of Ethiopia</b>
<b>CSO</b>	<b>Customer Service Officer</b>
<b>CSM</b>	<b>Customer Service Manager</b>
<b>CSR</b>	<b>Corporate Social Responsibility</b>
<b>E-Banking</b>	<b>Electronic Banking</b>
<b>E-payment</b>	<b>Electronic payment</b>
<b>GSCM</b>	<b>Green Supply Chain Management</b>
<b>IT</b>	<b>Information Technology</b>
<b>JIT</b>	<b>Just In Time</b>
<b>R &amp; D</b>	<b>Research and Development</b>
<b>SAAD</b>	<b>South Addis Ababa District</b>
<b>SCM</b>	<b>Supply Chain Management</b>

## **Abstract**

In the early days the concept of Green Supply Chain Management was given to manufacturing organizations. But nowadays it is understood that all organizations must take part to reduce environmental pollution by greening the chain between suppliers and end customers. Because of the awareness created by several institutions and its economic purpose to all stakeholders, Green Supply Chain Management (GSCM) is receiving an increased attention by manufacturing and financial organizations. In this study, the researcher aims to understand the barriers to implement green supply chain management practices and their solutions in commercial bank of Ethiopia.

The study is based on detailed information about the necessity of green supply chain management and the challenges that the bank faces in implementation process. Unlike financial institutions much is studied by researchers about the necessity of green supply chain management on manufacturing industries. This makes the study significant to interested individuals like customers, suppliers of check bills and other relevant papers more than ever.

The study adopts a mixed method of research design to reach at the desired result. Under quantitative research design a survey method that involves administering questionnaire to individuals have been used to find answers. In the mean time, the researcher adopts descriptive research type. In the process, a nominal data that represents qualitative research method has been gathered to characterize the demographic information of respondents. In analyzing the data gathered, it was established regression and correlation analysis between dependent and independent variables.

It was established that lack of IT infrastructure, knowledge gap and lack of corporate social responsibility were the most identified barriers that prohibit commercial bank of Ethiopia from implementing green supply chain management. In addition, diverting primary objective of company, globalization, wrong first priority of suppliers and lack of education & training are the root causes to barriers of GSCM implementation in CBE. Furthermore, the relationship between GSCM practices and firm performance in CBE is found to be positively related.

**KEY WORDS:** GSCM, SCM, Barriers to implement GSCM, GSCM Practices, Firm Performance & GSCM implementation

# TABLE OF CONTENTS

## Contents

<b>Declaration.....</b>	<b>i</b>
<b>Approval.....</b>	<b>ii</b>
<b>Acknowledgement.....</b>	<b>iii</b>
<b>ACRONYMS.....</b>	<b>iv</b>
<b>Abstract.....</b>	<b>v</b>
<b>Table of Contents .....</b>	<b>vi</b>
<b>List of tables.....</b>	<b>ix</b>
<b>List of Figures.....</b>	<b>ix</b>
<b>Chapter-one: Introduction.....</b>	<b>1</b>
1.1. Background.....	2
1.2. Banking industry in Ethiopia .....	6
1.3 Statement of the Problem.....	7
1.4 Basic Research Questions .....	9
1.5 Objectives of the Study.....	9
1.6 Scope and limitation of the study.....	10
1.7 Significance of the Study.....	11
1.8 Organization of the Thesis.....	12
<b>Chapter-two: Review of Related Literatures .....</b>	<b>13</b>

2.1 Introduction.....	13
2.2. Supply chain management .....	13
2.3. GSCM Concept and practices.....	15
2.4 The notion of GSCM practices in Commercial banks.....	17
2.5 Motives of adopting GSCM.....	18
2.6 Benefits of Implementing GSCM .....	19
2.7 Barriers of GSCM implementation.....	20
2.8 Mechanisms of Reducing Barriers to GSCM implementation .....	22
2.9 Impact of GSCM on Firm performance.....	22
2.10 GSCM and SCM.....	23
2.11 Activities of GSCM .....	24
2.12 Chapter Summary .....	25
2.13 Conceptual frame work.....	26
<b>Chapter-Three: Research Design and Methodology .....</b>	<b>28</b>
3.1. Introduction.....	28
3.2. Research Design and Strategy .....	28
3.3. Target population, Sample and sampling techniques .....	28
3.4. Source and tools of data collection .....	29
3.5. Data analyses .....	29
3.6 Pilot testing of the Questionnaire.....	30

3.7 Reliability and Validity of the Study .....	30
<b>Chapter-4: Results and Discussion.....</b>	<b>33</b>
4.1 Introduction.....	33
4.2 Demographic information of respondents .....	33
4.3 green supply chain management practices.....	34
4.4 Benefits of adopting GSCM.....	40
4.5 Barriers of GSCM Implementation.....	41
4.6 Mechanisms of reducing barriers.....	43
4.7 Root causes of Barriers of Implementing GSCM.....	44
4.8 Relationship between GSCM and Firm Performance.....	45
<b>Chapter-5: Summary, Conclusion and Recommendation .....</b>	<b>49</b>
5.1 Summary .....	49
5.1.1 GSCM practices in CBE .....	49
5.1.2 Benefits of Adopting GSCM .....	50
5.1.3 Barriers of Implementing GSCM.....	50
5.1.4 Impact of GSCM on Firm performance.....	51
5.2 Conclusion .....	51
5.3 Recommendation .....	52
<b>References.....</b>	<b>54</b>
<b>Appendix.....</b>	<b>61</b>

### List of Tables

Table 4.1.....	35
Table 4.2.....	36
Table 4.3.....	39
Table 4.4.....	40
Table 4.5.....	42
Table 4.6.....	43
Table 4.7.....	44
Table 4.8.....	45
Table 4.9.....	47

### List of figures

Figure 2.1.....	26
Figure 2.2.....	27
Figure 4.1.....	37
Figure 4.2.....	37
Figure 4.3.....	38
Figure 4.4.....	38
Figure 4.5.....	39

## Chapter-one: Introduction

In today's business world organizations must adopt themselves with the ever increasing rate of change; product and technology life cycles are getting shorter, competitive pressures force rapid changes in the design of products and services, and consumer demand requires greater differentiation of products and services (Azevedo et al., 2011). Besides, doing business by ignoring partners is impossible in the global market. Therefore, it is necessary to consider a network of entities that is used to chain quite complex elements. These elements are usually defined as a set of interdependent organizations that work together to control, manage and improve the flow of materials, products, services and information, from the point of origin to the delivery point in order to satisfy customer needs at the lowest cost to all members (Lambert et al., 1998).

GSCM is an important issue in the SCM that has emerged as an organizational philosophy which helps organizations to integrate supply chain and green environmental thinking (Kamolkitiwong & Phruksaphanrat, 2015). The increased pressure from various directions forces organizations to consider the adoption of GSCM. In addition, in global SCs, each company might be held responsible for the environmental and social performance of their suppliers (Seuring and Muller, 2008).

Concern about global warming and urban air pollution have become central issues in manufacturing and financial sectors policy decision-making, and as a result much research in recent years has focused on the development of supply chain management which are environmentally friendly. Air quality in cities is currently significantly lower than in rural areas and this has been shown to be directly linked to the level of emissions from manufacturing and financial institutions. Due to the fact that financial institutions especially commercial banks in Ethiopia are supposed to reduce or discourage the use of hard papers and environmentally unfriendly buildings, there has been an increase in the sale of E-payment services such as the mobile banking and internet banking.

## 1.1. Background of the Study

Green supply chain management (GSCM) has received much attention in recent years due to its biodegradable properties, which offer important ecosystem benefits. For instance, Mohd J. & S. (2015) established that there are substantial benefits to be gained from adopting GSCM, such as reducing energy cost, increased revenue and increased market share. Today, environmental pollution is the main problem which has the potential to lead to the extinction of mankind on earth if not addressed at this moment. Of the various kinds of pollution, air pollution is the one which needs immediate attention.

Green Supply Chain Management (GSCM) has appeared as an environmental innovation which integrates environmental concerns into supply chain management (Noor et al, 2012). GSCM is defined by many authors and researchers. According to Srivastava (2007), GSCM can be defined as ‘integrating environmental thinking into supply chain management, including product design, material sourcing and selection, manufacturing process, delivery of the final product to the consumers as well as end-of-life management of the product after its useful life’. Besides, based on Vachon & Klassen (2006) cited by Noor et.al (2012) established that green supply chain practice commonly is believed to represent the environmentally-friendly image of products, process, systems and technologies, and how the business is conducted. Constructively Wilson O. (2007) added that an organization’s green supply chain practices imply internalizing by integrating its environmental management activities with other organizations in the supply chain or externalizing environmental management in the supply chain by employing market-based mechanisms. Furthermore, Ninlawan et al. (2010) described that the green component plus supply chain management is the coordination and management of a complex network of activities involved in delivering a finished product to the end-user or customer. On the other side, some authors elucidated that Green supply chain projects need to be clearly defined in terms of the business value to the organization. According to North America supply chain world conference (2005), green supply chain management (GSCM) is a driver for process improvement.

GSCM has many possible uses in environmental recovery and continuity of mankind if it is adopted properly by financial institutions particularly commercial banks. Based on Steevles

(2002); Duber-Smith (2005) which is cited on Kumar et al. (2015), the benefits of adopting GSCM are less pollution, low cost prices, low cost of ownership and less consumption of resources. In addition Dan & Liu (2000) which is cited by Yasir et al. (2016) suggested that green or sustainable SCM initiatives are of great importance to the firms as well as to the external environment because it generates financial benefits for the firm in the long term.

However, it has been found to be too weak because of the barriers to implement GSCM by several manufacturing companies and financial institutions. According to several authors and researchers these barriers can be grouped under the categories of organizational perspective, regulatory compliance, quality certification companies, pressure of customers, competitive advantage, environmental collaboration with suppliers etc. In many literatures the above categories are clustered as internal to the company barriers and external to the company barriers. For example, Kumar et al. (2015) described that organizational perspective barriers are grouped under internal barriers to adopt GSCM. Besides Omonge added that cost of adopting GSCM and organizational skills are the ones that grouped under internal barriers to implement green supply chain management. On the other hand, regulatory compliance, quality certification of companies, pressure of customers and competitive advantage are examples of external barriers to implement GSCM (Kumar et al., 2015).

One way to implement GSCM in both manufacturing and financial sectors is to enhance top and middle management commitment. For example, according to Wu and Cheng (2006), an organizational management skill is an internal factor affecting adoption of green supply chain in organizations; Trigos (2007) established that top and middle management commitment are related and have to do with the company's capacity towards a successful GSCM. Furthermore, other researchers point out that formulating relevant policies, building green resource database activity and setting up win-win beliefs are those strategies used to implement GSCM.

However, although the effect of these barriers on the adoption of GSCM was demonstrated by several researchers and practitioners over the last two decades, little attention has been paid to the identification of these barriers on financial sectors especially commercial banks. This is because in the earlier times financial organizations did not consider themselves as part of those entities that contribute to the rise of environmental pollution. Due to the fact that many researchers did not give much focus on those financial institutions. But this time both financial

and manufacturing companies need to adopt green supply chain management practices to reduce both social and economic losses. So organizations need to focus on the utilization of energy and resources for making environmentally sound supply chain.

Under the backdrop of globalization, green supply chain management is recognized as a direct and effective mechanism to address environmental problems along the global value chain. Economically, considering environmental approach makes organizations more competitive within a given market. Both manufacturing and service organizations must consider the impact of environmental approach on business performance and the economic viability of the firm, as well as on the environmental performance of the firm (Elliot, 2011). Concurrently, Hsu & Hu (2008) also allotted that Green supply Chain Management (GSCM) is an approach to improve performance of the process and products according to the requirements of the environmental regulations. In addition Trigos (2007) found that Green Supply Chain Management (GSCM) practices can contribute to an organization's environmental/sustainable policy by ensuring that the main suppliers and their products achieve better environmental performance as well as promoting sustainability awareness throughout the market and other supply chains.

The present paper presents a mechanism for selecting such barriers to implement GSCM in commercial bank of Ethiopia the case of South Addis Ababa District (SAAD). On the basis of this selection it then describes ways of mitigating those barriers for the bank to contribute its own stake in greening the environment. The objective of this paper is to identify various barriers to implement GSCM in commercial bank of Ethiopia.

There are several ways of greening the supply chain. Environmentally friendly, environmental monitoring and environmental collaboration are some of the ways that enables greening the supply chain. 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 et al., 2011). Unlike industries, commercial banks face certain barriers that hold back from implementing green supply chain management (GSCM) practices.

During adoption of GSCM, some hurdles can be anticipated due to the expected transition. These hurdles are called barriers and industries must equip themselves to remove it (Kannan Govindan et al., 2013).

The concept of GSCM is to integrate environmental thinking into supply chain management (SCM) and it aims to minimize or eliminate wastages including hazardous chemical, emissions, energy and solid waste (Habiba, 2016). This might not sound good enough for commercial banks, but inefficient utilization of resources like wastage of papers in branches did contribute to environmental pollution.

A supply chain is a network that consists of all parties involved i.e. supplier, manufacturer, distributor, wholesaler, retailer, customer, etc., directly or indirectly, in producing and delivery products or services to ultimate customers – both in upstream and downstream sides through physical distribution, flow of information and finances (Habiba, 2016). This works for both manufacturing and financial organizations.

The rise of applying different technological results makes commercial banks to consume more energy for operational purposes. This is supported by the finding of Trigos (2007); greening the environment is an international agenda for both public and private sectors. Nowadays organizational management is forced to form environmental management. Environmental management involves adding the green component into supply chain management that aims to address influence of the natural environment (Ashish et al., 2011).

The purpose of this research is to identify challenges in implementing GSCM and showing the way how to mitigate those challenges for a better environmental collaboration. Specifically, it focused on commercial bank of Ethiopia the case of south Addis Ababa district (SAAD) which was ignored by previous researchers. Another purpose of dealing with this study is to identify the way how the traditional supply chain management (SCM) will be transformed into the so called GSCM. It is during this adoption of GSCM in traditional SCM, that some barriers can be anticipated due to the expected transition (Nikunj, 2016). Through the application of GSCM, it helps for organizations to deal with environmentally focused strategy (Trigos, 2007).

On the basis of set of information needed it then describes the preparation of a set of mixed research design which is deployed to find answers. A mixed approach is the combination of qualitative and quantitative research designs. Most part of the findings is articulated via quantitative research design.

The barriers in implementing GSCM practices are expected to hurdle the smooth transformation of traditional SCM into the adoption of GSCM. Due to the fact that commercial bank of Ethiopia will continue to contribute a small part of unwanted emissions to the environment. The combination of identifying barriers and strategies of implementing GSCM formed a positive relationship with reduction of environmental pollution in commercial bank of Ethiopia.

## **1.2. Banking Industry in Ethiopia**

The first modern bank in Ethiopia was the Bank of Abyssinia which was established in 1905 during the reign of Menelik II. Modern banking in Ethiopia is believed to be started in 1905 which is made based on the 50 years agreement of Anglo-Egyptian national bank (Gezae, 2015). Before that time banking was unknown so that it was mainly used by few Ethiopians and foreigners. At the beginning the bank opened branches at Dire Dawa, Gore and Dessie.

In 1931 the bank of Abyssinia was liquidated and a new bank called Bank of Ethiopia was established (Geda, 2006). The bank of Ethiopia is the first indigenous bank in Africa. He also added that during the five years of Italian occupation, the bank of Ethiopia was ceased its function. Instead many Italian banks like Banca d' Italia, Banco di Roma, Banco di Napoli, etc. were opened in Ethiopia.

Geda (2006) stated that in 1943 the state bank of Ethiopia which was fully owned by the Ethiopian government began operations in 21 branches during its existence till 1963. In 1963 the state bank of Ethiopia was dissolved and split into two; the National Bank of Ethiopia and the Commercial Bank of Ethiopia.

Based on the Financial Standards Forum (2008) in 1975 which is cited in Geda (2006), the major commercial banks were merged under the Addis Ababa Bank, and the National Bank of Ethiopia was given oversight over all financial institutions. Following the regime change in 1991 and the liberalization policy in 1992, these financial institutions were reorganized to work to a market-oriented policy framework (Geda, 2006).

According to Addison T. & Geda (2001), with the overthrow of the Derg Regime in 1991, Ethiopia began its transition to a market economy. This transition has had profound implications for the financial system. New financial institutions have emerged, the role of the private sector in

the financial system has been expanded, and the role of the central bank is being reformulated. Then after, the so called commercial bank of Ethiopia was reestablished in a new form and outlined in a new structure. This time commercial bank of Ethiopia (CBE) is subdivided into 15 districts and provides its service by opening about 1150 branches throughout the nation. Of these branches about 80 are used to operate under south Addis Ababa district (SAAD). The main focus of this study is laid on the state owned commercial bank of Ethiopia specifically South Addis Ababa District (SAAD).

### **1.3 Statement of the Problem**

The identification of barriers to implement GSCM are crucial in reducing environmental pollution and maintaining ecosystem stability, but the recognition of these barriers by financial institutions has received relatively little attention. Many researches on the adoption of GSCM by companies have been done to identify the barriers that hurdle greening supply chain management. Studies by Wilson (2012), Octavio (2007), Habiba (2016), Luthra et al. (2011) and Sreejith (2012) have found varied barriers of GSCM implementation in manufacturing, construction and financial institutions. However, the case of green supply chain management within the banking sector has not been well covered.

Global warming and environmental pollution are increasing from time to time all over the world. The world's climate is changing, and it will continue to change throughout the 21st century and beyond. Most probably, the dominant players for global warming and environmental pollution to rise are manufacturing companies (Srivastav & Kumar, 2015; Trigos, 2007; Habiba, 2016 etc). But this doesn't mean that the financial sector has no contribution to the above crisis. This crisis in the manufacturing as well as banking industry requires innovative solutions. One innovative solution may be a very structured leadership style, such as commitment leadership style toward adoption of GSCM.

Emission of green house gases and wastage from manufacturing industries and financial institution is growing at a faster rate in developing nations such as China (Noor et al., 2012). In fact, most of the problem in the environmental issue is created by developed nations and as a result people in poor countries are suffering.

The purpose of this research study will be to examine the motivational factors confined for the adoption of green supply chain management in commercial bank of Ethiopia. To fulfill this purpose, a mixed research design is surveyed on professionals, clerks, administrative personnel and service employees of eighty branches of CBE in South Addis Ababa District, Addis Ababa.

Effective green supply chain management practices in organizations require total understanding of the day to day transactions, collaborating with suppliers and customers and cooperate with associations engaging themselves with environmental issues. But this is not the case in the banking industry. According to some studies, GSCM is an important business integration technique which creates a strategic advantage in modern banking sectors.

Organizations that seek greening their SCM need to understand the barriers that forced them not to cooperate with environmental issues. To come up with the necessary efforts for reducing these barriers, organizations specifically financial institutions need to work together with environmental control, environmental monitoring and environmental collaboration. As a result environmental pollution will be reduced. Adding to this premise Omonge, (2012) has found out that enterprises need to implement strategies to reduce the environmental impacts of their products and services and thus to establish their environmental image which requires that enterprises have to re-examine the purpose of their business.

Previously, many researchers tried to conduct a study on those barriers to implement GSCM on manufacturing industries. For instance, Luthra et al. (2011), Market Competition and Uncertainty; Lack of Implementing Green Practices; Cost Implications; Unawareness of Customers have been identified as top level barriers and Lack of Government Support Systems as most important bottom level barrier. They concluded that removal of these barriers help in implementing GSCM in Indian automobile industry. Whereas Muduli (2013) stated that by having a clear understanding of the barriers, organizations can identify the weaker areas and can formulate strategies to improve these areas that ultimately improve the effectiveness of their GSCM implementation programs. These and much more others are the efforts tried to find answers on manufacturing organizations. The possible causes of these barriers are identified to be lack of awareness of all concerned bodies. Due to the existence of these barriers emission of unnecessary gases, waste control problems and inefficient utilization of energy are the results.

However, although the effect of these barriers on the adoption of GSCM was demonstrated by several researchers and practitioners over the last two decades, little attention has been paid to the identification of these barriers on financial sectors especially commercial banks.

#### **1.4 Basic Research Questions**

When we look at the problem in detail, its consequence extends to health problem; depletion of Ozone layers and extinction of mankind. Therefore, identifying barriers to implement GSCM practices and establishing a mechanism to reduce these barriers is a paving instrument to control the above consequences. The research questions entitled for this study are:

- I) What are the barriers that hurdle implementation of GSCM practices in CBE?
- II) What are the root causes of these barriers?
- III) What are the mechanisms used to mitigate these barriers?
- IV) What kind of relationship can be established between implementing GSCM practices and performance of the firm?

#### **1.5 Objectives of the Study**

The objective of this research is to identify barriers that affect implementation of GSCM in commercial bank of Ethiopia, the case of South Addis Ababa District (SAAD). The focus is not only on identifying the barriers but also to maintain an effective way of mitigating these barriers and greening the environment. The identification of implementation barriers involves proceeding through several specific steps based on recognizing the problem, evaluating its impact on adoption of GSCM and selecting as a barrier to implement. There are various extra steps that a researcher may have to perform before finalizing identification for a particular barrier element. Thus, the process and the decisions taken regarding the effectiveness of identifying these barriers are dependent on the researcher's perspective.

In spite of a simple goal, the means are deemed complex, as the central problem requires the integration of many disparate ways. The objective of this research is to provide the researcher with a tool that aids the adoption of GSCM in CBE by providing a means of arranging all the resources pertaining to reduce environmental pollution and then maintaining sustainability of the environment.

Aside of identifying barriers to implement GSCM in commercial bank of Ethiopia, Specifically the study aimed;

- a) To find out the root causes of barriers of GSCM implementation in CBE, SAAD
- b) To determine the techniques used to reduce barriers to implement GSCM practices in CBE
- c) To ascertain the barriers that hurdle implementation of GSCM in CBE
- d) To establish the relationship between GSCM and firm performance

### **1.6 Scope and limitation of the study**

Commercial bank of Ethiopia is the largest state owned financial institution which delivers its service in about 15 districts and over 1150 branches throughout the country. South Addis Ababa District (SAAD) is one of the districts providing its services around the capital city of Ethiopia. The study sought to examine barriers of the adoption of GSCM practices in commercial bank of Ethiopia within Addis Ababa city. This was informed by the fact that most of the country's banking operations and economic circulation is mainly stemmed at the capital city. The study was conducted between September 2016 and May 2017.

This study was limited to examine barriers to adopt GSCM practices in commercial Bank of Ethiopia, with a special emphasis on South Addis Ababa District. For more conclusive results, more districts and branches across the country would have been included. Hence, this will not be possible due to the following limitations:

The sample population selected for this study will be limited to commercial bank of Ethiopia, south Addis district, in Addis Ababa; thus, the ability to generate confidential data from each of the respondents without encountering challenges was difficult. However, the study upheld participant's right to confidentiality and privacy in line with divulging information during the data collection.

The study strives to follow informed consent rules of research that allows for the respondents to voluntarily participate in the research. Nonetheless, the research was limited to the fear of the respondents to give information during the data collection process.

The study endeavored to equitable sample participants randomly allowed for equal opportunity of representation and participation in the proposed study. However, it was limited to lack of cooperation on some participants of the study during the collection process. This might be due to ignorance, hostility, language barrier and other forms of hurdles that may hinder data collection.

Another limitation that was expected is driven from the inherent design or methodology parameters that can restrict the scope of the research finding. These weaknesses arise when all variables cannot be controlled with in a sample design. The optimum number of sample size was not taken due to time or budgetary constraints. Therefore these factors are the ones that have the potential to reduce the paper's validity of result. Since the paper focused on only one case site, its general applicability is another doubt.

### **1.7 Significance of the Study**

Nowadays nothing is more important than dealing with environmental concerns and the way to set up with it is implementing green supply chain management practices in the areas of interest. The areas of interest in this case include not only industries with high rate of carbon emission but also financial organizations.

GSCM is one of the best strategies for meeting the target to reduce carbon emission and enhance sustainability because of its potential to improve the environmental performance of any organizations. In the last few decades much is studied about barriers to implement GSCM practices in manufacturing organizations. Therefore it is highly significant to deal with barriers to implement GSCM practices in financial institutions.

This study can accelerate the bank's execution of GSCM practices and is helpful in realizing its vision by the year 2025 to become world class bank. The study findings can benefit management and staff of commercial bank of Ethiopia by showing how to effectively manage those hurdles of GSCM implementation. Practically the study tried to show the components that sums up to carbon emission so that individuals will learn to care for the natural environment.

Implementing green supply chain management practices in commercial bank of Ethiopia can pave a way to consider environmental issues by strategy formulators and other lower level managers. For organizations that adopt green supply chain management practices, it is suggested

to create awareness about environmental hazard of carbon emission. Several barriers of green supply chain management practices are discussed in this study so that SAAD managers, branch managers, staffs and other concerned individuals will understand how to implement GSCM practices.

This study is further valuable to those interested in setting up commercial banks in Ethiopia since it can provide what firms to do right to succeed. It will also provide information to current and potential scholars on GSCM practices by adding value to available literature.

I hope that the study will be helpful for academic purposes, which is used to replicate such studies in different dimensions for a gap that will propose by individuals. Green supply chain management which is used to provide environmental protection and energy conservation is not only to reduce environmental impact but also to increase economic performance. Due to the fact that, top level authorized personnel can learn another mechanism to maximize economic performance. Better understanding of these barriers may help commercial bank of Ethiopia to rank their priority and utilize their resources efficiently. The district decision makers and strategy professionals might get necessary information to deal with such problems, if it intends to continue without tackling the barriers.

### **1.8 Organization of the Thesis**

In this sub-section the researcher will show structure of the paper and are organized under five chapters. The first chapter dealt about introduction of the study which contains sub-sections like background of the study, statement of the problem, research questions, objective of the study, significance of the study, etc. The second chapter dealt with review of related literatures. The third chapter deals with methodology of the study which includes research design and strategy, data type and sources, data collection techniques, method of data analyses, etc. Similarly, the fourth chapter deals with data presentation, interpretation and analyses. Finally, the fifth chapter covers conclusion and recommendation. At the end, the sources that will be taken as supporting materials will be recorded under bibliography.

## **Chapter-Two: Review of Related Literatures**

### **2.1 Introduction**

Searching new ideas and finding governing principles in the area of green supply chain management (GSCM) is growing from time to time; as a result organizations are interested in the concept of GSCM. The purpose of this chapter is to discuss an overview of the development of GSCM literature and its barriers to implement in organizations. This study also is performed to determine the new research area of issues related GSCM's implementation. This paper will then provide a thorough review from previous studies. At the end, this paper will propose the research direction framework for the study.

Among the related literatures available, the researcher provides information that will be used to broaden knowledge of the problem. By reading the findings of different scholars and authors, it is summarized to help develop methodology. This chapter covers terms like concepts of GSCM practices, benefits of implementing GSCM, barriers of GSCM implementation and GSCM Vs traditional SCM. Studies in the field of GSCM are growing in the last few decades because of its purpose allowed to control environmental problems. Unlike the studies undertaken on the area of manufacturing industries, there is no enough literature made on financial institutions specially commercial banks.

### **2.2. Supply Chain Management**

Supply chain management (SCM) was emerged in 1990's in the manufacturing industry with the Just In Time (JIT) delivery system implemented in Toyota (Vrijhoef and Koskela, 1999), with the main aim of reducing inventories and regulating suppliers interaction with the production lines. Nevertheless, since its birth SCM has evolved into a full range of disciplines that involves closer customer-supplier relationships.

Supply chain management consists of all parties involved, directly or indirectly, in fulfilling a customer request. The supply chain includes not only the manufacturer and suppliers, but also transporters, warehouses, retailers, and even customers themselves. Within each organization, such as a manufacturer, the supply chain includes all functions involved in receiving and filling a customer request. These functions include, but are not limited to, new product development,

marketing, operations, distribution, finance, and customer service. Generally supply chain management (SCM) is defined as a network of interconnected organizations or organizational entities developed with the goal of getting the right product to the right place at the right time (Chopra & Meindl, 2007). Additionally, it can be defined as the coordination and management of a complex network of activities involved in delivering a finished product to the end-user or customer. All stages of a product's life cycle will influence a supply chain's environment burden, from resource extraction, to manufacturing, use and reuse, final recycling, or disposal (Zhu et al., 2007).

By definition, supply chain management strives for the efficient management of supply chain assets, products, information and cash flows in order to maximize the surplus that results from the difference of the price paid by a consumer and all the operational costs that accrue throughout the supply chain (Chopra and Meindl, 2007). Some other authors and researchers has defined SCM as a chain of facilities and distribution alternatives that performs the functions of obtainment of products, transformation of these products into intermediate and finished goods, and the distribution of these finished goods to customers.

There is no globally agreed up on definition of SCM; however someone may define it as the management of a network of interconnected business involved in the ultimate provision of product and service packages required by end customers and cover all the necessary movement and storage of raw material, work-in-process inventory, and finished goods from the point of origin to the point-of-consumption (Cetinkaya *et al.*, 2011). Harland (1996) which is cited on (Kiprop, 2015) agreed that Supply chain Management (SCM) entails managing a network of interconnected businesses involved in the ultimate provision of products and services or service packages required by the end users.

Even though most of studies on SCM made by previous researchers and practitioners focus on manufacturing companies, its practices are increasingly becoming an important feature in the attainment of competitive advantage in most service organizations in the global markets today (Kiprop, 2015).

Since the birth of SCM is in manufacturing industries, little attention is given to financial institutions. To adopt the green concept of SCM and to identify the barriers to implement this green concept, effective and efficient SCM must be channeled through out organizations.

### **2.3. GSCM Concept and Practices**

Green Supply Chain Management (GSCM) is one of the recent innovations for the enhancement in capabilities of Supply Chain Management (Mohd, J. & Mohd, S., 2015). They argued that GSCM is the integration of green environment and supply chain management which includes six activities of the supply chain; namely Green Sourcing & Procurement, Green Manufacturing, Green Warehousing, Green Distribution, Green Packaging, and green transportation.

Different authors define the concept of green supply chain management in different ways. For example, GSCM is the integration of environmental and traditional supply chain management that improves operations by employing an environmental solution (Luthra et al., 2013). Bowen et al. (2001) also defined GSCM as a buying firm's plans and activities that integrate environmental issues into SCM in order to improve the environmental performance of suppliers and customers. Green et al. (1996) added that GSCM is the innovation of SCM and purchasing in the context of the environment. On the other side, Trigoss (2007) defined GSCM as the process of meeting organizations' needs for goods, services and utilities that achieve value for money in terms of generating benefits not only to the organization but also to the society and the economy, whilst minimizing damage to the environment. Pollution and waste represent incomplete, ineffective, or inefficient use of raw material; to reduce this kind of wastage, different practitioners and researchers in operations and SCM started to focus on a term known as Green supply-chain management (GSCM) (Noor, et al., 2012). Concurrently, Olugu, et al. (2010), agreed that GSCM is to eliminate or minimize waste in the form of energy, emission, hazardous chemical and solid waste.

Generally, the concept and definition of GSCM was identified and explained by many researchers (Trigoss, 2007, Green, et al., 1996 and Omeng, 2012). The concept of GSCM was briefly defined by Ageron, et al. (2012), which was cited by Mohd J. & S. (2015), as the achievement of economic, environmental, and social goals in the systemic coordination of key inter-organizational business processes to improve performance in the long term for the

organization and its partners in the supply chain. To conclude, Green Supply Chain Management is a broad term in which all organizations work with their suppliers and customers to improve their environmental performance.

Most of the literatures that researchers have studied about the adoption and implementation of GSCM were on manufacturing industries. For example, Azevedo, et al. (2011), examined the links between green practices of supply chain management and supply chain performance in the context of the Portuguese automotive supply chain. But still limited studies have examined the GSCM practices in commercial banks. Green supply chain analysis provides an opportunity to review processes, materials, and operational concepts; So that it is used to confine the waste within the industrial system in order to conserve energy and prevent the dissipation of dangerous materials into the environment (Torres et al., 2004).

A study made on Kenyan commercial banks by Shiekh (2014) concluded that banks have adopted different green operation practices. Among the practices adopted on environmental policies and goals are that environmental audits are done regularly, research and development is continuous on environmental issues and that employee incentives programs for environmental suggestions are in place. The study also concludes that green lending banks are conducting site visits as well as assessment of client's environmental records. He also added that recycling, reusing, waste management practices and energy saving practices have been adopted. Likewise, Omonge (2012) indicated that internal environment management, investment recovery and emerging green distribution are the major GSCM practices being considered and adapted to some degree by banks in Kenya.

On the other side, Ninlawan et al. (2010) revealed that the green practices adopted by Indian electronic industry are green procurement, green manufacturing, green distribution and reverse logistics. Trigos (2007) agreed that the environment related issue practiced by construction companies are two types; product based practices (packaging reduction, recycling and eco-design) and process based practices (environmental policy, waste management, reverse logistics, environmental audit etc.).

Furthermore, supply chain and logistics association Canada (2009) indicated that GSCM practices that are implemented in distribution activities include: energy efficiency, reduction of

greenhouse gas (GHG) emissions, water conservation or processing, waste reduction, reduced packaging, product and packaging recycling, and green procurement practices.

As a summary, the green issues practiced in financial and non-financial companies are revealed to be reduction of packaging, recycling, eco-design, waste reduction, green distribution and applying green operations. As we see in the study made by Mohd, J. & Mohd, S., (2015) in their definition to GSCM, the green component of SCM comprises of six elements and these are: green purchasing, Green Manufacturing, Green Warehousing, Green Distribution, Green Packaging and green transportation. Conclusively, this definition indicates that most of green practices performed in organizations are grouped into the above GSCM activities

#### **2.4 The Notion of GSCM Practices in Commercial Banks**

Both manufacturing and financial firms cannot ignore environmental issues due to increasing governmental regulations and stronger public mandate for environmental accountability. Therefore, commercial banks have now found it necessary to integrate their supply chain processes to lower costs and meet both environmental and customer expectations (Muthuka, 2015).

The effectiveness and efficiency of commercial banks in making profit and having successful environmental performance is dependent on the action of other organizations. This is because banks belong to networks of organizations where the input, processes and output of all three flows (physical, financial and immaterial) affect the other organizations and are affected by the other organizations (Lundgren and Catasús, 2000). Hence it is essential to manage the environmental risk of their borrowers. Based on Aintablian et al. (2007), banks may be effective monitors of the environmental risk due to their comparative advantage in screening and monitoring the environmental performances of borrowers. During the process of providing credit facilities to borrowers, commercial banks should assess worthiness of the credit by analyzing environmental risks.

Most literatures of green issues in commercial banks concentrate on two ideas. First, it deals with understanding of the direct impact (physical material flow - in-house operations). Second, commercial banks should design their greening strategy with regard to indirect impact (the financial flow - credit policies and immaterial flow). For instance Lundgren and Catasús (2000)

suggested that banks may achieve better social and ecological impacts by greening the financial and immaterial flows of resources rather than the physical one.

As a result, the literature is grouping the banks' GSCM practices in accordance with their impact on the environment and the resource flows. The practices with direct environmental impact (physical flow) include the management of waste, energy, facilities, transport, procurement and supply chain. According to Thompson (1998), under the commercial (core) activities, the following practices (with indirect environmental impact) linked to the lending products are incorporating environmental criteria into credit policy; appraisal of the environmental risk as part of the credit risk assessment; targeting, treating differently from other companies, or in some way preferentially, the green borrowers; avoiding (formally or otherwise) lending to companies operating in certain industries on environmental grounds. Sahoo and Nayak (2007) include under "green banking" the following practices: encouraging lending towards green businesses and businesses that have taken serious green steps, managing the environmental risks and identifying new business opportunities in innovative ecologically oriented products.

The green practice that worked out in commercial banks can be realized as green banking, working with environmentally friendly customers, environmental collaboration, green supplier selection etc. Green supplier selection deals with those suppliers that provide energy, operating materials like vouchers, operating machines and owners of environmentally friendly buildings.

## **2.5 Motives of Adopting GSCM**

Understanding the internal and external pressures of adopting GSCM practices and performance implications are critical for manufacturing and financial firms to strategically manage their environmental, economic, and operational performance.

According to Nawrocka (2008), the determinants of GSCM adoption can be basically distinguished between *external factors* and *internal factors*. The external factors are derived due to stakeholders' pressure whereas the internal factors are derived from the willingness to have a successful business. With respect to *external factors*, Birret (1998) for instance, focused on the effects of institutional and regulatory pressure on an organization's decisions to adopt such practices. According to this literature, the institutional pressure arises from managers' encouragement to improve their influence in the SC and upgrade their image in the market.

Whereas the regulatory pressure arises from threats of penalties and fines or the firm is required to public concern and environmental issues.

On the other hand, *internal factors* can be defined as those strategic motivations that can encourage managers to adopt actions that aim at designing, implementing and better managing business relations in the supply chain.

The study made by Lin & Sheu (2012) also suggested that there are institutional pressures that determine the adoption of GSCM practices and firms should submit to this sort of pressure to maintain their social legitimacy and seeking economic efficiency. Furthermore, Testa et al. (2009) added that the main impulses to effectively motivate a company GSCM adoption is; one, they are naturally sparked by a leadership-oriented strategy in environmental management, when a *front-runner* company needs to go beyond the boundaries of its facility. On the other hand, GSCM is frequently adopted by *followers* as an inevitable strategic response to stimuli coming from customers and consumers, or to pressures deriving from the other more proactive actors of a supply-network.

As a summary, the notion of many researchers and authors on the motives of adopting green supply chain management by both financial and manufacturing firms grouped into two classes; the internal motives and external motives. The internal motives are those that come from the inside of the firm whereas the external motives are derived from external stakeholders. However, the general motives or factors that force organizations to adopt GSCM are social and political concerns on environmental issues.

## **2.6 Benefits of Implementing GSCM**

Implementation of green supply chain management is not an option to consider like take it or leave it rather mandatory for all organizations. This is proved by the finding of Mohd, J. & S., which is stated as environmental pollution is the main problem which has the potential to lead to the extinction of mankind on Earth if not addressed at the moment. They also added that implementation of GSCM is very important in controlling air pollution, reduction of wastages, improving quality of product having green sourcing & procurement, green manufacturing, green warehousing, green distribution, green packaging, and green transportation. According to Mohd, J. & S., the expected benefits of implementing GSCM will be; enhanced public relations,

enhanced brand image, reduce energy cost, increase brand loyalty by consumers, increased revenue, increased market share, improve productivity, improve quality, etc. The advantage of applying green activities in commercial operations is to avoid unnecessary materials or resources which reduce expense of commercial banks. According to North America supply chain world conference (2005), GSCM is used to;

- a) Integrate environmental and supply chain management.
- b) Leverage the role of the environment in SC value creation.
- c) Improves operations by employing an environmental solution.
- d) Drive for process improvement.

Parallel to that Luthra et al. (2011), found out that Green supply Chain Management (GSCM) has been identified as an approach for improving performance of the processes and products according to the requirements of environmental regulations. To Omonge (2012), the benefit of adopting GSCM was explained as the adoption of green supply chain concepts by a bank can be associated to a greater extent to the organization competitiveness. He also added that the adoption of green supply chain results in reduction of operation costs, increased in customer loyalty, increased in market share and generally an increase in the performance of the firm.

Green Supply Chain Management (GSCM) basically aims to increase the amount of good outputs, that are Product and Revenue generated and reduce the bad inputs and outputs that are raw material consumed, energy utilized, capital invested and waste produced during the manufacturing process (Nikunj, 2016).

In general past literatures tried to reveal benefits of adopting the green supply chain that included the existence of a positive relationship between GSCM practices and the improvement in environmental and economic performance. Finally, this study will be expected to provide significances of implementing green supply chain management.

## **2.7 Barriers of GSCM Implementation**

According to Sreejith (2012) barriers of green supply chain management are clustered as either internal or external to the organization. Omonge (2012) also grouped those barriers that affect implementation of reverse supply chain as either external or internal factors. Based on the

finding of Habiba (2016), factors that resist implementation of GSCM are; lack of IT implementation, lack of organization encouragement, resistance to technology advancement, market competition & uncertainty and lack of top management commitment.

On the other hand, Trigos (2007) presented three kinds of barrier groups that affect implementation of GSCM. The first group is about financial or human resources which deal with lack of resources, short term planning and lack of markets for recyclable materials. The second group is formed by top management commitment, middle management commitment, inappropriate organizational structure and internal communication because they all deal with the internal aspects of a company. Whereas the third group is formed by lack of knowledge, lack of information and lack of support to implement. Additionally, Nikunj (2016) classifies these barriers into 5 different categories, namely Technology, Financial, Knowledge, Involvement and Support & Outsourcing.

Luthra et al (2011), list down 11 barriers to implement GSCM and grouped them into four different clusters; namely autonomous variables, dependent variables, linkage variables and independent variables. Those eleven barriers are listed down below; market competition and uncertainty; Lack of implementing green Practices, cost implications, unawareness of customers and supplier reluctance to change towards GSCM; Resistance to technology advancement adoption, Lack of organization encouragement and Poor quality of human resources; Lack of government support systems, Lack of top management commitment and Lack of IT implementation.

To Muduli & Barve (2013), they identified information gaps, lack of social concerns, poor legislation and capacity constraints as potential barriers to implement GSCM. According to Wu and Cheng (2006), which is used as a secondary source for Omonge (2012) an organizational management skill is an internal factor affecting adoption of green supply chain in organizations. Omonge (2012) also indicated that financial considerations (comprising investment, profitability, and cost) and legislation that has led to a lack of enforceable laws and regulations are the other internal barriers to green supply chain management practice.

To sum up, challenges of green supply chain management (GSCM) implementation are either internal to the organization or external to the organization. Besides, this paper is expected to

show some of the barriers that hurdle GSCM practices and provide a mechanism to reduce those barriers for a better environmental and economic performance.

## **2.8 Mechanisms of Reducing Barriers to GSCM Implementation**

In the previous sub-sections we tried to see drivers and barriers of green supply chain management; but researchers and practitioners did not deal much with the techniques used to reduce those barriers. However, according to Australia; department of Institute for Sustainable Futures, Barriers and Drivers to Sustainability in Local Government (2009) the mechanisms used to reduce lack of organizational support are external experts or facilitators can be used to help raise awareness of sustainability internally. Get your sustainability initiatives recognized externally by submitting awards applications. This study also added that the technique used to appreciate staff commitment toward implementation is recognizing staff achievements in the area of sustainability. The intranet and staff newsletters are possible tools.

Besides, the barrier lack of staff capacity can be mitigated by supporting professional development opportunities around sustainability. This paper also argued that lack of government support can be minimized by educating the community, council staff and councilors about legislation. Furthermore, lack of research and development on GSCM can be reduced by partnering with universities to gain access to sustainability research and expertise.

To sum-up, unlike the benefits of implementing GSCM practices, the mechanisms to reduce barriers of green practice adaptation are rarely discussed and studied by researchers and practitioners. Specially, this case is improbable to found in the area of commercial banks.

## **2.9 Impact of GSCM on Firm Performance**

In a simple term, the purpose of a company to be existed is to make profit and many researchers indicated that implementing GSCM practices enables a firm to make profit. For example, Omonge (2012) indicated that the adoption of GSCM practice creates public image so that it increases performance of banks. Concurrently, Diab et al. (2015) also showed that green supply chain management practices and its elements on organizational performance have a positive impact. In addition Kirchoff (2011) stated that the significance of the relationships found between green SCM and the three constructs (efficiency, effectiveness and environmental

differentiation) of firm performance provides evidence of a more widespread proactive environmental strategy in firms. Furthermore, Khattab et al. (2015) agreed that the impact of the internal environmental management on the environmental-based marketing performance is significant. Whereas by analyzing the results of green information systems domain it shows that there is significant impact of the green information systems on the environmental-based marketing performance.

On the other side, Shiekh (2014) argued that the effect of green operation practices on financial performance is insignificant. Menzel et al. (2010) in their study to investigate the trend and effect of environmentally friendly manufacturing on the financial performance of companies in the European automotive and pharmaceutical industries agreed that there is no significant relationship between greener manufacturing and corporate performance.

In general, most researchers and practitioners argued that the impact of green supply chain implementation on performance of a company is significant. Most probably this conclusion is deduced in a study made on non-financial firms.

## **2.10 GSCM and SCM**

Previous studies suggested that green supply chain management (GSCM) is the integration of traditional supply chain management and greening the environment. Lawrence (2009), in his study explained the relationship between green environment and SCM as the integration of environmental and resource impacts of products and services have been the other area of sustainable operation management. Supply chain management is defined by Ninlawan (2010), as the coordination and management of a complex network of activities involved in delivering a finished product to the end-user or customer. With the addition of green environment, it refers to green supply chain management (GSCM) and then the activities becomes green procurement, green manufacturing, green distribution and reverse logistics.

There is no generally accepted definition given for supply chain management; but previous studies tried to explain SCM as the integration of manufacturing process that the raw materials turned in to a final product and then delivered to the customer. Mentzer et al (2001) defined supply chain as a set of three or more entities (organizations or individuals) directly involved in

the upstream and downstream of products, services, finances and information from a source to a customer.

Green supply chain management and supply chain management differ in a lot of ways. First, the goal of green supply chain management is greening the environment and having economically sound organization; whereas supply chain management is focused only on economic matters. According to Luthra et al (2011), conventional SCM concentrates more on controlling the final product; no matter harmful its effects are to the environment during production and distribution; to GSCM, ecological requirements are key criteria for products and productions and at the same time the company must assure its economic sustainability by staying competitive and profitable. But in SCM, ecological concepts are not the key criteria in the production & service processes. Habiba (2016) also added that the main idea with conventional SCM is usually the focus on the economy or the financial systems whereas GSCM has the focus on environment as well as economy or financial systems.

The main point of this sub-section is to show the major differences between GSCM and SCM. The summation of the above ideas is that traditional SCM focus only on matters that affect economic aspects of a company and is inefficient in utilizing energy effectively; whereas GSCM focuses on greening the environment as well as generating profit by reducing cost.

### **2.11 Activities of GSCM**

Basically, many researchers described that the activities to be considered in greening the supply chain must be focused on the components of supply chain management. To start with, Jemutai (2014) suggested that green procurement, green production, green warehousing, green distribution and reverse logistics are the activities to be considered. To Hadjikhani et al. (2012), GSCM activities are those tasks that are used in raw material choice and material recycling, new design of crumbs, transportation and packaging. Adding to these premises, Peeters (2003) has looked to the innovative markets and products enhancing the financial industry's role in sustainable development. Particularly in the environmental sustainability area, he found that the banking sector made some accomplishments in micro-financing, social responsible investing, green accounting and reporting, green liability.

According to Ninlawan et al. (2010), the green activities revealed in electronics industry are green procurement, green distribution, supplier selection and reverse logistics. Particularly, green procurement is an environmental purchasing which includes reduction, reuse and recycling of materials. Supplier selection deals with purchasing materials from only green partners whereas green distribution consists of green packaging and green logistics. Green Supply Chain Management is a kind of modern management model in the whole Supply Chain Management, which considers the environmental influence and efficiency. It should keep in touch with suppliers, manufacturers, sellers, and consumers. The detail contents include: Green Designing, Green Production, Green Package, Green Marketing and Green Recycling (Fengwen & Yuhua, 2003).

On the other hand, Laari (2016) stated that environmental monitoring and environmental collaboration are the ones to be taken as tasks or activities of greening the supply chain management. Parallel to this, Omenge (2010) found that environmental collaboration, environmental monitoring and environmentally friendly are the activities to be focused on during adopting GSCM.

By either means the aim of GSCM activities is to achieve market advantages and profits while reducing environmental impacts.

## **2.12 Chapter Summary**

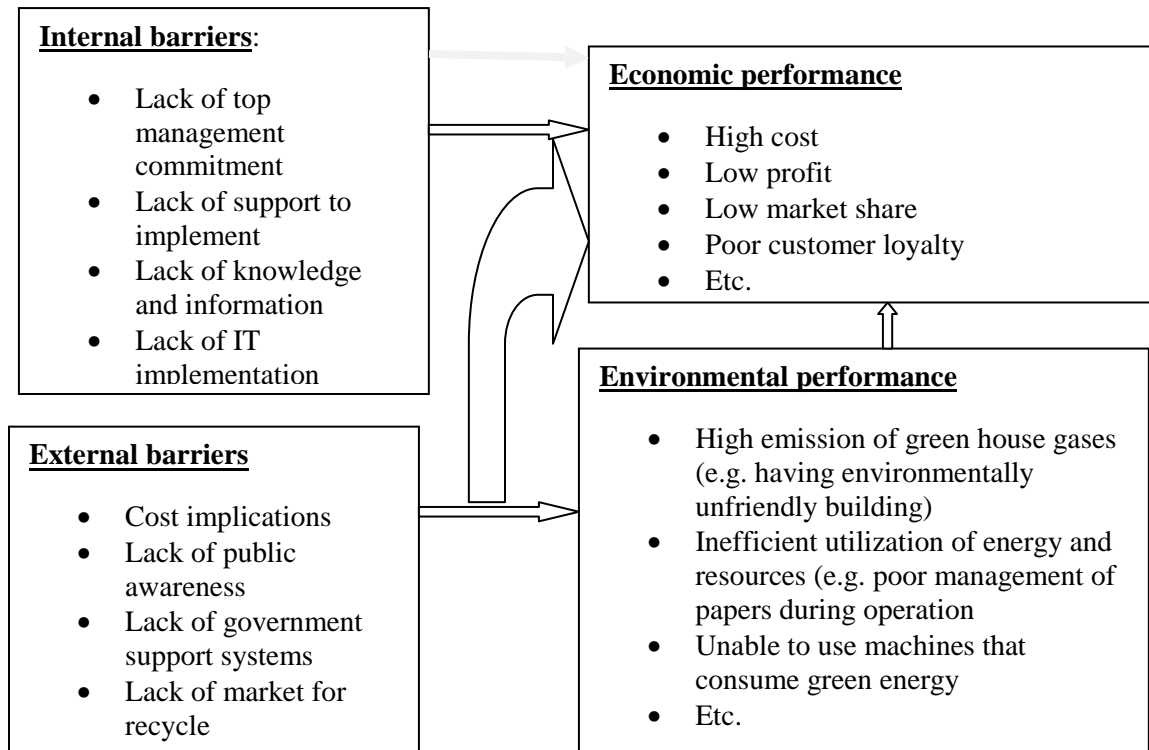
The literatures I have reviewed so far tried to show barriers of GSCM implementation, GSCM practices in financial and non-financial firms, benefits of implementing GSCM, drivers (motives) of GSCM implementation, the root causes of barriers to implement GSCM etc. Besides, some of the studies also showed that the relationship between GSCM implementation and firm performance is significant; whereas others said that the relationship between the two is insignificant. According to the literatures the common GSCM practices are eco-design, green distribution, environmental collaboration, green packaging, green manufacturing, green transportation etc. However, it is noted that most of the above practices are considered to be the practices developed by manufacturing organizations. As a result, it is an area of interest to be recognized and identified in commercial banks especially in Ethiopia.

The literatures also identified barriers of GSCM in several manufacturing, construction and mining industries. However, it is evident from the literature that only a few of the studies are able to investigate the barriers of green supply chain implementation on commercial banks. Furthermore, the literatures tried to show about the motives or pressures of adopting GSCM; but none of them are able to provide the root causes of barriers to implement GSCM.

Generally, identifying barriers to implement GSCM and green practices are new ideas and concepts in the case of commercial banks in Ethiopia. Therefore, providing information about this topic is very essential to concerned parties.

### 2.13 Conceptual frame work of barriers and GSCM practices

From the literature that is reviewed so far the terms that are used to determine internal and external barriers are economic performance and environmental performance. Internal barriers are hurdles that resulted out of the internal organization; whereas external barriers are those that come out of the external organization.

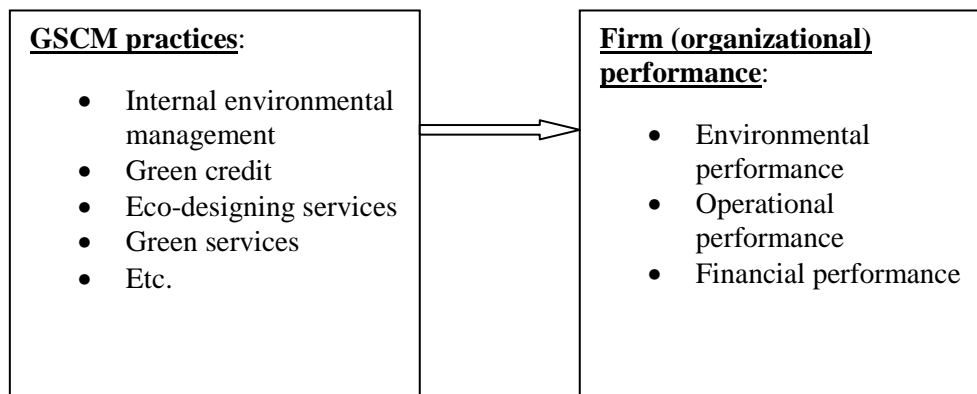


Source: adapted by the author

Fig. 2.1-Framework of barriers and GSCM practices

For green supply chain management (GSCM) to be adopted and the two motivators (economic & environmental motivators) to be effective, there must be a mechanism to reduce the above barriers. For instance, Carter and Dresner (2001) cited in Trigos (2007) have identified the importance of top management support and commitment in implementing successful GSCM whereas AlKhidir and Zailani (2009) and Yu (2007) similarly cited in Trigos (2007), identified the importance of technology advancement for sustainable supply chain so that economic performance and environmental performance of commercial bank of Ethiopia will be satisfactory.

Similarly, the proposed framework for the relationship between organizational performance and GSCM practices looks like the following.



Source: adapted by the author

Fig. 2.2-Framework of GSCM & firm performance

Terms like internal environmental management, green credit, eco-designing services and green services are components that represent green supply chain management practices; whereas organizational performance includes environmental performance, operational performance and financial performance.

## **Chapter-Three: Research Design and Methodology**

### **3.1. Introduction**

This chapter deals with the methodology and research design which is used to obtain answers to the already stated research questions. It includes sub-sections like research design, population & sample, sampling techniques & tools of data collection and data analyses.

### **3.2. Research Design and Strategy**

Based on the mode of investigation the kind of research deployed for this study is both qualitative and quantitative methods. Objective wise the method used to reach at the final result is more of descriptive research and correlational research. Basically this study employed mixed research method so that combination of the two can provide a better understanding of a research problem. In particular descriptive survey method of research design was applied for this study. This premise was supported by Creswell (2009) which argued surveys and experiments are appropriate strategies of enquiry for the quantitative approach.

### **3.3. Target Population, Sample and Sampling Techniques**

Population of the study was employees of commercial bank of Ethiopia under south Addis Ababa district which contains about 80 branches. This includes 363 managerial and service workers, 1883 professionals & clerical employees and 9 transporters. Therefore the total subjects studied under this research are 2255 employees. The relevant sample involved in the study becomes 12 managerial and service workers, 84 professionals, clerical employees and transporters. Totally, the sample size given for this study was 96 employees of CBE under SAAD district which are calculated using the formula of Yamane's simplified proportion. The formula is given by;  $[n=N/(1+Ne^2)]$ , where n-is the required sample size, N-total subjects of the study and e-is the margin error. The margin error or the precision level (i.e. 0.1, 0.05 or 0.01) is related to confidence level which is often valued as 90%, 95% or 99% respectively. In my case, the precision level or the margin error is considered to be 0.1 with a confidence level of 90%.

Of the many techniques that intended to apply, I employed stratified random probability sampling. Stratified random sampling is a randomly drawn sub-sample from samples within

different strata that are more or less equal on some characteristic. Because of this it was used to randomly draw certain branches as a sub-sample from the given 80 branches. SAAD is located south of Addis Ababa extending from Finfine branch, which is found at the heart of the city, to Bishoftu branch that is found in Bishoftu city.

### **3.4. Source and Tools of Data Collection**

Already collected and recorded secondary sources of data which are readily available from other sources were applied. Plus to that primary information which is usually done by descriptive and survey research will also be deployed. The researcher adopted structured questionnaire which are self administered and are developed for the purpose of setting the context. The information collected regarding to the dependent and independent variables were treated using the self administered questionnaire. Closed instead of open questions to reduce the variability of responses, facilitate the coding and interpretation, and avoid misunderstandings by clarifying the questions with a set of possible answers were prepared.

### **3.5. Data Analyses**

The procedures to be considered in this study can be grouped as pre-data and post-data gathering. Before the data was collected, the procedure that follows was preparing questionnaires, distributing questionnaires, collecting data, coding and present the data in a table form. Under the post-data gathering, the procedure to follow was data classification, tabulated and summarized using descriptive measures, percentages and frequency distribution tables while tables and graphs were used for presentation of findings. After the data was coded and interpreted, it was analyzed to produce the final result.

The method used to analyze the data gathered, coded and presented in a table form was analyzed using the SPSS software specifically descriptive statistics and inferential statistics. The former one is about testing results using mean, standard deviation and correlation coefficient; whereas the later one is about testing significance of differences. Finally the analysis was performed using linear regression models to establish the relationship between firm performance and implementation of GSCM practices.

### **3.6 Pilot Testing of the Questionnaire**

Pilot testing of the instrument is undertaken prior to the main study on a group of respondents. Tools4dev (2014) proposed that 5- 10 respondents from the sample frame is an appropriate to engage in a pilot test. This number was also dependent on the variations in the population; different scholars have divergent views of the number to pretest the questionnaire. Saunders et al, (2012) have postulated that a number of 10 for a small survey are ideal. While Mugenda and Mugenda (2003) argue that the number should not be large and a pretest sample of between 1% and 10 % is good depending on the sample size. The sample size population for this study is 96 respondents, hence 10 respondents from the sample size was sufficient for the purpose of pilot testing to ascertain the suitability, appropriateness and clarity of the questionnaire items in addressing the variables under investigation and at the same time determine the reliability of the instrument. The selected respondents for the pilot test were not again used in the main study.

### **3.7 Reliability and Validity of the Study**

Mugenda and Mugenda (2003) asserts that, the accuracy of data to be collected largely depend on the data collection instruments in terms of validity and reliability. To test validity, researcher discussed the questionnaire with some selected people from the sample and non-supervisory instructors who gave guidance on the validity of items to capture data that represents the variable under study.

Reliability, on the other hand, refers to a measure of the degree to which research instruments yield consistent results. Reliability analysis is calculated using Spearman-Brown method of calculating to show how best the questionnaires are suited for the study. Though the questionnaire items are randomly selected, but majority of them are taken for testing

Table3.1: reliability of data

S/N	Questionnaire Items																			
	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	6.11	6.12	6.13	6.14	7.2	8.1	8.2	8.4	8.5
1	2	2	2	1	5	3	3	3	3	3	2	3	4	1	4	1	2	2	3	3
2	5	5	2	5	2	2	4	3	1	5	5	5	3	3	2	4	2	2	4	4
3	4	1	3	2	1	2	4	3	4	4	3	3	2	3	2	3	1	3	1	2
4	1	3	2	2	5	2	3	4	3	4	4	3	2	3	2	2	4	2	1	1
5	2	2	2	4	2	4	3	2	4	5	5	3	4	2	1	2	1	3	1	1
6	3	3	3	4	4	2	1	3	4	4	3	3	3	3	2	2	3	3	3	3
7	5	5	1	3	2	5	2	5	3	2	1	2	2	2	3	5	2	2	1	1
8	2	3	2	4	2	2	2	1	4	2	2	4	1	2	2	2	2	1	5	1
9	2	2	1	4	1	4	1	1	2	1	1	1	4	1	1	1	2	2	1	1
10	2	3	4	2	4	5	2	1	3	4	5	2	1	4	2	3	1	2	2	4
TO	28	29	22	31	28	31	25	26	31	34	31	29	26	24	21	25	20	22	22	21

Source; Research Data 2017

Table3.2: Reliability of data computed using Spearman-Brown formula

	1HT	2HT	X-M	Y-M	(X-M)(Y-M)	(X-M) <sup>2</sup>	(Y-M) <sup>2</sup>	(X-M) <sup>2</sup> (Y-M) <sup>2</sup>
1	30	22	4.6	-5.2	-23.92	21.16	27.04	572.1664
2	30	38	4.6	10.8	49.68	21.16	116.64	2468.1024
3	25	26	-0.4	-1.2	0.48	0.16	1.44	0.2304
4	27	26	1.6	-1.2	-1.92	2.56	1.44	3.6864
5	25	28	-0.4	0.8	-0.32	0.16	0.64	0.1024
6	29	30	3.6	2.8	10.08	12.96	7.84	101.6064
7	22	32	-3.4	4.8	-16.32	11.56	23.04	266.3424
8	24	22	-1.4	-5.2	7.28	1.96	27.04	52.9984
9	16	18	-9.4	-9.2	86.48	88.36	84.64	7478.7904
10	26	30	0.6	2.8	1.68	0.36	7.84	2.8224
T	254	272	Σ		113.2	160.4	297.6	10946.848
M	25.4	27.2	R <sub>xy</sub>		0.64			

Source; Research Data 2017

In the above table, a pilot test of 10 respondents are taken to reply 20 questions from the questionnaire developed that are majority of the questionnaire developed under. Then after, I divide the questions into 2 halves to minimize the participants' tiredness at the end of the questionnaire and the reliability estimate will be artificially lower (Korb K. A., 2014). Specifically, X is score in the first half & Y is score in the second half whereas M is mean of the scores. Plus to that, dark columns represent scores in the first half and the white columns represent scores in the second half.

Using Spearman Brown Formula;

$$R_{xy} = \frac{\sum(X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum(X - \bar{X})^2 \sum(Y - \bar{Y})^2}}, \text{ X-person's score in the first half, Y-score in the second half}$$

$$X_{\square} = 25.4, Y_{\square} = 27.2 \text{ whereas } \sum(X - X_{\square})(Y - Y_{\square}) = \underline{113.2}, \sum(X - X_{\square})^2 \sum(Y - Y_{\square})^2 = \underline{10946.8}$$

Therefore,  $R_{XY} = 113.2 / \sqrt{10946.8} = \underline{0.64}$ . Using Spearman-Brown formula, Pearson correlation can be calculated as:  $R_{SB} = 2(R_{XY}) / 1 + R_{XY} = 2(0.64) / 1 + 0.64 = \underline{0.78}$ .

The Pearson correlation is good if it is between 0.7 and 0.8 (Korb K. A., 2014). Therefore, the one calculated for this study is in the range of a good status.

## Chapter-4: Results and Discussion

### 4.1 Introduction

This chapter discusses about analysis and interpretation of data obtained by means of questionnaires where a total of 85 responses were received. This implies that 88.5% of the total respondents were capable of returning back the questionnaire. The purpose of the study was to investigate to what extent GSCM practices were adopted by commercial banks and the barriers they faced. Green supply chain management practices have been found valuable in overcoming environmental impacts arising from commercial operations.

Ethiopia unlike other parts of the world experience series environmental impacts characterized by drought which is resulted due to environmental degradation and emission of green house gases. Previous researches show that most of the green house gases released to the environment are from developed nations' manufacturing companies. However, this doesn't mean that developing nations are passive participants toward the contribution of environmental pollution. Therefore, most enterprises including commercial banks have increased their environmental awareness due to regulatory, competitive, and marketing pressures and drivers.

### 4.2 Demographic Information of Respondents

In this study, the demographic information of respondents includes gender, educational background, work experience and title of the job they assigned. 68.24% of the respondents were male and 31.76% of the respondents were female. In case of educational background, 2.35% of them were high school graduates; 4.71% of the sample respondents were college diploma holders; the majority of respondents (i.e. 65.88%) were university undergraduates and only 27.06% of them were postgraduates.

Therefore, banks' most employees are categorized under university undergraduates. This means, the majority of employees in commercial banks are capable, knowledgeable and full of potential to operate in banks.

Regarding to work experience, 58.82% of the respondents were having work experience of less than 5 years; 27.06% of them have a work experience in the range of 5-10 years. Besides, respondents with working experience 10-15 and more than 15 were 7.06% of the total respondents.

Regarding the title or job assigned to employees, 45.88% of the respondents were customer service officers (CSO) whereas 15.29% of them were senior customer service officers; the amount of percentage found to be customer service managers (CSM) and junior customer service officers is the same (i.e. 11.76%). In addition, 3.53% of the respondents were branch managers; among the respondents that are assigned to be messengers were also 3.53%. Finally, 8.24% of the respondents were assigned in a job title other than banking operations. Particularly, people from human resource officer, human resource business officer and management trainees were involved in replying the questionnaire. Therefore, respondents from these departments were grouped to be 8.24% of the respondents.

This result can be revealed to the position that most of the respondents becoming not only customer service officers and senior customer service officers but also experienced in banking operations make commercial banks to be beneficial. In addition, this makes more valuable to the study.

### **4.3 Green Supply Chain Management Practices**

The questions are established to find out whether CBE is in a position of exercising green practices or not. The questions are designed in a 5-point Likert scale ranging from strongly agree (SA=1) to strongly disagree (SDA=5) and respondents are asked to give their independent responses accordingly. The results presented in table 4.1 on green practices supposed to be adopted by commercial bank of Ethiopia was based on inter-organizational cooperation to improve greening the environment, creating customer loyalty due to green practice, consideration of environmental issue in firm's vision & mission and being environmentally friendly by using renewable energy source. As Omonge (2012) discussed the measures of strongly agree/agree (SA/A) was taken to represent a variable with a mean value of 1 to 2.9 (i.e.  $1 \leq M \leq 2.9$ ). Similarly, the measure of neutral (N) was taken to represent a variable with a mean

value of 3 to 3.9 (i.e.  $3 \leq M \leq 3.9$ ). Finally, the measure of strongly disagree/disagree was taken to represent a variable with a mean score of 4 to 5 (i.e.  $4 \leq M \leq 5$ ).

**Table 4.1: One-Sample Test**

	Test Value = 3					
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
inter-organizational cooperation for green improvements	-.533	84	.595	-.08235	-.3896	.2249
customer loyalty through R&D on GSCM	.183	84	.855	.02353	-.2321	.2791
green environment matters	-2.262	84	.026	-.28235	-.5306	-.0342
renewable energy source	3.043	84	.003	.38824	.1346	.6419
e-banking services	-3.729	84	.000	-.55294	-.8478	-.2580

Source: Research data (2017)

In the above table, the test value is taken from the point that the mean value of 3.0 is the starting point for the Likert score 'Neutral'. Accordingly, the P-value for inter-organizational cooperation of the bank is approximately 0.6 which is greater than the level of significance 0.05. It indicates that inter-organizational cooperation for green improvements is not significantly different from the mean given on the test value. Similarly, the P-value given for increment of customer loyalty through R&D on GSCM is approximately 0.9 which is greater than the level of significance 0.05. This implies that the increment of customer loyalty is not significantly different from the mean value 3.0.

Comparatively, (P-value for green environment matters=0.026<the level of significance, 0.05). This indicates that the mean value of green environment is significantly different from the mean value given on the test value (3.0). From the above table it is also true that, 'renewable energy source and e-banking services' are significantly different from the mean value 3.0.

Table 4.2: GSCM practices in CBE

	Mean		Std. Deviation
	Statistic	Std. Error	Statistic
inter-organizational cooperation	2.9176	.15450	1.42438
creating customer loyalty through R&D about green practice	3.0235	.12853	1.18499
Consideration of environmental issue in CBE's mission & vision	2.7176	.12481	1.15069
environmentally friendly	3.3882	.12757	1.17609
Availability of e-banking products to promote green services	2.4471	.14829	1.36718
Average	2.8988	0.13674	1.26067

Source: Research data (2017)

The above table has been interpreted based on the measures taken to represent every variable which are supposed to explain green supply chain management practices in CBE. Respondents were asked whether they are agreed or not on CBE's inter-organizational cooperation to improve environmental considerations; and accordingly the result presented was a mean of 2.92. This indicates that inter-organizational cooperation of CBE and other suppliers of input to the bank are insufficient to support improvements of environmental issues. The following diagram also indicated that CBE's cooperation with suppliers and other partners is not in a good status to solve environmental problems.

### inter-organizational cooperation



Fig. 4.1: Respondents' answer on inter-organizational cooperation

The above Pie-chart which is computed from the frequency distribution shows that the cumulative percentage of strongly agree and agree is 47.06%. This implies that majority of the respondents did not agree on the statement or have no information to share about inter-organizational cooperation to improve environmental care. Likewise, respondents were asked if they are agree on the extent to which CBE is creating customer loyalty by adopting green practice; and according to their answers the mean value presented for this variable according to Table 4.1 is 3.02. This refers to the point that CBE is not creating customer loyalty due to the fact that GSCM practices are implemented but other else

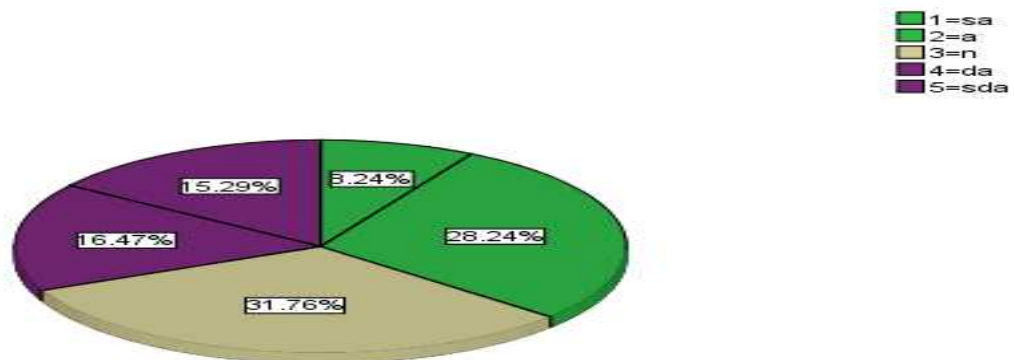


Fig. 4.2: Customer loyalty increment through R&D on GSCM

The result obtained on customer loyalty increment due to implementation of green practice was supported by the pie chart presented in figure 4.2; and is illustrated as respondents did not agree on creating customer loyalty due to the adaptation of GSCM practices. Furthermore, when asked their extent of agreement on activities that make CBE environmentally friendly, the response is concentrated on the Likert values of strongly disagree/disagree or neutral (i.e. mean value=3.39). This indicated that CBE is not engaged in a position of performing activities related to environmental issues. This is presented and elaborated by the following pie-chart.

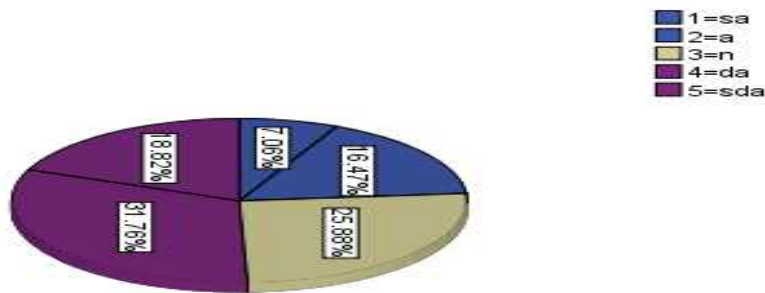


Fig 4.4: Renewable energy source

On the other side, respondents respond their agreement/disagreement to the question that CBE considers environmental issue in its mission and vision statements and the result is presented with a mean value of 2.72. The implication of the mean is that CBE considered the notion of environmental issue in its mission and vision statements.

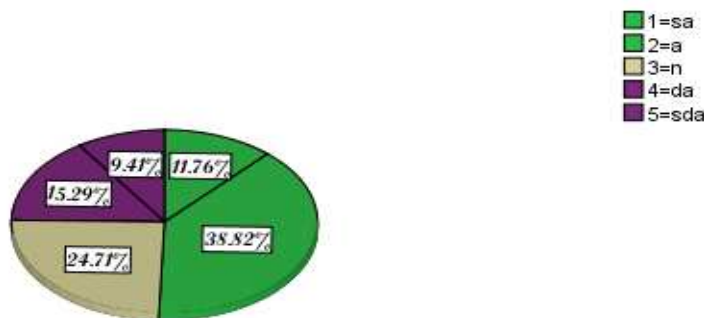


Fig. 4.3: Consideration of environmental issue in CBE's Mission and Vision

Additionally, the pie-chart presented for this shows 50.58% of the respondents agree or strongly agree that CBE’s mission and vision statements include environmental issues. Similarly, respondents were asked to agree/disagree or no idea on the availability of e-banking products to promote green services and the presentation on the above table is given by a mean value of 2.45. This result shows that e-banking products like mobile banking, internet banking and ATM cards are available in CBE to promote green services.

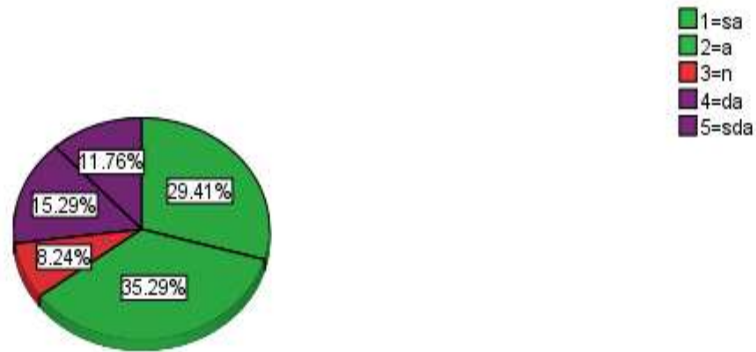


Fig. 4.5: E-banking products to promote green services

The above pie-chart also presented that majority of respondents strongly agree/agree on e-banking product availabilities to promote green services in commercial bank of Ethiopia.

When respondents are asked if the role of GSCM practices are appreciated in commercial bank of Ethiopia or not, 52.9% of them replied ‘yes’. It is interpreted in a way that majority of the respondents believe GSCM practices are appreciated in CBE and is presented by the following table.

**Table 4.3: Appreciation of role of green practice in CBE**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1=yes	45	52.9	52.9	52.9
2=no	40	47.1	47.1	100.0
Total	85	100.0	100.0	

#### 4.4 Benefits of adopting GSCM

Table 4.4- Expected benefits of implementing GSCM practices stated on the open questionnaire

Expected Benefits	
Internal Benefits	External Benefits
1. Improved customer loyalty	1. Own contribution on social development
2. Cost reduction	2. Economic benefit by preserving the natural environment
3. Builds Public Image of CBE.	3. Mitigate business risks & speed-up innovations
4. Reduces operating costs ( increasing efficiency)	4. Promote alignment with suppliers and customers
5. Mitigate business risks & speed-up innovations	5. Sustainability of resources
6. Increase adoptability	6. Improved service quality
7. Promote alignment with suppliers and customers	7. Brought eco-friendly business prices
8. Product differentiation & competitive advantage	8. Environmental preservation by effectively managing the papers that the bank consumes
9. Enables to provide better service	9. Balanced eco-system & pollution free environment
10. Efficiency	10. Sustainable environment
11. Better handling of supportive machines	11. Improvement of new inventions
12. Enables to have alternate energy source	12. Help to create cashless society
13. Create comfortable work place for employees	13. Creates suitable environment & healthy society
14. Effective allocation of resources	14. Efficiency and synergy between partners
15. Reduces bank's supplies expense	
16. Transforms into modern banking system	

Source: Research data (2017) *UGD- undergraduate degree, PGD-postgraduate degree, JCSO- junior customer service officer, CSO- customer service officer, SCSO-senior CSO, CSM- customer service manager, MGR-manager & HRO-human resource officer*

Table 4.3 shows that the respondents that were willing to reply the open questionnaire are UGD holders and PGD holders. The above table presented two general benefits of implementing GSCM: namely internal benefits and external benefits. Internal benefits are benefits that brought advantage to the internal side of the company. These benefits are those that are listed in bold numbers. Some of the common benefits listed repeatedly are building public image, providing quality service, creates comfortable work place for employees etc...

Comparatively, external benefits are those benefits that are advantageous to the external community and these are the benefits that are listed under the light and *italic* numbers. Some of the common external benefits stated by respondents were, own contribution on social development, economic benefit by preserving the natural environment, mitigate business risks & speed-up innovations, brought eco-friendly business prices, environmental preservation by effectively managing the papers that the bank consumes, balanced eco-system & pollution free environment, sustainable environment etc...

#### **4.5 Barriers of GSCM Implementation**

In the following table, the terms are parameters used to represent questionnaires which are barriers of GSCM implementation. To have a comprehensive report on the barriers of GSCM implementation, the factors were analyzed using mean and coefficient of skewness. The measure to the variables presented for the 5-point Likert scale is given by the following interval. Accordingly, SDA/DA has been taken to represent a variable with a mean score of 3.5 to 5.0 (i.e.  $3.5 \leq M \leq 5.0$ ), whereas neutral has been taken to measure a variable with a mean score of 2.7 to 3.4 (i.e.  $2.7 \leq M \leq 3.4$ ). Finally, the Likert scales strongly agree/agree was represented to measure a variable with a given interval between 1 and 2.6 (i.e.  $1 \leq M \leq 2.6$ ). The interval difference is calculated using  $4/5=0.8$  to reduce biasness. 4 is the range given from the 5-point Likert scale (i.e.  $5-1=4$ ), whereas 5 is taken since the scale is a 5-point Likert scale. A standard deviation greater than one ( $SD > 1$ ) refers that there is a significant difference on the impact of variables between respondents.

On the other side, coefficient of skewness measure was taken to represent variables with a value of greater than 1 ( $CS > 1$ ) is positively skewed; whereas a value of less than ( $CS < -1$ ) is negatively

skewed. Likewise, a coefficient of skewness between -0.5 and 0.5 ( $-0.5 < CS < 0.5$ ) indicates relative symmetry.

Table 4.5: Barriers that hurdle GSCM Implementation

	Mean	Std. Deviation	Skewness
lack of IT implementation	2.1529	1.09660	1.131
information gap	2.6588	1.06405	.179
shortage of resource to implement GSCM	2.6588	1.09711	.331
cost implication	2.9176	1.10423	-.051
Lack of HR quality	3.2500	1.25030	-.187
lack of top management commitment	3.0353	1.34028	-.035
knowledge gap	2.6235	1.31816	.412
insignificant waste released	2.7294	1.12745	.352
supplier reluctance	2.7412	1.15628	.337
market competition	2.7294	1.05094	.441
lack of government support	2.8118	1.11797	.173
lack of public awareness	3.0235	1.23420	-.123
lack of sustainability certification	2.9059	1.41945	.195
lack of corporate social responsibility	2.4471	1.24887	.555

Source: Research data (2017)

The above table shows that the mean used to represent all variables except lack of IT implementation, knowledge gap and lack of corporate social responsibility; respondents did not agree or have no idea that those barriers are hurdles to implement GSCM in commercial bank of Ethiopia SAAD. For instance, when respondents were asked their extent of agreement on the statement ‘information gap is a barrier that hurdles GSCM implementation in CBE’, they replied that information gap (with a mean value of approximately 2.7) is not the barrier that existed as an obstacle for GSCM implementation.

However, when respondents were asked to explain their feeling on lack of IT implementation, majority of them (2.2) agree or strongly agree that the existence of poor IT implementation in CBE is the main challenge in implementing GSCM. The corresponding coefficient of skewness

indicated that the data collected regarding this parameter is positively skewed to the right. Similarly, the mean used to represent lack of corporate social responsibility (2.4) refers to the point that lack of corporate social responsibility (CSR) is another barrier that negatively affects the implementation of GSCM. Additionally, the parameter 'knowledge gap' with a mean value of approximately 2.6 indicated that knowledge gap about GSCM is the weak side in implementing GSCM. Regarding skewness the above parameters in the table are either in a relative symmetric, positively skewed or negatively skewed.

#### 4.6 Mechanisms of reducing barriers

Table 4.6: Mechanisms to Reduce Barriers

Mechanisms	Frequency	Percent	Valid Percent	Cumulative Percent
1=CA (creating awareness)	37	43.5	43.5	43.5
2=GRO (government regulatory obligation)	3	3.5	3.5	47.1
3=SCA (sense of competitive advantage)	9	10.6	10.6	57.6
4=BIA (business- IT alignment)	9	10.6	10.6	68.2
5=CRR (capability to respond & recover)	6	7.1	7.1	75.3
6=ALL	21	24.7	24.7	100.0
Total	85	100.0	100.0	

Source; Research data (2017)

From the above table it is quite clear that creating awareness to the society and employees of CBE is the most suitable mechanism to mitigate barriers of GSCM implementation and this is supported by most of respondents' agreement (i.e. 43.5%). The second largest figure in the above table is 24.7% which represents all the parameters listed above are good enough to reduce barriers. Additionally, 10.6% of respondents agreed that business-IT alignments as well as creating sense of competitive advantage are the mechanisms used to handle those barriers that are listed in table 4.4. Furthermore, when respondents were asked to give their comment on the mechanisms of capability to respond and recover, 7.1% of them agreed that this is the mechanism used to mitigate barriers of GSCM implementation.

Generally, it is understood that majority of the respondents replied that creating awareness, creating sense of competitive advantage, business-IT alignment and others are the mechanisms

suitable to reduce barriers of implementing GSCM practices in commercial bank of Ethiopia. Besides, some of the respondents list down other techniques of mitigating barriers. For instance, rewarding CBE'S staffs for greater achievement, management coordination in strategy implementation, effective utilization of resources, cooperating with partners & suppliers on GSCM matters, hiring IT experts and providing better training about GSCM practices are some of the mechanisms that were revealed by respondents.

#### 4.7 Root causes of Barriers of Implementing GSCM

The average value of the root causes listed down on the table below is 2.5 with a standard deviation of approximately 1.1 and Skewness of 0.4. All yielded positive skewness and a strong standard deviation. Given the intervals used to measure the 5-point Likert scales above, the resulted descriptive statistics is interpreted using the central tendency mean value and using dispersion of standard deviation and coefficient of skewness.

Table 4.7: Causes of Barriers to Implement GSCM

Causes	N	Mean	Std. Deviation	Skewness
capacity constraint	85	2.7176	1.14030	.135
diverting primary objective of company	85	2.5059	1.08697	.583
Globalization	85	2.4588	1.12919	.384
priority of suppliers	85	2.2000	.92324	.517
lack of education and training	85	2.3882	1.24493	.546
Ave.		2.4541	1.10493	0.433

Source; Research data (2017)

The above table revealed that the mean value given for the root cause capacity constraint is approximately 2.7 which indicates respondents were not agree on the notion that capacity constraint is the root cause of barriers to GSCM implementation.

However, when respondents are asked if diverting primary objective of company is a root cause of barriers to implement GSCM, the average value (2.5) indicates that respondents were agree on that. Similarly, the mean value given for the root cause globalization is 2.5 which refers to the point that respondents were agree on the idea 'globalization is one root cause for barriers to

implement GSCM. Furthermore, respondents were asked if they agree or not on the statement ‘Suppliers and customers working with CBE favor making profit than environmental performance’ which is represented by the parameter priority of suppliers and customers, it is revealed that they did agree or strongly agree on the given statement.

Generally, the average value of the means on the above table shows the parameters used to represent questionnaires related to root causes of barriers to implement GSCM are the starting points to barriers of GSCM implementation.

#### 4.8 Relationship between GSCM and Firm Performance

It was also dealt to establish the relationship between GSCM practices and firm performance of commercial bank of Ethiopia. It was conducted a regression analysis with a linear equation to explain the relationship between the two variables. In a regression analysis, the linear equation can be written in the form of:  $Y=A+BX_1+CX_2+DX_3+FX_4+GX_5$ , where Y-in this case refers to firm performance, A- is the intercept known as constant factor. Coefficients B to G are said to be regression coefficients. In this study,  $X_1$  is green service,  $X_2$  is eco-designing supplementary instruments,  $X_3$ -is green credit,  $X_4$ -service operation efficiency and  $X_5$ - green energy. Unstandardized coefficients indicate how much the dependent variable varies with an independent variable when all other independent variables are held constant.

Table4.8: Impact of GSCM on firm Performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.885	.307		2.882	.005
green services like e-banking	.185	.098	.213	1.893	.062
eco-designing in supplementary instruments	.001	.088	.001	.008	.993
green credit	.087	.101	.112	.863	.391
service operation efficiency	.139	.094	.184	1.475	.144
green energy	.041	.057	.077	.733	.466

From the above table, the regression model can be written as:

$Y=0.885+0.185X_1+0.001X_2+0.087X_3+0.139X_4+0.041X_5$ ; this regression equation established that by assuming all independent variables zero, the firm performance of CBE becomes 0.885.

It was also presented that by taking all other independent variables zero, a unit increase in the GSCM practice component green service would lead to 0.185 increases in the firm performance of commercial bank of Ethiopia. In a similar sense, a unit increase in eco-designing of the supplementary instruments makes the firm performance of CBE to rise by 0.001 and a unit addition to the independent variable 'green credit' makes CBE'S performance to increase by 0.087. Furthermore, when service operation efficiency increases by one, firm performance of CBE raises by 0.139; and when green energy raises by a unit, CBE's performance would increase by 0.041.

**Table4.9: Correlations**

		firm performance	green services like e-banking	eco-designing in supplementary instruments	green credit	service operation efficiency	green energy
firm performance	Pearson Correlation	1	.259**	.188*	.229*	.284**	.041
	Sig. (1-tailed)		.008	.043	.018	.004	.354
	N	85	85	85	85	85	85
green services like e-banking	Pearson Correlation	.259**	1	.324**	.122	.221*	-.103
	Sig. (1-tailed)	.008		.001	.133	.021	.175
	N	85	85	85	85	85	85
eco-designing in supplementary instruments	Pearson Correlation	.188*	.324**	1	.459**	.365**	-.008
	Sig. (1-tailed)	.043	.001		.000	.000	.473
	N	85	85	85	85	85	85
green credit	Pearson Correlation	.229*	.122	.459**	1	.509**	-.045
	Sig. (1-tailed)	.018	.133	.000		.000	.341
	N	85	85	85	85	85	85
service operation efficiency	Pearson Correlation	.284**	.221*	.365**	.509**	1	-.049
	Sig. (1-tailed)	.004	.021	.000	.000		.326
	N	85	85	85	85	85	85
green energy	Pearson Correlation	.041	-.103	-.008	-.045	-.049	1
	Sig. (1-tailed)	.354	.175	.473	.341	.326	
	N	85	85	85	85	85	85

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

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

All factors were tried to correlate using Pearson's one-tailed correlation. Green service factors like e-banking had a positive correlation of 0.259 with firm performance of CBE and the corresponding P-value  $0.008 < 0.05$  which indicates the correlation between the two variables was significant. 0.05 was taken because the correlation computed was significant at the P-value 0.05.

Eco-designing of supplementary instruments was positively correlated with the dependent variable firm performance by Pearson's correlation of 0.188. Green credit was positively correlated by 0.229 with the dependent variable. This implies that making the credit process green could be one mechanism to reduce cost of raw materials. In a similar way, service operation efficiency was positively correlated by 0.284 with firm performance. This refers that making transactions using green products like e-banking enhances service Excellence in commercial bank of Ethiopia.

However, though there was a positive correlation of 0.041 between the independent variable and dependent variable green energy, the corresponding P-value  $0.354 > 0.05$  indicated that the correlation between firm performance and green energy was not significant. This kind of relationship between firm performance and GSCM implementation is similar with the findings of Omonge (2012), Korir (2014) and Evans (2011).

## **Chapter-5: Summary, Conclusion and Recommendation**

### **5.1 Summary**

The purpose of this study was to identify barriers of implementing GSCM practices, establish a relationship between GSCM practices and firm performance, find out benefits of implementing GSCM, sort out the green practices that were exercised in CBE and ascertaining the root causes of barriers to implement green supply chain management. The data for analysis was obtained by using questionnaires designed to employees of commercial bank of Ethiopia specifically to south Addis Ababa district employees. From the data analysis, presentation and interpretation in chapter four, the study sorted out some issues related green practices, barriers of implementing GSCM, benefits of implementing GSCM and the impact of GSCM on firm performance of CBE. The findings related to the objectives are summarized as follows.

#### **5.1.1 GSCM Practices in CBE**

The study established that inter-organizational cooperation for green improvements was not enough to support the green supply chain management practices in CBE, south Addis Ababa district. It is also revealed that customer loyalty increment through R&D on GSCM and using renewable energy sources like solar energy were not practiced as much in commercial bank of Ethiopia. In a general term, it did not mean that cooperation of CBE with other organizations on green matters is negligent. The extent of agreement on creating customer loyalty through R&D on GSCM is greater than having no idea or greater than the extent of disagreement. This implied that there was a small extent of running R&D on green supply chain management to create customer loyalty. But in the case of renewable energy source, there is a total disagreement that commercial bank of Ethiopia, south Addis Ababa district was in a position of using renewable energy sources like solar energy.

However, inclusion of green environment matters in CBE's mission & vision together with availability of e-banking products were solely practiced to support GSCM implementation in commercial bank of Ethiopia, SAAD. Inclusion of green matters in the company's mission and vision were not absolutely supported when it comes to ground. Additionally, e-banking products were tried to introduce in commercial bank of Ethiopia but their applicability was not so much

worthy to say GSCM is practicable. Furthermore, it was established that the role of green supply chain management practices was appreciating in commercial bank of Ethiopia.

### **5.1.2 Benefits of Adopting GSCM**

On the expected benefits of implementing green supply chain management, the study established two kinds of benefits; namely internal benefits and external benefits. The most common internal benefits revealed in the study were building public image, providing quality service and creating comfortable work place for employees. From the many internal benefits the study tried to state some of the regularly raised benefits.

On the other side, the most common external benefits stated on the study were contribution to society development, aggregate economic benefit by preserving the natural environment, mitigate business risks & speed-up innovations and balanced eco-system & pollution free environment. These external benefits are the most repeatedly stated benefits among some others.

### **5.1.3 Barriers of Implementing GSCM in CBE**

From the study, it is evident that lack of IT infrastructure was the potential barrier that prohibits implementation of green supply chain management in commercial bank of Ethiopia, the case of south Addis Ababa district. Similarly, the study revealed that knowledge gap was another challenge that could disallow the implementation of green supply chain management in the bank. Plus to that, it was established that commercial bank of Ethiopia was not engaged in social duties like corporate social responsibility which forbids GSCM implementation.

However, the study revealed that the barriers information gap and resource shortage to adopt green supply chain management were not the potential barriers to implement green supply chain management. In addition, cost implication and lack of HR quality were other stated barriers which could not prohibit the implementation of green supply chain management in commercial bank of Ethiopia. According to the study established, lack of top management commitment, knowledge gap and insignificant waste disposal were not the negative elements to discourage green supply chain management implementation in commercial bank of Ethiopia the case of SAAD. Besides, it was found that supplier reluctance, market competition and lack of government support were challenges of implementing GSCM in a very small extent. Finally, it

was deduced that lack of public awareness and lack of sustainability certification were barriers of green supply chain management implementation to a very small extent.

On the other hand, the study tried to reveal the root causes of these barriers and found that except capacity constraint all other causes like diverting primary objective of company, globalization, first priority of suppliers and lack of education & training are the root causes to barriers of GSCM implementation in a great extent. However, capacity constraint was not the starting point for barriers to implement GSCM.

#### **5.1.4 The Relationship between GSCM Practices and Firm performance**

It was established that regression coefficients of all independent variables are positive which could indicate to the attribution that GSCM practices and performance of CBE are directly proportional. Except one independent variable (green energy), it was concluded that all independent variables are positively correlated with the dependent variable. The regression equation established that taking all factors into account constant at zero, the financial performance of the bank will be 0.885. For instance, green service factors like e-banking had a positive correlation of 0.259 with firm performance of CBE and the corresponding P-value  $0.008 < 0.05$  which indicates the correlation between the two variables was significant. 0.05 was taken because the correlation computed was significant at the P-value 0.05.

#### **5.2 Conclusion**

The study concluded that commercial bank of Ethiopia has adopted different green supply chain management practices. Among the practices adopted in the bank are inclusion of green matters in the bank's mission and vision and availability of e-banking products to promote green service are in place. To elaborate, the bank is entering into e-banking products to greening the service provided so that service excellence can be maximized. However, majority of the green components that were under study was not practiced in commercial bank of Ethiopia. These green components are inter-organizational cooperation for green matters, renewable energy source and creating customer loyalty through R&D on GSCM. But, the resultant average of the analysis showed that CBE was just started to practice some elements of green supply chain management practices.

Based on identifying barriers to implement GSCM, the study accomplished that more than half of the aforementioned barriers to implement green supply chain management were not the potential barriers that forbid implementation of green supply chain management. For instance, it was concluded that information gap and resource shortage was not considered as a barrier to implement GSCM.

On the other hand, the study concluded that lack of IT infrastructure, knowledge gap and lack of corporate social responsibility were the most identified barriers that prohibit commercial bank of Ethiopia from implementing green supply chain management. On other words, commercial bank of Ethiopia got a difficulty to implement GSCM because of these barriers.

Regarding to root causes of barriers to implement GSCM, the study concluded that diverting primary objective of company, globalization, first priority of suppliers and lack of education & training are the root causes to barriers of GSCM implementation in CBE. However, it was found that capacity constraint of the bank was not the starting point for the barriers discussed under chapter-four.

Regarding to the impact of GSCM on firm performance, it was concluded that the relationship established is significant which is consistent with several researchers. With the exception of green energy, the correlation between e-banking services, eco-designing in supplementary instruments, green credit & service operation efficiency on one side and firm performance on the other side are positively correlated with P-value less than the critical value.

### **5.3 Recommendation**

In reference to the study, it is understood that green supply chain management practices have a critical role in firm performance. The study recommends that a very green environment would be achieved if commercial bank of Ethiopia and other private owned banks completely implement all GSCM practices. It is also recommended that CBE should encourage its borrowing partners to invest in environmental matters. It is better idea to have R&D department that can run research and development on GSCM. Periodic training and education would be a better mechanism to create awareness among employees and customers. Besides, the bank should look at the IT- infrastructure for the flat implementation of GSCM. GSCM implementation would not

be successful unless the government shows the right hand for support. The study recommends that making organizational stand on environmental matters open to outsiders is a good technique to share information among partners. In view of that, managers need to improve their knowledge of GSCM

Findings of this paper can be utilized to recommend several dimensions for future research. The relationship between GSCM practices and general firm performance needs another research that exactly determine their level of significance.

## **References**

- Addison, T & Geda, A. 2001. ‘ Ethiopia’s new financial sector and its regulation’, a discussion paper No. 2001/55, world institute for development economics research: United Nations University.
- Aintablian, et al. 2007. ‘Bank monitoring and environmental risk’, *Journal of Business Finance & Accounting*, 34(1/2): 389-401.
- Ashish, et al., 2011. ‘Study of Green Supply Chain Management in the Indian Manufacturing Industries: A Literature Review cum an Analytical Approach for the measurement of performance’. *IJCEM International Journal of Computational Engineering & Management*, Vol. 13.
- Australia. Department of Institute for Sustainable Futures, Barriers and Drivers to Sustainability in Local Government (2009) Guide to sustainability learning.
- Azevedo, et al. 2011. ‘The Influence of Green Practices on Supply Chain Performance: A Case Study Approach’, *Transportation Research Part E*, Vol. 47: 850-871.
- Birett, M. J. 1998. ‘Encouraging green procurement practices in business: a Canadian case study in programme development’, In *Greener Purchasing: Opportunities and Innovations*, Russel T (ed.). Greenleaf: Sheffield: 108–117.
- Cetinkaya et al. 2011. ‘Sustainable supply chain management.’ London: Springer publishing.
- Chopra, S. & Meindl, P. 2007. ‘Supply chain management: strategy, planning and operation, Upper Saddle River, New Jersey: Pearson.
- Creswell, J. W. 2009. ‘Research design: qualitative, quantitative, and mixed methods approaches. 3<sup>rd</sup> edition. Thousand Oaks, CA: SAGE Publications.
- Diab et al. 2015. ‘The Impact of Green Supply Chain Management Practices on Organizational Performance: A Study of Jordanian Food Industries’, *Journal of Management and Sustainability*, 5(1).
- Elliot, S. 2011. ‘Trans-disciplinary perspectives on environmental sustainability: a resource base and framework for IT-enabled business transformation’, *MIS Quarterly*, 35(1): 197-236.
- Financial Standards Forum, Standards Forum, Country Brief: Ethiopia, March 24, 2008.

- Gezae A. 2015. Determinants of Banking Sector Development in Ethiopia. Degree of masters of Science in Accounting and Finance theses. Addis Ababa University, Addis Ababa.
- Geda A. 2006. 'The Structure and Performance of Ethiopia's Financial Sector in the Pre- and Post-Reform Period with a Special Focus on Banking', united nation university; Addis Ababa.
- Gnoni, et al. 2011. 'A multi-criteria approach for strategic evaluation of environmental sustainability in a supply chain', *International Journal of Business Insights and Transformation*, 3(3): 54-61.
- Green, et al. 1996. 'Purchasing and environmental management: interaction, policies and opportunities', *Business Strategy and the Environment*, 5: 188-197.
- Hadjikhani et al. 2012. 'Considering on Green Supply Chain Management Drivers, as a Strategic Organizational Development Approach, Malaysian perspective', *Australian Journal of Basic and Applied Sciences*, 6(8): 146-165.
- Habiba, A. 2016. 'Green Supply Chain Management in India: An Overview', *International Journal of Advanced Research*, 4(5): 385-390
- Huang, F. & Wu, Y.2003. 'The Research of Green Supply Chain Management and its Development', *Tianjin University Journals (Science Version)*, (7): 252-256.
- Hsu, C. & Hu, A. 2008. 'Green Supply Chain Management in the Electronic Industry'. *International Journal of Science and Technology*, 5(2): 205-216.
- Jemutai, K. G. 2014. 'Green supply chain management practices and performance of firms in automotive industry in nairobi, Kenya'. Degree of Master of Business Administration. University of Nairobi, school of business, Nairobi.
- Kamolkitiwong, A. & Phruksaphanrat, B. 2015. 'An Analysis of Drivers Affecting Green Supply Chain Management Implementation in Electronics Industry in Thailand', *Journal of Economics, Business and Management*, 3(9).

- Kannan et al. 2013. 'Barriers analysis for GSCM implementation in Indian industries using analytic hierarchy process', 2013 Elsevier B.V.
- Kimechwa, V. K. 2015. 'Impact of supply chain management practices on the performance of Banks in Kenya: A case of Postbank', *International Journal of computer applications technology & research*, ISSN: 2319-8656.
- Khattab et al. 2015. 'The Impact of the Green Supply Chain Management on Environmental-Based Marketing Performance', *Journal of Service Science and Management*, 8: 588-597.
- Kirchoff, J. F. 2011. 'A Resource-Based Perspective on Green Supply Chain Management and Firm Performance', Doctoral dissertation of graduate school, University of Tennessee, Knoxville.
- Korb, K. A. (Dr.) (2014). 'Reliability and Validity: university of Jos, Nigeria.
- Kumar et al. 2015. 'Factors affecting green SCM Implementation in MSME's', *International Journal of Innovative Science, Engineering & Technology*, 2(12).
- Laari S. 2016. 'Green supply chain management practices and firm performance: evidence from finland. University of Turku, Finland.
- Lambert et al. 1998. *Fundamentals of Logistics International Edition*. McGraw-Hill Publishing Co.
- Lawrence, M. 2009. 'Sustainable operations management: a typological approach', *journal of industrial engineering and management*, 2(1): 10-30.
- Lin, R. & Sheu, C. 2012. 'Why Do Firms Adopt/Implement Green Practices?– An Institutional Theory Perspective', *International Conference on Asia Pacific Business Innovation and Technology Management, Social and Behavioral Sciences* 57 (2012): 533 – 540.
- Lundgren, M. and Catasús, B. 2000. 'The bank's impact on the natural environment – on the space between 'what is' and 'what if'', *Business Strategy and the Environment*, 9: 186-195.

- Luthra et al. 2011. 'Barriers to implement green supply chain management in automobile industry using interpretive structural modeling technique-An Indian perspective', *journal of industrial engineering and management*, 4(2): 231-257.
- Mentzer, et al. 2001. 'Defining supply chain management', *Journal of Business Logistics*, 22(2): 1-25.
- Menzel et al. 2010. 'Can companies profit from greener manufacturing?', *Measuring Business Excellence*, 14(2): 22-31.
- Mohd, J. & S. 2015. 'Benefits on implementation of green supply chain management in manufacturing industries', *International Journal of Advanced Technology in Engineering and Science*, 03(06).
- Muduli, K. and Barve, B. 2013. 'Role of Green Issues of Mining Supply Chain on Sustainable Development', *International Journal of Innovation, Management and Technology*, 2(6): 484-489.
- Mugenda, O., Mugenda, A. 2003. 'Research methods: Quantitative and Qualitative approaches', Africa Centre for technology studies: Nairobi.
- Muthuka U. M. 2015. 'Green supply chain management practices and operational performance of commercial banks in Kisumu', Degree of Master of Business Administration. University of Nairobi, school of business, Nairobi.
- Nawrocka, D. 2008. 'Inter-Organizational Use of EMSs in Supply Chain Management: Some Experiences from Poland and Sweden', *Corporate Social Responsibility and Environmental Management*, 15: 260-269.
- Nikunj, K. 2016. 'Analysis Of Barriers For Implementing Green Supply Chain Management In Small and Medium Sized Enterprises (SMEs) of India', *International Journal of Humanities and Management Sciences (IJHMS)* 4 (3): 2320-4044.

- Ninlawan et al. 2010. International multi-conference of engineers and computer scientists: *The Implementation of Green Supply Chain Management Practices in Electronics Industry, March 17-19, 2010, Hong Kong.*
- Noor, et al., 2012. 'GSCM: A review and research direction', *international journal of managing value and supply chain*, 3 (1).
- Obisso, E. I. 2011. A survey of green supply chain management practices in the petroleum marketing firms in Kenya. Degree of MBA. University of Nairobi, Nairobi.
- Olugu, et al. 2010. 'A Comprehensive Approach in Assessing the Performance of an Automobile closed loop Supply Chain', *Sustainability*, 2, 871-879.
- Omonge, W. 2012. Green supply chain management practices and competitiveness of commercial banks in Kenya. Degree of Master of Business Administration. University of Nairobi, Nairobi.
- Peeters, H. 2003. 'Sustainable development and the role of the financial world', *Environment, Development and Sustainability*, 5(1): 197-230.
- Sahoo, P. and Nayak, B.P. 2007. 'Green banking in India', *Indian Economic Journal*, 55(3): 82-98.
- Saunders et al. 2012. *Research methods for business students*. 6th Ed. Italy: Pearson education ltd.
- Seuring, S. & Muller, M. 2008. 'Core issues in sustainable supply chain management-A Delphi study', *journal of Business strategy and environment*, 17(8): 455-466.
- Sreejith, B. 2012. 'A Hierarchical Framework of Barriers to Green Supply Chain Management in the Construction Sector', *Journal of Sustainable Development*, 5(10): 1913-9063.
- Shiekh, A. S. 2014. 'Effect of green operations practices on financial performance of commercial banks in kenya. Degree of master of business administration, school of business, university of Nairobi.

- Srivastava, K.S. 2007. 'Green supply-chain management: a state-of-the-art literature review', *International Journal of Management Reviews*, 9(1):53–80.
- Supply chain and logistics association Canada (2009). 'GSCM manufacturing- a Canadian perspective', Canada.
- Taylor W. 2005. 'North America supply chain World Conference': *best practices in implementing green supply chains, April 5, 2005*, LMI Government consulting.
- Testa et al., 2009. 'Determinants and effects of green supply chain management. Main working paper series, Piazza Martiri della Libertà: 33, 56127 Pisa (Italy).
- Thompson, P. 1998a. 'Bank lending and the environment: policies and opportunities', *International Journal of Bank Marketing*, 16(6): 243-252.
- Tools4dev how to guide (2014) available at: <http://www.tools4dev.org>. (Accessed: 2014).
- Torres et al. 2004. 'A Theoretical Approach for Green Supply Chain Management,' Federal University Do Rio Grande, Industrial Engineering Program, NATAL-BRAZIL.
- Trigos, O. B. 2007. An investigation of green supply chain management in the construction industry in the UK. Degree of Master of Science. School of Environmental Sciences, Norwich, NR4 7TJ.
- Vachon, S. & Klassen, R.D. 2006. 'Extending green practices across the supply chain: the impact of upstream and downstream integration', *International Journal of Operations & production Management*, 26(7): 795-821.
- Vrijhoef, R. and Koskela, L. (1999), 'Roles of supply chain management in construction', *Proceedings IGLC-7*, University of California, Berkeley.
- Wu, Y. J. and Cheng, W. 2006. 'Reverse logistics in the publishing industry: China, Hong Kong, & Taiwan', *International Journal of physical distribution & logistics management*, 36(7):507-523.

Yasir et al. 2016. 'Empirical Study on Implementation of Sustainable Supply Chain Management: A Case of Textile Sector', *International Journal of Sustainability Management and Information Technologies*, 2(4): 21-27.

Zhu et al. 2007. 'Green supply chain management: pressures, practices and performance within the Chinese automobile industry', *Journal of Cleaner Production*, 15: 1041-1052.

## Appendix: Questionnaire

Addis Ababa University School of Commerce

### **Department of Logistics and Supply Chain Management (LSCM)**

#### **A Questionnaire to be filled by Employees of CBE**

My name is Miruts Abera from LSCM department Addis Ababa University, School of Commerce.

#### **Dear respondents;**

This is to be conducted as part of a research thesis which shall be submitted in partial fulfillment of Masters of Art Degree in LSCM. This questionnaire is meant to collect information about the barriers of implementing green supply chain management in CBE the case of South Addis Ababa District.

Your devoted participation in supplying the mandatory data is highly essential for successful completion of the study. The information you provide will be kept confidential and be used only for an academic purpose, please kindly answer the questions as appropriate.

I would like to thank you in advance for your participation. Please do not hesitate to ask me or to call/mail if you have any doubt on the questions.

Miruts Abera

Mob. +251920471342

Email: mirutsn@gmail.com

**Part I: Personal information**

- 1. Gender: Male  Female
- 2. Educational status: High school graduate  College diploma   
 Undergraduate degree  Postgraduate degree  PHD
- 3. Period of operation: less than 5  5-10  10-15  more than 15
- 4. Title/position: .....

**PART II:** The following sentences are used to measure green supply chain management (GSCM) practices, barriers of GSCM implementation, causes of these barriers, relationship between GSCM & firm performance. A 5-point Likert scale is used and is given by: **SA**=strongly agree, **A**=agree, **N**=neutral, **DA**=disagree, **SDA**=strongly disagree; please put tick (✓) mark accordingly.

<b>5. Green supply chain management (GSCM) practices</b>	SA	A	N	DA	SDA
5.1. There is <u>inter-organizational cooperation</u> for <u>green improvements</u> in CBE.					
5.2. Your organization is working to increase <u>customer loyalty</u> through <u>R &amp; D</u> on GSCM.					
5.3. Inclusion of <u>green environment matters</u> in the company’s vision and mission is applicable.					
5.4. The use of <u>renewable energy source</u> like solar energy and utilizing environmentally friendly building is increasing from time to time in CBE.					
5.5. Wide-range application of <u>e-banking</u> is available in CBE.					
<b>6. Barriers that prohibit implementation of GSCM</b>	SA	A	N	DA	SDA
6.1. IT infrastructure is adequately available in your company.					

6.2. Company information systems used to share with outsiders are highly available.					
6.3. The resource available in CBE is sufficient enough to implement green practice.					
6.4. The bank targets environmental issues instead of short term objectives and price oriented approaches.					
6.5. The bank frequently provides better training about the adoption of green practices.					
6.6. Top management is highly committed to adopt sustainable environment. (lack of top mgt commitment)					
6.7. There is a knowledge gap to adopt green practice in CBE.					
6.8. I think that the waste released by the bank to the environment is insignificant.					
6.9. Suppliers and customers are hesitant about being part of a new system.					
6.10. Competition between banks makes strategists too busy to consider in adopting green practice.					
6.11. CBE is fully supported by the government to implement green environment.					
6.12. The public is aware of using green services like mobile-banking, internet-banking & ATM card.					
6.13. Quality assurance enterprises are existed to encourage sustainability of commercial banks.					
6.14. CBE is socially responsible for its acts in the environment.					
<b>7. Causes of barriers to implement GSCM practice</b>	SA	A	N	DA	SDA
7.1. I am afraid there is capacity constraint in the bank to adopt green practice.					
7.2. CBE gives much intention to social responsibility since the primary purpose of its existence is the public.					
7.3. Globalization prohibits banks' GSCM implementation.					
7.4. Suppliers and customers working with CBE favor making profit than environmental performance.					
7.5. I feel shorthanded about the concept of green practice implementation.					
<b>8. Relationship between implementation of GSCM &amp; firm performance</b>	SA	A	N	DA	SDA

8.1. Implementing green practices makes CBE to be more efficient.					
8.2. Providing <u>green services</u> like e-banking makes the bank more profitable.					
8.3. Market share of the bank increases as a result of <u>eco-designing</u> in <u>supplementary instruments</u> .					
8.4. Raw material cost reduces due to <u>green credit</u> available in CBE.					
8.5. <u>Service operation</u> in CBE becomes <u>efficient</u> when customers transact through e-banking.					
8.6. Green practice like accommodation of <u>green energy</u> improves public image of CBE.					

9. As an individual do you believe that the role of green practice in CBE is appreciating? Yes  No

10. Which of the mechanism/s do you think is/are more suitable to reduce barriers of implementing GSCM? Creating awareness  Government regulatory obligations  Sense of competitive advantage  Business-IT alignment  Capability to respond and recover

If there are others, please specify.....

11. What benefits do you expect from implementing green supply chain management (GSCM) practices?.....