The Effect of Green Supply Chain Management Practice on Organizational Performance, Case Study on Habesha Breweries S.C, Debre Berhan, Ethiopia

A Thesis Submitted to the School of Graduate Studies of Jimma University in Partial Fulfillment of the Requirements for the Award of the Degree of Master of Business Administration (MBA)

By

LINDA ASSEFA

Under the Supervision of

EMNET NEGASH

And

MOHAMMED YASSIN

MBA Program, Department of Management, College of Business and Economics, Jimma University, Jimma, Ethiopia

May, 2020

Abstract

This study was carried out to find out the effect of green supply chain management practices on the organizational performance of Habesha Breweries S.C Debre Berhan, Ethiopia. The study has four specific objectives; to analyze the effect of eco-design practice on organizational performance by Habesha Breweries S.C, to evaluate the effect of green procurement on organizational performance by Habesha Breweries S.C, to find out the effect of green manufacturing on organizational performance by Habesha Breweries S.C, to determine the effect of operations and reverse logistics on organizational performance by Habesha Breweries S. co. Descriptive and explanatory (Cause and effect) study design was used for analysis. For this particular study quantitative study technique was used. Both primary and secondary data were used to answer the research questions. Primary data was collected through structured questionnaire from selected employees of Habesha breweries s.c. And it was measured by five-point likert scale. The target population of this research is the employees of Habesha breweries s.c. who are working on the main factory located at Debre Berhan, Ethiopia. Non-probability sampling technique purposive sampling and census was used. Data analysis was performed by descriptive and inferential statistical analysis through SPSS version 24. Descriptive statistical analysis was produced through central tendency measurements (mean, median & mode) and standard deviation. In inferential statistical analysis, pearson correlation and multiple linear regression tools was utilized. The findings indicated that all independent variables; eco-design, green procumbent, green manufacturing and operations and reverse logistics have positively affected the organizational performance of Habesha Breweries S.C, at $P<0.01$. The study concludes that the organizational performance of Habesha Breweries is affected by green supply chain management. Based on the findings the following recommendations were forwarded; green supply chain management must be binding on all members and staffs of the company as this will encourage uniformity among members of the organization and thus enhance the organizational performance and group efficiency. The company should also establish a unit so as to review and convey experiences and techniques as a culture installed on the way forward.

DECLARATION

I declare that the research Report entitled "The effect of green supply chain management practice on organizational performance, case study on Habesha breweries S.C, Debre Berhan, Ethiopia" submitted to Research and Postgraduate Studies' Office of Business and Economics College is original and it has not been submitted previously in part or full to any university.

_____

Date: _____

CERTIFICATE

We certify that the Research Report entitled "The effect of green supply chain management practice on organizational performance, case study on Habesha breweries S.C, Debre Berhan, Ethiopia"

was done by Ms. LINDA ASSEFA for the partial fulfillment of Masters Degree under our Supervision.

_____   _____

_____   _____

(Main Advisor)   (Co-Advisor)

Acknowledgement

Table of Contents

List of Figures

List of tables

Acronyms

CST   Customer Service Theory

CPMT   Communication Privacy Management Theory

GGE   Greenhouse Gas Emissions

GSCM   Green Supply Chain Management

GWP   Global Warming Potential

IT   Institutional Theory

LCA   Life Cycle Assessment

RBVT   Resource Based View Theory

ROI   Return on Investment

RL   Reverse Logistics

SCM   Supply Chain Management

TCE   Transaction Cost Economics

1. CHAPTER ONE

1.1. Background of the study

Supply chain management is a concept widely discussed in academic articles Boyer et al (2009) and by practitioners Naslung et al (2010). Interest in supply chain management increased after 1980, firstly because at that time only a few companies were vertically integrated, and they realized, that they could no longer gain competitive advantage alone, but they have to collaborate with suppliers and customers Lummus et al (1999).

Another reason is the increased awareness of the many benefits of supply chain management. Benefits include: improvement in ROI (return on investment), low inventory levels Boyer (2009), increased customer and supplier satisfaction Myers (2010), improvement in profit and market share Myers et al (2010) and many more. Summarizing, the benefits of supply chain management relate with cost reduction and improvement of the relationships with the chain members.

Companies may choose to adopt GSCM for many different reasons: one may be forced due to laws and regulations, one may use GSCM to differentiate oneself in a competitive industry by being environmentally friendly and lastly one might need to implement GSCM to stay competitive if your competitors already have adopted GSCM. With Increasing customer awareness and regulatory norms, organizations with greener supply chain management practices will have a competitive advantage over companies that are reluctant to embrace GSCM.

Green supply chain management (GSCM) has a key role in ensuring that the factors driving the competitive advantage through environmental performance as market expectations, risk management, regulatory compliance and business efficiency are addressed Zhu et al (2012). Responsively, manufacturing organizations have begun to implement green supply chain management (GSCM) practices in response to customers' demands for products and services that are environmentally sustainable and that are created through environmentally sustainable practices and in response to governmental environmental regulations Green Jr et al (2012).

The definition of Green supply chain management (GSCM) has ranged from green purchasing to integrated supply chains flowing from the supplier, to manufacturer, to the customer and reverse logistics, which is "closing the loop" as defined by supply chain management literature Zhu et al

(2004). Green supply chain management (GSCM) integrates environmental thinking into supply chain management; it includes extensive stages from designing a product, material sourcing and selection, manufacturing processes, product delivery, and end-of-life management of the product Ojo et al (2012). The green supply chain management (GSCM) has emerged as an effective management tool and philosophy for projoactive and leading construction organizations Ojo et al, (2012). Green supply chain management aims to maximize the overall environmental profit by adopting a life cycle approach through product design, material selection, manufacturing, and sales and recovery. Therefore, it helps the firm to realize its sustainable development and improvement Shi et al (2012).

The brewing process is energy intensive and uses large volumes of water. The production of beer involves the blending of the extracts of malt, hops and sugar with water, followed by its subsequent fermentation with yeast Wainwright (1998). The brewing industry employs a number of batch-type operations in processing raw materials to the final beer product. In the process, large quantities of water are used for the production of beer itself, as well as for washing, cleaning and sterilizing of various units after each batch are completed. A large amount of this water is discharged to the drains. The main water use areas of a typical brewery are brew house, cellars, packaging and general water use. Water use attributed to these areas includes all water used in the product, vessel washing, and general washing and cleaning in place (CIP); which are of considerable importance both in terms of water intake and effluent produced Van der Merwe et al, (2002).

Currently, various environmental problems, such as environmental pollution, global warming, rapid depletion of resources and decreases in biological diversity, have emerged. Business activities can have an impact on the natural environment through one or more of the following ways: emission to air, emission to water, emission to land and resource use. Companies which are regarded as the cause of these environmental problems have had to review their production processes and their supply chains as a whole after policy and regulation enforcements from the government. Beer industry employs a number of operations in processing raw materials to the final beer product. In the process, large quantities of water is used for the production of beer itself, as well as for washing, cleaning and sterilizing of various units after each batch are completed. As a result, Habesha brewery S.C is discharging this large amount of water and other pollutants into the drains and open environment.

Therefore this paper attempts to assess whether or not Habesha Breweries S.C is implementing green supply chain management in order to decrees the adverse effect of its beer production process, and if so how it is affecting the general organizational performance of the company.

1.2. Background of the Organization

Habesha Beer S.C. is one of the business plants in Ethiopia which work in the beverage industry. Habesha Breweries S.C, a brewery, engaged in the production, sale and distribution of beer in Ethiopia. The company is located in Debre Berhan town, 120Km North of Addis Ababa, where it started construction in September 2013 on a 7.5ha plot of land. In terms of share capital distribution, Habesha beer has 8,800 shareholders. Bavaria NV holds a 40pc share in the company, which is established in late 17th century and is the second largest brewery in the Netherlands after Heinekens. The brewery is made up of over 350 team members where about 200 permanents and 150 temporarily workers. The product is distributed through third party. Habesha beer started distribution on July 11, 2015, 20 days after commencing production, with a limited market in Debre Berhan, Addis Ababa and Adama. Habesha gets the malt with which it produces its beer with five percent alcohol, from Holland Malt Company in the Netherland.

1.3. Statement of the Problem

Logistics and Supply Chain Management plays a pivotal role in our life. In fact, it is impossible to find any product that can reach the customer without logistical support. In today's globalized world the competition is no longer between individual companies rather it is between rival supply chains.

Supply chain management requires sharing information, joint decision making, commitment, trust, and respect Laskowska et al (2009). In other words, supply chain management requires focusing on building and managing relationships with the others. This approach is easier for cultures with external orientations. Cameron et al (2011) define cultures with external orientations as the ones focused on interacting with others outside their boundaries.

The increasing attention about environment protection and carbon dioxide emissions' reduction encourage the industries to proceed towards sustainable productions. Even if not comparable to the emissions due to chemicals' and mining industries, the ones due to food industries have been under study in the last years, because food productions require large amounts of energy and,

therefore, strongly contribute to global warming potential (GWP) and total carbon dioxide emissions Roy et al, (2009).

Diane Lesley Holt (2005), the 'greening' of the supply chain is identified as one of the future challenges facing organisations. They also put their concern as, 'in the future organisations will have to make all supply chain decisions within the context of environmental concerns. Therefore, assessing supply chain from environmental perspectives can be considered as the command of the time. Moreover, over the past decade, Green Supply Chain Management (GSCM) has emerged as an important factor of the environmental and supply chain strategies for a number of companies around the globe. In recent years, some studies are conducted to explore the economic and environmental impact of green supply chain management.

Rao and Holt (2005) pointed out that organizations adopting GSCM in the South East Asian region ultimately enhanced both competitiveness and economic performance. A study by Klassen and Mclaughlin (1996) indicated that environmental performance positively affected financial performance of the firms through both increasing the market share and decreasing cost. Moreover, some anecdotal evidence showed that substantial environmental management performance leads to lower manufacturing costs by eliminating waste (Allen, 1992). Motivating businesses to adopt GSCM practices starts by exploring the improvements these practices can bring about, not only on the economic side but also on other dimensions including the operational, social and environmental image of the organization.

Today, various environmental problems, such as environmental pollution, global warming, rapid depletion of resources and decreases in biological diversity, have emerged. Companies which are regarded as the cause of these environmental problems have had to review their production processes and their supply chains as a whole after pressures from the society and governments. All parts of the traditional supply chain, including raw materials, production, distribution, consumers and waste can be a source of environmental pollution (Ulas, 2016). Therefore, to protect the environment, greening is required for all activities in the context of supply chain (purchase, design, production, distribution and disposal).

Therefore, as we can infer form the above-mentioned studies, not only the need to comply to environmental legislations that stimulate firms to deploy green supply chain management but

also, the positive impact of green supply chain on financial performance of firms that is inspiring green supply chain management.

Mesfin (2016) assessment of green supply chain management practices and organizational performance: The Case of ethio telecom; as the perceived appraisal of the participants indicated that the organizational performance of ethio telecom in relation to green supply chain management practice is poor. Moreover, from the ranges of green supply chain management dimensions only; organizational performance, eco-design; green purchasing and environmental practice have a statistically significant predicting power in the four different scenarios that is social performance, environmental performance, economic performance and operational performance. Besides, an assessment on the challenges of implementing green supply chain management revealed that as far as ethio telecom and the perceived responses of the participants are concerned, supplier unwillingness to change towards green supply chain management, unawareness of customers and lack of quality of human resources are among the major challenges of green supply chain implementation.

On other related research done by Zellalem (2015), green supply chain management practices in Ethiopian tannery industry: an empirical study; revealed that tannery managers that the commitment of top management, middle management and cooperation among functions in greening the whole supply chain is remarkable. However, responses obtained from nearby communities and interviewee officials' tanneries commitment in greening the supply chain is not strong. Therefore, the study concluded that the commitment of the organization is not to the level of the interest of the stakeholders. The study also revealed that the environmental proclamations, policies and regulations for tannery industry are inflexible but the pollution coming from tanneries industry is heavy. It is creating a problem on nearby community and environment. Therefore, it is possible to assume that tanneries commitment in assuring sustainable economic development is weak. And it affects the path to sustainable development and the Ethiopia's climate resilient green economy strategy. The findings of the study indicated that majority of tanneries didn't have a separate unit, well defined environment management system and manual, no safety package for the workers, and no strong relation among tanneries and pertinent government environment offices.

In this case breweries are very concerned that the techniques they use are the best in terms of product quality and cost effectiveness. During production, beer alternately goes through three chemical and biochemical reactions (mashing, boiling, fermentation and maturation) and three solid-liquid separations (wort separation, wort clarification and rough beer clarification) Tech et al (1991). Consequently, water consumption, wastewater and solid liquid separation constitute real economic opportunities for improvements in brewing. Therefore, this paper attempted to explore whether or not the company under study is implementing green supply chain management, and how it it's affecting the general organizational performance of the company.

In our country there are only two researches conducted on the effect of green supply chain management on organizational performance of a given company. These two studies were conducted on Ethio Telecom and tannery industries in Ethiopia, there were no research conducted on beer industry. Therefore this research aimed to assess the effect of green supply chain management on the organizational performance of the growing beer industry, case study on Habesha Breweries S.C.

1.4. Basic research questions

The research questions for the study are:

1. How does Eco-design in green supply chain management affect organizational performance in Habesha Breweries S.C.?
2. How does Green procurement in green supply chain management affect organizational performance in Habesha Breweries S.C.?
3. How does green manufacturing affect organizational performance in Habesha Breweries S.C.?
4. How do operation and reverse logistics affect organizational performance in Habesha Breweries S.C.?

1.5. Objectives of the Study

1.5.1. General objective of the study

The general objective of the study is to assess the impact of green supply chain management on the organizational performance of Habesha Breweries S.C

1.5.2. Specific objectives of the study include:

1. To analyze the effect of eco-design practice on organizational performance by Habesha Breweries S.C.
2. To evaluate the effect of green procurement on organizational performance by Habesha Breweries S.C.
3. To find out the effect of green manufacturing on organizational performance by Habesha Breweries S. co.
4. To determine the effect of operations and reverse logistics on organizational performance by Habesha Breweries S. co.

1.6. Significance of the Study

This study majorly focused on the assessment of the effect of green supply chain management practice on the organizational performance of Habesha Breweries S.C. As a result the findings of this study are useful; to the beer factory; to know, understand and evaluate their supply chain management with regard to the concept of green supply chain management, at the same time it helps the researcher; to gain further understanding and knowledge about the topics under study, it can also be significant for government bodies and private organizations that are involved in the beer manufacturing sector or SCM and logistics department to know, understand and improve their performance through implementing GSCM, Moreover the study might be used by other researchers as a reference material or input.

1.7. Scope of the Study

This research engaged in the assessment of the effect of green supply chain management practice on the organizational performance of Habesha Breweries S.C. Moreover, the research is limited on the supply chain practice of the factory located in Debre Berhan, Ethiopia. Although; multidimensional literature of GSCM practices are available, this research focused only on four types of GSCM practices (eco-design, green procurement, green manufacturing and operation and reverse logistics), with regard to their effect on the organizational performance of Habesha breweries S.C.

1.8. Organization of the Paper

The paper is consisted of five chapters. The first chapter deals with the introduction part that consists of background of the study, background of the organization, statement of the problem, objective of the study, significance of the study, scope. Chapter two contains a review of the related literature including both theoretical and empirical literatures. The research design and methodology are presented in chapter three. In chapter four, the result and finding of the study is discussed. Finally, the last chapter deals with the summary, conclusion and recommendation that are forwarded from the result obtained.

CHAPTER TWO

2. Review of Literature

2.1. Theoretical Literature

This section introduced the theories related to the study. A theoretical part focused on the adoption theories and concepts that were presented by distinguished authors in relation to SCM practices implementation and organizational performance. SCM had been linked to theories borrowed from fields such as accounting, management, economics, sociology and engineering. Therefore, the study adopted five (5) common theories. These theories include institutional theory, resource-based view, customer service theory, communication privacy theory and transaction cost economic.

    A. Institutional Theory (IT)

The institutional theory is used to examine how external pressures influence a company According to the institutional theory "external pressure", play a major role in shaping organizational strategies associated with supply chain management. For example, strategies associated with the organizations" choices of technology adoption and supply chain collaboration. Within institutional theory, there are three forms of isomorphic drivers a company tends to be induced to adopt certain practices, namely; coercive, normative, and mimetic. Coercive isomorphic drivers occur from influences exerted by those in power. Government agencies are an example of powerful institutions that may coercively influence the actions of an organization through, for example, fines and trade barriers. Normative isomorphic drivers cause enterprises to conform in order to be perceived as having legitimate organizational activities. Mimetic isomorphic drivers occur when enterprises imitate the actions of successful competitors in the industry, in an attempt to replicate the path of their success (Sarkis, et al., 2010).

In relation to SCM practices, institutional environment where the firm operate exert an influence on adoption process. Coercive pressure is seen important in imposing authorize standard in shaping firm operational conduct through regulatory mechanism. Mimetic pressure is seen as following other organization successful implementation practices. And finally, normative pressure is seen as firm accepting best practice for SCM adoption in fast changing environment.

B. Resource Based View theory (RBVT)

The RBV is a theoretical perspective that attempts to describe, explain, and predict, how firms can achieve a sustainable competitive advantage through acquisition and control over resources. In order to provide competitive advantage a resource must fulfill four criteria: Valuable: must have strategic value to the organization, Rare (uniqueness): must be unique or rare to find amongst the current and potential competitors, Imperfect immutability (inimitable): must not be possible to perfectly imitate or copy the resource, and Non-substitutability: competitors cannot substitute the resource by another alternative resource to achieve the same results.

Organization resources can be easily categories into three building block, that is, physical assets (example: technological equipment, plant), human assets (example: deployment, competency and skill resources), and organizational assets (example: culture, business process, and management resources). The resources are also categorized as tangible or intangible. Furthermore, the RBV theory is used to examine the impact of organization resources and capabilities on competitive advantage that leads to overall organizational performance.

C. Customer Service Theory (CST)

The theory of customer service is based on identifying and satisfying your customers' needs and exceeding their expectations. A company must be totally committed to delivering consistently high standards of service to gain and retain customer loyalty. Everyone from top management on down must be tuned into what the customer wants. Creating a customer service culture within a company can help build success. Customer satisfaction and loyalty are inextricably linked to the quality of customer service and, ultimately, to the company's profitability.

D. Communication Privacy Management Theory (CPMT)

CPM theory basically addresses how individuals understand and manage their privacy and disclosure decisions (Petronio, 2002). That is, the CPM theory describes the ways in which relational actors manage their privacy boundaries and the disclosure of private information. The theory focuses heavily on the processes that people employ to determine when and how they choose to conceal or reveal private information. The theory describes the ever-present dialectic of privacy and openness within various relationship models, explains how relationships develop

as public and private boundaries are negotiated and coordinated, and demonstrates how individuals regulate revealing and concealing information through communication.

The theory focuses on the idea that there are not only two contradictory stances within a relationship, but that at any given moment decisions are weighed using multiple viewpoints. CPM theory considers those rules for access and protection of information by examining the following about information sharing: the types of ownership of information, the circumstances under which sharing occurs, and the expectations of sharing.

E. Transaction Cost Economics (TCE)

Transaction Cost Economics (TCE) had been developed to facilitate an analysis of the "comparative costs of planning, adapting, and monitoring task completion under alternative governance structures" (Williamson, 1985). Transaction cost economics (TCE) support the role of supply chain management in the organizations as it acts as an economic theory that provides an analytical framework for investigating the governance structure of contractual relations within a supply chain. Furthermore, the Transaction cost economics (TCE) has been the most utilized theory of outsourcing. TCE is perceived to provide the best decision making tools to help organizations to decide to outsource and to prepare themselves for forthcoming outsourcing arrangements

2.1.1. Beer Industry

Alcoholic beverages are a part of human dietary culture and have an inseparable relationship with the life of mankind in history. The making and drinking of alcoholic beverages are ways of enhancing the nutritional significance as well as social relationships for human beings. Exactly when mankind started to produce and consume alcoholic beverages is not known but beer is known to have been produced by the Sumerians before 7,000 BC Dufour J (2003), while wine has an unequivocally recorded history stretching back nearly 6,000 years, with the earliest evidence dating between 5,400 and 5,000 BC Soleas GJ (1997).

Throughout history, different types of alcoholic beverages made from a whole range of products (fruits, sugar cane, honey, and cereals such as barley, wheat, oats, millets, rye, and maize) have been labeled 'beer'. If we look at all these historical 'beers' through contemporary glasses, some of them would now be classified as 'wine' or some kind of 'distilled alcoholic beverage'.

Predecessors of our modern beer were found several thousands of years ago in places all over the world, including Asia and Europe. It is not clear whether the technique to produce 'beer' was discovered in one place and then spread among people and continents, or whether it was discovered in various places independently Nelson (2005). Almost all countries and regions all over the world have traditional alcoholic beverages, which utilize indigenous agricultural produce. Alcoholic beverages of plant origin represent a vast diversity of products Tamang JP et al (2010). However, in general, alcoholic beverages can be classified into three main categories: wines, beers, and spirits (Wikipedia, cited 2015 Aug 28). This classification is based on production methods: (1) by mono-fermentation; (2) by malting and fermentation; and (3) by distillation after fermentation. Yeasts are able to produce ethanol primarily through metabolism of the low-molecular weight sugars that can be transported into the cell cytoplasm. Thus, fruits with sugars can be utilized to produce alcoholic beverages such as wine and ciders by direct fermentation Berry DR et al (2003).

However, in production processes utilizing cereals or tubers, fermentations must be preceded by depolymerization of storage polysaccharides and proteins yielding the sugars and amino acids that can be utilized by the microorganisms Paterson A et al (2003). This explains the process for producing beers. To produce spirits such as brandy, whiskey, and vodka, the alcoholic beverages are produced by either the mono fermentation or fermentation after starch hydrolysis by amylolytic enzymes, and are distilled.

2.1.2. Supply chain management

2.1.2.1. Understanding supply chain management

According to the traditional definition, supply chain management, has to assure supply with the lowest initial purchase price. Based on this view, companies cannot allow the supply chain partners to become very important; instead they must have multiple trading partners and the fierce competition based on price and performance will choose the best Spekman, KamauffJr et al (1998).Supply Chain Management systems are designed to help visualize the entire supply chain of a business allowing supply chain managers to maximize strengths and efficiencies at every level of the process to generate a highly competitive, customer focused supply system that is extremely flexible and able to adapt immediately to changes in supply and demand Chopra et al (2013). Supply chain-oriented companies often report lower inventory, transportation,

warehousing and packaging outlays Meorkens et al (2000). A supply chain 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. (Sunil, 2007)

2.1.2.2. Objective of supply chain management

The objective of every supply chain should be to maximize the overall value generated. The value a supply chain generates is the difference between what the final product is worth to the customer and the costs the supply chain incurs in filling the customer's request. For most commercial supply chains, value will be strongly correlated with supply chain profitability (also known as supply chain surplus), the difference between the revenue generated from the customer and the overall cost across the supply chain. (Sunil, 2007)

2.1.2.3. Key aspects of supply chain and logistics

Below, we elaborate on these definitions by discussing seven key aspects. (Henk, 2019)

a) Availability of materials, products and information

This is the basic notion from which the term "supply chain" stems. Its primary objective is to ensure the timely availability of the right quantities of raw materials, parts and products together with all information needed for further processing at their destined locations. Functions in a supply chain that are instrumental in achieving this goal are sourcing and procurement, transport and logistics, manufacturing and assembly, stock keeping between subsequent phases, and sales.

b) Cost-efficiency

For long time, cost-efficiency has been the dominant measure of performance of production and logistic processes, meaning that a maximum output should be achieved with minimal materials and manpower utilization. For that reason, initial phases of industrial production were typically characterized by large batch manufacturing and low product variety, and machines and operators were considered to be cost factors. The division of complex production processes in a large

number of simple repetitive tasks, each to be performed by one operator or man/machine combination such that learning curves are optimally exploited, has long been the management principle that characterized most mass production facilities.

c) Customer orientation

From the sixties of the preceding century onwards, consumer markets started to change. No longer products were accepted as they were, customers demanded more product variety and companies started to realize that they might distinguish themselves from competitors by responding to these demands. More attention was given to product quality, again recognized as a distinguishing feature and indeed an important factor in gaining customer trust and loyalty.

d) Speed

Within a customer-dominated market, timeliness of delivery quickly became a key requisite in supply chain management. The classical way to achieve timely delivery was to keep sufficient anticipation stocks at a large number of locations, certainly for those multinationals that were selling all over the globe.

e) Effectiveness

Lean production and lean logistics refer to the ability to limit activities in a supply chain to those that really add value to products and services as experienced by a customer, and that avoids any activity that can be considered as waste.

f) Environmental Sustainability

In the last two decades, it has become apparent that current production and logistics systems cause serious and in the long run unacceptable environmental damage, due to for instance the emission of hazardous materials (CO_2, NOx, and particulate matter), congestion, stench, noise and more general the high price that has to be paid in terms of infrastructural load. In addition, some natural resources become scarce and also are not evenly distributed in terms of type and geographical location in the world. Logistic chains enable the distribution of materials, food and products from the locations where they are extracted, harvested or produced to people's homes and nearby stores.

g) Social aspects

There is growing attention for the need to create safe and socially acceptable working conditions, but so far these conditions have not been realized everywhere, certainly not in a number of developing countries

2.1.2.4. Supply chain management practice

SCM practices' is defined as "the set of activities undertaken by an organization to promote effective management of its supply chain" (Li, 2006). He proposed SCM practices as a multi-dimensional construct that includes both upstream and downstream sides of the supply chain. Donlon (1996) considered outsourcing, supplier partnership, information sharing, cycle time compression, and continuous process flow, as SCM practices. Tan (1998) used quality, purchasing, and customer relations to represent SCM practices, in their empirical study. SCM involves the coordination and configuration of different process that is necessary to make products available in a timely, reputable, and suitable condition. The distinctiveness of SCM could be achieved by identifying and making use of SCM practices, in organized way. SCM practices involve a set of activities undertaken by the organization to promote effective management of their supply chain. (Fasial, 2011)

i. Strategic Supplier Partnership (SSP)

As it is constructed by (Ibrahim, 2012) Strategic Supplier partnership is defined as the long-term relationship between the organization and its suppliers. It is designed to leverage the strategic and operational capabilities of individual participating organizations to help them achieve significant ongoing benefits. A strategic partnership emphasizes direct, long-term association and encourages mutual planning and problem-solving efforts. Such strategic partnerships are entered into to promote shared benefits among the parties and ongoing participation in one or more key strategic areas such as technology, products, and markets. Strategic partnerships with suppliers enable organizations to work more effectively with a few important suppliers who are willing to share responsibility for the success of the products. Suppliers participating early in the product-design process can offer more cost-effective design choices, help select the best components and technologies, and help in design assessment. Strategically aligned organizations can work closely together and eliminate wasteful time and effort. An effective supplier

partnership can be a critical component of a leading-edge supply chain. Strategic partners in supply chain must realize that the purchasing function is critical link between the source of supply chain and organization itself, with the support coming from the overlapping activities to enhance manufacture ability for both the customer and suppliers. (Tan, 2005)

ii. Customer Relationship (CR):

It comprises the entire array of practices that are employed for the purpose of managing customer complaints, building long-term relationships with customers, and improving customer satisfaction. Someone consider customer relationship management as an important component of SCM practices, as pointed out by them, committed relationships are the most sustainable advantage because of their inherent barriers to competition. The growth of mass customization and personalized service is leading to an era in which relationship management with customers is becoming crucial for corporate survival. Good relationships with supply chain members, including customers, are needed for successful implementation of SCM programs. Close customer relationship allows an organization to differentiate its product from competitors, sustain customer loyalty, and dramatically extend the value it provides to its customers. (Ibrahim, 2012)

Customer relationship is the key element in today SCM practices implementation in any organization (Ho, 2008). This is because the world today is in the era of massive growth of mass customization and personalized service which had forced organizations to maintain good relationship with customers for the sake of their survival. Close customer relationship allows an organization to differentiate its products from the competitors, and sustain customer loyalty (Bratic, 2011) Information sharing has two aspects: quantity and quality. Both aspects are important for the practices of SCM and have been treated as independent constructs in the past SCM studies.

iii. Level (quantity aspect) of information sharing.

It refers to the extent to which critical and proprietary information is communicated to one's supply chain partner. Shared information can vary from strategic to tactical in nature and from information about logistics activities to general market and customer information. Many

researchers have suggested that the key to the seamless supply chain is making available undistorted and up-to-date marketing data at every node within the supply chain. (Karimi, 2014)

Supply chain partners who exchange information regularly are able to work as a single entity. Together, they can understand the needs of the end customer better and hence can respond to market change quicker. Moreover, someone consider the effective use of relevant and timely information by all functional elements within the supply chain as a key competitive and distinguishing factor. The empirical findings of they reveal that simplified material flow, including streamlining and making highly visible all information flow throughout the chain, is the key to an integrated and effective supply chain. (Karimi, 2014)

    iv.   Quality of the shared information of information sharing.

Literature is replete with example of the dysfunctional effects of inaccurate/delayed information, as information moves along the supply chain. Divergent interests and opportunistic behavior of supply chain partners, and informational asymmetries across supply chain affect the quality of information. It has been suggested that organizations will deliberately distort information that can potentially reach not only their competitors, but also their own suppliers and customers. It appears that there is a built in reluctance within organizations to give away more than minimal information since information disclosure is perceived as a loss of power. Given these predispositions, ensuring the quality of the shared information becomes a critical aspect of effective SCM. Organizations need to view their information as a strategic asset and ensure that it flows with minimum delay and distortion. (Karimi, 2014)

    v.   Lean Practices (LP)

The term 'lean' is used to refer to a system that uses less input to produce at a mass production speed, while offering more variety to the end customers. Elimination of waste is a fundamental idea within the lean system. The core thrust of lean practices are that these practices can work synergistically to create a streamlined, high quality system that produces finished products at the pace of customer demand with little or no waste (Dereje, 2012). Today, lean is evolving into a management approach that improves all the processes at each level of an organization (Mwale, 2014) Internal lean practices refer to consume less system resources uses with the same speed mass production and offers greater variety to customers. In other way James and Jones (2003)

internal lean practices as Lean production associated with continuous pursuit of improving the processes, a philosophy of eliminating all non-value adding activities and reducing waste within an organization. The most famous of internal lean practices can be mentioned timely and lean produce. Production of lean and timely is production system that its aims are to optimize processes and production process by reducing waste and other inefficient factors. Internal lean practices understanding for the study is waste elimination regarding to setup time, continuous improvement and just in time. (Mustefa, 2014)

2.1.3. Green supply chain management

Green supply refers to the way in which innovations in supply chain management and industrial purchasing may be considered in the context of the environment (Green, et al, 1998). Srivastava (2007) defines it as integrating environmental thinking into a supply chain management, including product design, material resourcing and selection, manufacturing processes, delivery of the final product to the consumer as well as end-of-life management of the product after its useful life.

Green supply chain the vogue of today's market is robustly related to inter organizational environmental topic as industrial eco-systems, industrial-ecology, product life cycle analysis, extended producer responsibility and product stewardship. The definition of green supply chain has got its range from green purchasing to integrated supply chain flowing from supplier to manufacturer to customer and reverse logistics which has been defined as closing the loop by supply chain management literature (Zhu and Sarkis, 2004).

As the public becomes more aware of environmental issues and global warming, consumers will be asking more questions about the products they are purchasing. Companies will have to expect questions about how green their manufacturing processes and supply chain are, their carbon footprint and how they recycle Giannis et al (2006). Sustainable development has made remarkable progress in establishing environmental and social sustainability towards operations management and the supply chain. Sustainable development means "Development that meets the needs of the present without compromising the ability of future generations" Sustainability covers three aspects: economic, environmental and social responsibility. Green supply chain management (GSCM) is about making the entire supply chain more environmentally sustainable.

Abukhader and Jönson (2004) also posited there are three mains 'themes' regarding sustainable or 'green' logistics and supply chain management:

1. Reverse logistics;

Reverse logistics is not a new concept, as noted above. The return, recovery and recycling of products have been practised for decades. However, it is a growing area in logistics and SCM, particularly for retail returns in an era of growing omnichannel e-commerce as discussed above. Work by Rogers and Tibben-Lembke and Stock in 1998 set the stage for this impetus. Reverse logistics has been defined (Rogers and Tibben-Lembke, 1998) as: "the process of planning, implementing, and controlling the efficient, costeffective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal. Reverse logistics also includes processing returned merchandise due to damage, seasonal inventory, restock, salvage, recalls and excess inventory."

There are four primary questions regarding reverse logistics from a strategic perspective:

• What types of materials may be returned, recovered or recycled?

• How are responsibilities defined in a reverse logistics supply chain?

• What is it reasonably possible to return, recover or recycle?

• How are economic value and ecological value determined?

2. Assessment of emissions;

The World Economic Forum (2009) estimates that logistics activity accounts for 2,800 mega-tonnes of carbon dioxide emissions annually or about 6 per cent of the total 50,000 mega-tones produced by human activity, so it is not surprising that non-energy companies are beginning to assess the energy consumption of their supply chains as a way to reduce their overall carbon emissions. The UK's domestic CO_2 emissions, excluding international aviation and shipping, are generated from four main sectors: energy supply at 40 per cent, transportation at 23 per cent, industry including manufacturing, retailing, service and warehousing at 18 per cent and residential at 15 per cent (Commission for Integrated Transport, 2007).

3. The 'greening' of logistical activities and supply chains

When Abukhader and Jönson wrote their article, there was little use of lifecycle assessment (LCA) in logistics and supply chain management and little consideration of environmental impacts beyond cost–benefit analysis. The 'greening' of logistics activities and supply chains means ensuring that these activities are environmentally friendly and not wasteful, and particularly focus on reducing carbon emissions across the entire supply chain. The World Economic Forum (2009) argued that a collaborative responsibility for 'greening' the supply chain resides with three groups: logistics and transport service providers; shippers and buyers as recipients of such services; and both government and non-government policy makers. They presented specific recommendations for these three groups as follows:

   i.   Transportation, vehicles and infrastructure networks

Logistics and transport service providers should increase adoption of new technologies, fuels and associated processes by implementing where there is a positive business case, deploy network reviews of large closed networks to ensure efficient hierarchies and nodal structures, look to integrate optimization efforts across multiple networks, enable further collaboration between multiple shippers and/or between carriers, and look to switch to more environmentally friendly modes within their own networks. Shippers and buyers should build environmental performance indicators into the contracting process with logistics service providers, work with consumers to better support their understanding of carbon footprints and labeling where appropriate and make recycling easier and more resource efficient.

   ii.   Green buildings

Logistics and transport service providers should encourage wider industry commitment to improve existing facilities through retrofitting green technologies and work towards industry-wide commitments to boost investment into new building technologies, and develop new offerings around recycling and waste management, working collaboratively with customers. Policy makers should encourage industry to commit to improvements that consider the boundaries of possibilities with current and future technologies, through individual and sector-wide actions.

iii.   Sourcing, product and packaging design

Shippers and buyers should determine how much carbon is designed into a product through raw material selection, the carbon intensity of the production process, the length and speed of the supply chain, and the carbon characteristics of the use phase. Shippers and buyers can take decisions which actively drive positive change up and down the supply chain. Shippers and buyers should agree additional standards and targets around packaging light weighting and elimination and seek cross-industry agreements on modularization of transit packaging materials. They should also develop sustainable sourcing policies that consider the carbon impact of primary production, manufacturing and rework activities, and integrate carbon emissions impact into the business case for near-shoring projects.

2.1.4. Green supply chain management practices

The concept green supply chain practices (GSCP) is commonly used for a variety of activities performed by an organization in order to minimize their impacts on a natural environment supply chains strive to maintain internal health and environmental sustainability using the capability to self-correct based on information from the external environment (Salah, 2015). To implement GSCM, organizations should follow GSCM practices which consist of environmental supply chain management guidelines. Numerous studies have tried to identify GSCM practices in organization which are referred to such internal systems as environmental and quality management systems. Internal environmental management is critical to improving the organization's environmental performance (Zhu et al., 2008). Zhu and Sarkis (2004) indicate that quality management lubricates implementation of GSCM. They suggest that under rigorous quality control, organizations can improve their environmental practice by learning from experiences of their quality management programs.

By receiving the certificate for the ISO 14001 environmental management system (EMS) standard, organizations are able to create structured mechanisms for continuous improvement in environmental performance (Kitazawa and Srakis, 2000). Beamon (1999) suggested that GSCM and logistics efforts have encouraged firms to adapt the closed-loop supply chain. Closed-loop supply chain management stands for "the design, control and operation of a system to maximize value creation over the entire life-cycle of a product with the dynamic recovery of value from

different types and volumes of returns over time" (Guide and Van Wassenhove 2006). Some studies focused on external environmental factors such as customers and suppliers.

To improve their own environmental supply chain performance, organizations need the interactions with the government, suppliers, customers, and even competitors (Carter and Ellram, 1998). Cooperation with suppliers and customers has become extremely critical for the organizations to close the supply chain loop (Zhu et al., 2008). Importance of the design process in environmental management is well demonstrated by the existing literature. Reuse stands for both the use of a product without re-manufacturing and is a form of source reduction. Recycling is the process which makes disposal material reusable by collecting, processing, and remanufacturing into new products (Kopicki et al., 1993).

As an environmental practice, resource reduction enables firms to minimize waste which results in more efficient forward and reverse distribution processes (Carter and Ellram, 1998). Eco-design, design for environmental management, enables organizations to improve their environmental performance and close the supply chain loop by handling product functionality while minimizing life-cycle environmental impacts (Zhu et al., 2008).

Green or sustainable supply chain management is defined as the strategic, transparent, integration and achievement of an organization's social, environmental, and economic objectives in the systemic coordination of key inter-organizational business processes for improving the long term performance of the firm and its supply chain partners. This implies that specific criteria have to be applied by all supply chain partners. At the same time, responsible environmental and social behavior must be promoted as well for the good of the entire chain (Wu and Dunn, 2012). It has been observed that GSCM practices like recycling; repacking in environmental friendly packs helps avoid environmental degradation (Basu and Wright, 2008).

The implementation of GSCM practices is expected to result in improved environmental performance measured by reductions in air emissions, solid waste, effluent waste (Zelbst, 2012). Green supply chain management practices, in healthcare encompass all efforts performed by hospital managers to ensure that their products and services conform to environmentally stipulated requirements, (Gopal 2012). The practices are continuous in nature and begin right from the entry point of an item or equipment into the health care facility. Guidelines on Green

procurement are implemented. Throughout the supply chain process, the end products are thoroughly scrutinized and eventually their waste products are managed by effective waste management processes, (Waters 2010).

2.1.4.1. Green Procurement
Brenner (2010) points out that the focal point of green procurement is to eliminate waste, and purchasing department will focus on value by comprehensive considering the total cost in the process of eliminating waste, that should focus on the business of waste disposal activities. Purchasing activity is the entry point of eliminating waste, so a key factor of the successful green purchasing is the condition of company recycling and reusing waste. Muller (2011) proposed that reducing the emissions of exhaust and sewage not only is the premise of ensuring the implementation of green procurement system, but also is the important way to promote the development of green procurement. Singh (2011) pointed out that close cooperation of suppliers and buyers would promote the successful completion of green purchasing activities.

In the process of purchasing and procurement, suppliers must consider the ultimate disposition of the materials and components that enter the firm, purchasing managers can ask upstream members of the supply chain to commit waste reduction and provide environmentally friendly product. According to Min and Galle (2011) observed that, implementing a green purchasing policy, often does not require any organizational changes by the contracting authority. They further indicated that, in order for the policy to be implemented strategic planning, procurement employee training, access to environmental information and setting priorities are mainly required. McKone-Sweet, Hamilton and Willis (2012), agree that when procuring for Hospital and medical products, certain parameters need to be enforced.

These may include; inspection of presence of latex, PVC and other toxic substances in medical /surgical consumables. For medical hardware, it was observed that life endurance, energy endurance, spare part cost and the total financial and environmental impact be critically assessed. The scholars also noted that, procurement of foods stuff for hospital consumption should have least amount of food preservatives. Foods containing pigments and other aromatic substances should be avoided due to their limited shelf life.

2.1.4.2. Green Packaging

Products for medical usage are often considered too delicate in nature. Green packaging involves having products being packaged in manner that conforms to well stipulate environmental guidelines. Willis, (2012), observes that a majority of Hospitals and healthcare units in Europe and Asia are using recycled paper instead of chlorine bleached paper in packaging medical consumables.

Mustaffa, (2009) has categorized the purpose of Green packaging in health care, into the following categories; Packaging for distribution- this is the primary packaging allowing for transportation and storage of the product until usage phase. Products in this category ought to have reusable packs. Packaging for transport-This is secondary packaging for the purposes of transportations and storage. It recommended that there minimal, use of paper bags that at times get overheated and melt and therefore damaging the packaging. Packaging for treatment- This involves the transportation and handling of product, for onsite use. It must meet biocompatibility standards that can be disposed as urban waste for example in saline solution bags.

Due to their short shelf life, it is suggested to have only small dosages of each drug with the expiry dates clearly labeled. Disposables –These are single use products for medication for example; Gauzes ,syringes, needles among others .This class of medications, whenever possible ought to have met ISO 13485 certified clean room production and well packaged in easy to tear blister packs. Biomedical devices- These devices are mostly used in dialysis treatment. Their packaging requires a higher level of biocompatibility due to their hazardous nature. Hamilton (2012) notes that benefits of green packaging in the healthcare industry has numerous benefits that include: cost saving through efficient use of materials, efficient regulatory compliance with government regulations ,it also brings about closer relationships with the supplier and customer and more importantly offers competitive advantage to the healthcare facility .

2.1.4.3. Eco Design

Eco-design is a new approach to products design; it has emerged as a key approach for manufacturing firms seeking to become environmentally sustainable and globally competitive. Eco design involves the systematic consideration of design issues associated with environmental safety and health over the full product life cycle during new production and process development (Rao, 2008). According to Kriesburg (2009) medications can be designed to be more ecological

sensitive, this may include, being biodegraded quickly, more efficient in lower doses, packing in bio gradable packaging is also key. It was recommended that the shelf life could be brought closer to align with real time by refining the expiring dates. Kriesburg (2009) also observed that, in terms of medications packing, recyclable materials can be used by adding more information on proper method of disposal .The packaging can also include shapes and sizes that would be appropriate for transport and returning for economic benefits.

2.1.4.4. Reverse Logistics

It is the process of planning, implementing and controlling the efficient, cost-effective flow of raw materials, in process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing or creating value or for proper disposal. Product recall requires organization to be able to reverse the normal logistics flow from suppliers to customers so that inventory deemed unsuitable can be located by customers and returned to suppliers in a timely and cost effective manner (Xie and Breen, 2012). An increasing number of organizations in developed nations in, Europe, America and Australia engage in voluntary or mandatory end-of-life product management. These developments have a great impact on environmental and economic values (Geyer and Jackson, 2009). Khisa (2011) observed that regionally, parts of Southern Africa, Kenya, Rwanda, Uganda and Tanzania are catching up in developing policies that aim at improving product reusability once it has gone through the complete supply chain.

2.1.4.5. Waste Management

Healthcare waste management includes all activities involved in waste generation, segregation, transportation, storage, treatment and final disposal of all types of waste generated in the healthcare facilities, stages of which require special attention. This will ensure that inputs (funds, equipment and facilities), activities and outputs (safe workplaces, healthy environment, healthy workers) for the safe handling and disposal of healthcare waste are in place (Sarkis, 2010). Hospitals consume considerable amounts of energy, water and other renewable and nonrenewable resources.

Inevitably this consumption produces a wide variety of waste ranging from the comparatively benign outputs such as glass, cardboard and food wastes to the extremely hazardous persistent organic pollutants, heavy metals, radioactive materials and cyto- toxic drugs (Drake, 2011). Zhu (2012) and Bohlen (2013) noted that health facilities can cut waste and emissions through

composting, recycling, better purchasing for example minimizing packaging, using reusable rather than disposable products, and buying recycled products, also including the minimizing of waste transport local treatment and disposal.

2.1.4.6. Green Design and Manufacturing

Srivastava (2007) stated that the life cycle assessment/analysis and environmentally conscious design of the product explain in the literature. A hierarchic framework for environmentally conscious designs is presented by Madu et al., (2002). Green manufacturing is a very important area in green supply chain operation. Three related fields of study to reduce the use of virgin materials are pinch analysis (Linhoff 1993), and energy and lifecycle analysis (Lee et al., 1995)

2.1.5. Organizational Performance

Organizational performance is one of the most important variables in the management research and arguably the most important indicator of the organizational performance. The authors Lebans & Euske (2006: p. 71) provide a set of definitions to illustrate the concept of organizational performance: Performance is a set of financial and nonfinancial indicators which offer information on the degree of achievement of objectives and results, performance is dynamic, requiring judgment and interpretation. And to report an organization's performance level, it is necessary to be able to quantify the results. Organizational performance comprise the actual output or results of an organization as measured against its intended outputs.

2.1.6. Supply Chain Management Practices and Organization Performance

SCM practices impact not only overall organizational performance, but also competitive advantage of an organization. They are expected to improve an organization's competitive advantage through price/cost, quality, delivery dependability, time to market, and product innovation. Prior studies have indicated that the various components of SCM practices (such as strategic supplier partnership) have an impact on various aspects of competitive advantage (such as price/cost). For example, strategic supplier partnership can improve supplier performance, reduce time to market (Hanfield, 1997), and increase the level of customer responsiveness and satisfaction (power, 2001). Information sharing leads to high levels of supply chain integration by enabling organizations to make dependable delivery and introduce products to the market quickly. Information sharing and information quality contribute positively to customer satisfaction and partnership quality (lee, 1999).

Research indicates a positive relationship between external GSCM practices and operational performance. Through interaction with suppliers and customers, manufacturers can improve their operational performance (Zhu, 2012)**.** Research has also shown that internal GSCM practices such as integrated environmental management systems and staff involvement can improve operational performance (Zhu, 2012). It has been argued that producing an environmentally friendly product may create a final product that is safer and less costly, and which has higher, more consistent quality and greater scrap value (Zhu, 2012). The 'lean and green' literature has also argued that the level of customers' involvement in improvements to the lean performance of a supplier firm is positively related to the environmental management practices. Yet, coordination between internal and external practices has seen no conclusive findings. Using the argument that both internal and external GSCM practices have influenced operational performance.

On other studies (Salah, 2015) considered that GSCP has a potential impact on a firm's performance, the study mentioned that a potential three fold effect were on the performance of companies: impact on environmental performance (i.e., reductions of air, wastewater, solid waste, and decrease of frequency for environmental accidents.); impact on financial performance (i.e., decrease of cost for material purchasing, energy consumption, and waste treatments); impact on operational performance (i.e., increased amount of goods delivered on time, scrap rate, and product line, on the other hand decrease inventory levels, promote products quality, and improved capability utilization).

The system components of the supply chain as (Salah, 2015) drown: Whereas Inputs, physical item, information, or services that necessary to start a process, through reduced volumes of raw materials. Outputs, physical item, information, or services that results from processing an input, which related to the total, through management of reverse logistics and green out bound logistics. The Process, flows, transformations, or order of steps, which transform the input into output, are through internal environmental operations management practices of eco-efficiency. Environment relates to resource requirement, both physical and human, through drivers that influence the adoption of green practices from within the organization and the external environment. Agent, computational, or human resources for carrying the process, is through specific job roles to promote environmental behavior including supplier's management. Mechanism, physical or local

facilities in the generation of an output, is through mapping of waste by products, or supplier assessment questionnaire or accreditation to an environmental management standard.

2.1.7. Impact of GSCM on Organizational Performance

Wu et al (2013) confirmed that GSCM practices are the focal constructs in the theorized model with internal environmental management and green information systems as antecedents and environmental, economic, operational, and organizational performance as consequences. In addition, green information systems provide the information necessary to make decisions about green purchasing, the level of cooperation with customers, design of the product, and investment recovery. Changes made as a result of internal environmental management or green information systems impact the ability to implement green supply chain practices which will impact environmental performance, economic performance, operational performance, and organizational performance.

Previous studies show that external GSCM practices such as supplier and customer collaboration will facilitate the adoption of internal GSCM practices, with the explicit purpose of improving environmental performance in supply chain-wide context (Vachon and Klassen, 2006). Also, developing collaborative relationships with suppliers is favourable for the adoption and development of internal innovative environmental technologies (Geffen and Rothenberg, 2000). Whether GSCM and corporate socially responsible practices can improve economic performance is still an open question (Seuring and Muller, 2008). Some have shown that environmental management and GSCM have appositive relationship with an organization"s economic performance (Rao and Holt, 2005). In general, inter-firm relations provide formal and informal mechanisms that promote trust, reduce risk and in turn increase cooperation, commitment and hence profitability. Others have suggested that economic performance is not being reaped in short-term profitability and sales performance when GSCM practices are implemented (Bowen et al. 2001).

2.2. Empirical Literature Review

The expanding global economy has brought prosperity but also environmental degradation (World Bank, 2012), such as climate change, ozone layer depletion, loss of biodiversity, pollution, degradation and the depletion of air, water, minerals and land (United Nations Environment Programme 2012; World Bank 2012). Environment-related demands are one of the

biggest challenges that organizations faced with nowadays. Problem solving initiatives suggested an implantation of environmental concepts using supply chain thinking. Interestingly, the new solution for threatening business activities is the same tree of supply chain management with iridescent practices. Researchers argued that organizations adopt only those practices, which are economically beneficial to them for a long run. Besides, GSCM practices enhance various performance aspects of organization like, environmental, economic, operational, competitive, social and others. Due to the demand and challenges, Researchers have inclined their interest towards impact of Green Supply Chain Management (GSCM) practices on organizational performance. There are many authors who have developed relationship between GSCM practices adoption and its impact on performance.

According to Sini Laari GSCM practices and firm performance: evidence from Finland, He tries to addresses the economic and environmental dimensions of sustainability, particularly in the context of green supply chain management (GSCM). The overall research objective is to contribute to the discussion on GSCM from the perspective of their drivers and performance implications. To address the research objective, three research questions are formulated. What is the role of competitive strategy and customer requirements in GSCM adoption, what are the connections between GSCM practices and firm performance in manufacturing, and what are the connections between environmental collaboration and firm performance in logistics services. Given the main objectives of this thesis is to test causal relationships between GSCM practices and firm performance using well-defined concepts and models, the approach used is mainly explanatory survey research. The empirical data used was obtained from two sources: (1) two consecutive Finland State of Logistics surveys in 2012 and 2014, and (2) from financial reporting data extracted from external databases. In the conclusion, the article underlines the type of GSCM practice plays a significant role in determining what kind of performance outcomes can be expected. It seems that small environmental effects are consider to be a source of differentiation rather than a way to increase efficiency and to reduce costs in order to compete with price. Firms must be able to adapt their GSCM practices to respond to stakeholder demands and to combine their internal GSCM resources with those of suppliers and customers.

In addition, Dr. Shivani Sharma and Dr. V.K. Jain (2017) addresses it has become need of present competitive business environment that, organizations should take some environmental

initiatives and reduce environmental impact of their operations. Their review shows that there are three GSCM practices: Green Design; Green Manufacturing; and Green Reverse Logistics. Similarly, three performance measures are found common in majority of studies; Environmental Performance; Economic Performance; and Operational Performance, which are combindley called as organizational performance. The research has found various GSCM practices and performance measurement parameters for future empirical investigation.

Meanwhile, Hassan Younis, BalanSundarakani, Barry O'Mahony, Green Supply Chain Management and Corporate Performance: Developing a Roadmap for Future Research Using a Mixed Method Approach, IIMB Management Review (2019) investigates the relationship between green supply chain management (GSCM) practices and corporate performance (CP) using a sequential mixed methods research design. They also have the objective to allow researchers to develop a series of managerial recommendations for firms interested in improving their performance while implementing green supply chain practices.

The impact on organizational performance of linking green supply chain management with supply-chain integration written by Ayham A.M. Jaaron, Ahmed A. Zaid and Abdul Talib Bon proposes that supply chain integration (SCI) has the key relational capability to support the strategic employment of green supply chain management (GSCM) practices. This paper postulates that SCI has a moderating role in linking GSCM practices and organizational performance. It is proposed that with environmental collaboration, GSCM practices could be supported and GCSM implementation could be improved. Since both consumers and suppliers are the backbone of any supply chain, an organization may obtain the scarce and precious resources that are beyond its control by depending on its supply chain members through the implementation of green practices is supported by internal integration within an organization, as well as an external integration that involves consumers and suppliers.

Borchardt, Wendt, Pereira, and Sellitto (2011) conducted a study on redesign of a component based on Eco design practices: environmental impact and cost reduction achievements and the results strengthened the ideas presented in the theoretical framework that the introduction of new technologies based on Eco-design can help firm create competitive advantage, improve the company's public image, and address legal requirements. The main contribution of the case has been the confirmation about Eco-design construct that could be further researched in the

industry. Further analysis of technological ability and market potential to accept a redesigned product provide managerial support to the Eco-design team.

According to European journal of business and management, (2013) green procurement is the selection and acquisition of products and services that most effectively minimize negative environmental impacts, it involves the subsequent environmental friendly activities: manufacturing, transportation, use and recycling of disposal. Green procurement considers environmental aspects to performance criteria ones making purchase decisions.

According to a study by Walton et al (2006) sited in Jikson (2010) the integration of suppliers in to environmental management process ends up in two evolving trends. Foremost they suggest that environmental problems are becoming an intrinsic part of strategic planning in organizations attributable to stricter laws and on the demands of environmental answerability. According to the study conducted by Dheeraj andvishal (2012), Green manufacturing enhances productivity and environmental performance for overall socio-economic development that ends up in sustained improvement within the quality of the organization product.

Additionally, green et al (2012) states that green supply chain, green marketing green packaging, and environmental friendly distribution are all initiatives which may improve the organizations output. The study conducted by Ninlawan and Seksan (2010) indicate that, green manufacturing, green distribution and green logistics are vital dimensions of green supply chain management practices required by manufacturing sectors to attain increased sustainability performance.

According to a study by Mesfin (2016) assessment of green supply chain management practices and organizational performance, the case of ethio telecom concluded that the overall survey findings of this particular study revealed that the organizational performance of ethio telecom in relation to green supply chain management practice is poor as the perceived appraisal of the participants indicated.

To summarize the empirical studies and empirical gaps the following criticism were forwarded; the studies were limited to one practice of GSCM while this research included four major practices of GSCM. The previous studies were also limited to measuring the economic (financial effect of implementing GSCM practice, while the current study incorporated both the financial and non-financial effects of implementing GSCM practices. In addition, the previous studies

utilized survey and secondary source of data while the current study utilized both primary and secondary source of data. Moreover, none of the researches overview the effect of implementing GSCM practices on the organizational performance of beer industries. Furthermore, studies did not deeply and specifically consider the impact of implementing the four main GSCM practices (eco-design, green purchasing, environmental cooperation and reverse logistics) on the overall organizational performance.

2.3. Conceptual Frame Work

From previous studies conducted in related topics the perceived relationship between the dimensions of green supply chain management and organizational performance is suggested out the following conceptual framework. Therefore, the proposed framework for this research is illustrated in Figure 1. The framework shows the impact of Green supply chain management practices with the selected independent variables such as: Eco-design, Green procurement, Green manufacturing and operations and reverse logistics on the Organizational Performance of Habesha Breweries. Hence, the study would follow the below inserted conceptual framework in the course of the succeeding parts.
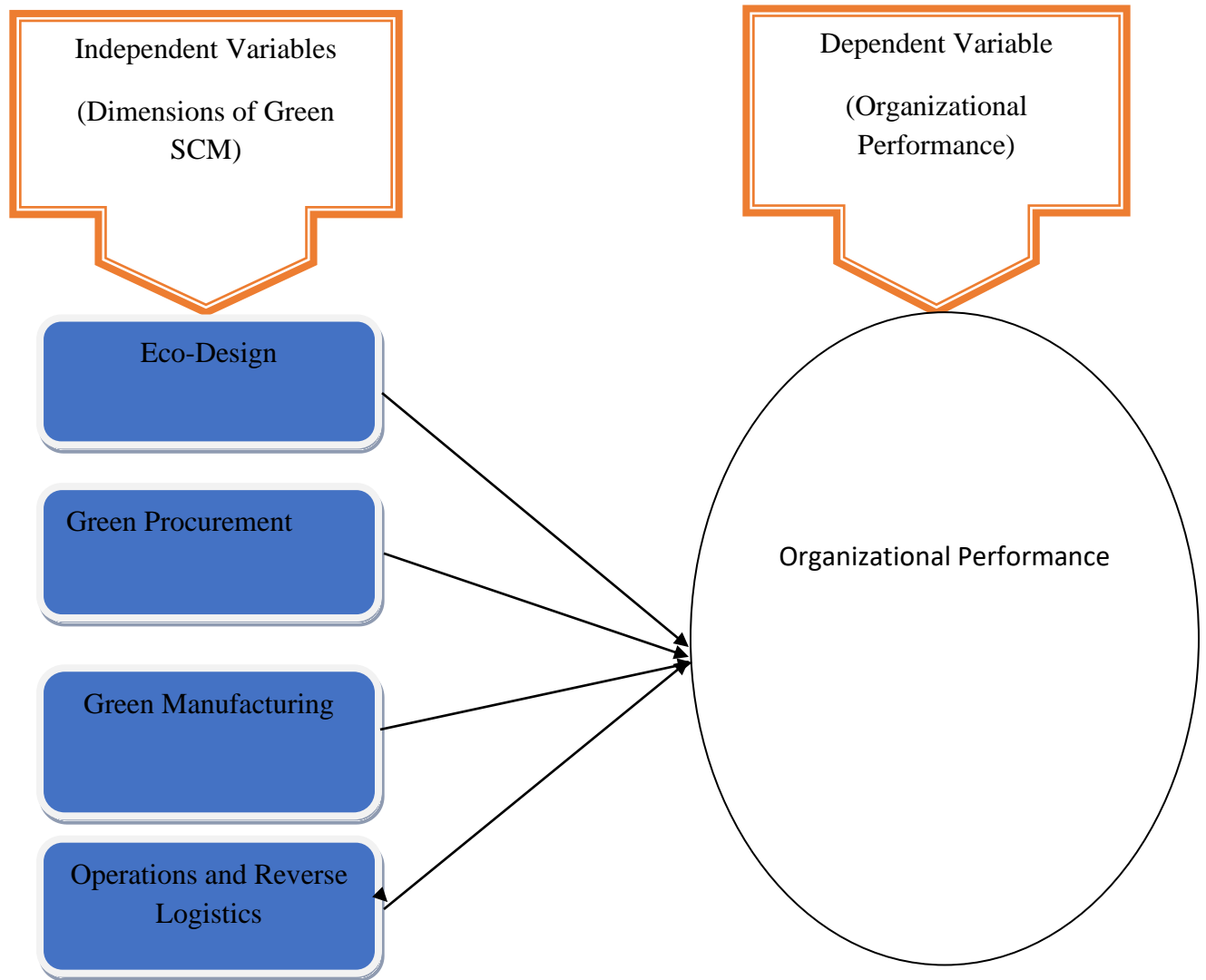
Figure 1: Conceptual model (adopted and modified from Salah M. Diab et al. (2014)

Research Hypothesis

The study used the following working hypothesis to be tested in the analysis:

H0: Eco-design of green supply chain management doesn't affect Organizational performance in Habesha Breweries S.C;

Ha: Eco-design of green supply chain management affects Organizational performance in Habesha Breweries S.C;

H0: Green Procurement of supply chain management doesn't affect organizational performance in Habesha Breweries S.C;

Ha: Green Procurement of supply chain management affects organizational performance in Habesha Breweries S.C;

H$_0$: Green Manufacturing in supply chain management doesn't affect organizational performance in Habesha Breweries S.C;

Ha: Green manufacturing in supply chain management affect organizational performance in Habesha Breweries S.C;

H$_0$: Operations and reverse logistics in green supply chain management doesn't affect organizational performance in Habesha Breweries S.C;

Ha: Operations and reverse logistics in green supply chain management affect organizational performance in Habesha Breweries S.C;

CHAPTER THREE

3. STUDY METHODOLOGY

3.1. Research Design

This study adapted descriptive and explanatory (Cause and effect) study design for analysis. Descriptive research design was used to describe characteristics of the population under study such as sex, educational level and year of experience in the company under study. While explanatory research design was applied to illustrate the effect of independent variables on the dependent variable. It also enables the researcher to know how and in what direction the dependent variable is affected by each independent variable. For this particular study quantitative study technique was utilized and was implemented through the distribution of questionnaires. The quantitative study helps the researcher to find and analyze relatively precise data about the subject under study.

3.2. Sources of Data and Data Collection Instruments

The source of the data is both primary and secondary. Primary data was collected through questionnaire from selected employees of Habesha breweries S.C. While secondary data was collected through document review from Habesha breweries manuals, reports of the organization and on related publications. To collect primary data, the study used structured questionnaires because it is easy to collect data from respondents.

The questionnaire was measured by five-point likert scale anchored by 1=Strongly Disagree, 2= Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree. A likert scale is an ordered scale from which respondents chose one option that best aligns with their view. It is often used to measure respondents' attitudes by asking the extent to which they agree or disagree with a particular question or statement. The likert scale has scales that assist in converting the qualitative response in to quantitative values (Mugenda & Mugenda, 2003). The study required to use these instruments because it is easier to analyze since they are in an immediate usable form. This is also economical to use in terms of cost and time.

3.3. Target Population and Sampling Techniques

Hair et al. (2010), target population is said to be a specified group of people or object for which questions can be asked or observation made to develop required data structures and information. Target population refers to the larger population to which the researcher ultimately would like to generalize the results of the study (Mugenda 2003). The target population of this research is the employees Habesha beer S.C. who are working on the main factory located at Debre Berhan, Ethiopia.

In this study the researcher used purposive sampling technique and census. Purposive sampling/ judgmental sampling was used to select the departments or employees whom are sure could correspond to the objectives of the study. This ensured professional judgment to select cases that would best enable to answer the research question and meet the research objective. Therefore from the 10 departments of the factory which are safety, health and environment department, brewing department, packing department, quality assurance department, warehouse and logistics department, electrical and automation department, engineering department, general service department, IT department and human resource department. Through implementing purposive sampling technique, from the above 10 departments, considering the purpose and objectives of the study, the researcher has selected only 5 departments (safety, health and environment department, brewing department, packing department, quality assurance department, warehouse and logistics department) which are sure to be directly related and are assumed to have a knowledge of the subject under study. Furthermore, the researcher utilized census where the total population equals with the sample size, as a result the total population equals to 140 which was convenient to distribute questionnaire to all the employees working in the selected departments of the company.

3.4. Methods of Data Analysis

The data collected from questionnaire and interviews were analyzed using data analysis tools. Verification was conducted and completed questionnaires were identified. Then the data was coded in to SPSS (Statistical package for social science).

According to the variables selected and the questions asked, the data analysis was performed using descriptive and inferential statistics for independent and dependent variables. SPSS Version 24 was used by the study to analyze the data.

3.4.1. Descriptive Statistical Analysis

The final report of the relevant characteristics of the respondents was produced through central tendency measurements (frequency and percentage). In addition, tabular explanation was used to present the results.

3.4.2. Inferential Statistical Analysis

In inferential statistical analysis, correlation and multiple linear regression tools was utilized. The use of these statistical tools and methods are described below:

a) Correlation

Correlation (r) is used to describe the strength and direction of relationship between two variables of dependent and independent. All variables were measured as an interval level; Pearson correlation was used. Correlation "r" output always lies between -1.0 and +1.0 and if r is positive, there exists a positive relationship between the variables. If it is negative, the relationship between the variables is negative. While computing a correlation, the significance level shall be set at 95% confidence level with error term 'ε' value of 0.05. The purpose of using Pearson correlation is to find out the relationship between green supply chain management dimensions and organizational performance.

b) Multiple Linear Regression Analysis

Multiple regression analysis is a major statistical tool for predicting the unknown value of a variable from the known value of variables. And it is about finding a relationship between variables and forming a model. The model for this study was developed using independent variables of green supply chain management practices and dependent variable of organizational performance.

The multiple linear regression equation is in the form of:

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

Where Y= Organizational Performance

β_i are coefficients to be estimated,

(x_1) = Eco-Design

$(x2)$ = Green Procurement

$(x3)$ = Green Manufacturing

$(x4)$ = Operations and Reverse logistics

ε=error term normally distributed with zero mean and variance.

Y is the dependent variable and X_i are the independent variables and 'ε' is the error term.

To enhance understandability of the results, tables, and graphs were used in presentation each accompanied by descriptive narratives. The purpose of using this model is that the nature of this study is qualitative but in order to analyze the data parametric measurement of multiple regressions is appropriate.

3.5. Validity and Reliability

Reliability and validity address issues about the quality of the data and appropriation of the methods used in carrying out the study.

3.5.1. Validity

Validity refers to the extent to which an instrument measures what is supposed to measure. Data need not only to be reliable but also true and accurate. If a measurement is valid, it is also reliable (Joppe 2000). The content of validity of the data collection instrument was determined through discussing the study instrument with the experts in the field of study especially the researcher supervisor. The valuable comments, corrections, suggestions, given by the study experts assisted the validation of the instrument. Before issuing the questionnaire to respondent's comments or suggestions given by advisors has to be adjusted accordingly.

3.5.2. Reliability

Reliability refers to the consistence, stability, or dependability of the data. A reliable measurement is one that is repeated a second time gives the same results as it did the first time. If the results are different, then the measurement is unreliable (Mugenda and Mugenda, 2008). To measure the reliability of the data collection instruments, internal consistency techniques using Cronbach's alpha was used.

Cronbach's alpha is a coefficient of reliability that gives an unbiased estimate of data generalization. An alpha coefficient of 0.75 or higher indicated that the gathered data are reliable as they have relatively high internal consistency and can be generalized to reflect opinions of all respondents in the target population (Zinbarg 2005). Before running all the respondent's data analysis 5% of the sample was taken as a pilot test to check the reliability of the data.

Table 1: Reliability statistics of the instrument

Variables	Cronbach's alpha	No. of Items
Eco-Design	0.79	5
Green Procurement	0.81	6
Green Manufacturing	0.83	6
Operations and reverse Logistics	0.82	6
Organizational Performance	0.84	7

3.6. Ethical Consideration

Each discipline should have its own ethical guidelines regarding the treatment of human participants on the study (Vanderstoep and Johnston 2009). Study ethics deal with how we treat those who participate in our studies and how we handle the data after we collect them. The researcher is keeping privacy (that left any personal questions), anonymity (protecting the identity of specific individuals from being known) and confidentiality or keeps the information confidential.

Accordingly, the questionnaire was distributed to voluntary participants and has a clear introduction and instruction parts regarding the purpose of the study.

CHAPTER FOUR

4 RESULTS AND DISCUSSION

4.1 Response Rate

The administered questionnaires were collected from the respondent of various departments. Out of 140 respondents, 139 were filled and collected from the appointed staffs of the organization. This accounted to response rate of 99.3%. This means that the study indicate a non-response rate of 0.7%. The data collected using questioner and interview was analyzed and presented based on the objectives of the study set above. The data was found to be important to evaluate the effect of Green supply chain management on organizational performance in Habesha Beer S.C. Descriptive statistics was used to analyze demographic characteristics of the respondents and inferential statistical analysis: correlation and multiple linear regression tools were utilized to analyze the result of the study.

4.2 General Information of Respondents.

Table 2: Demographic Characteristics of the Respondents.

Item Description	Category	Frequency	Percent
Sex of Respondents	Male	100	72
	Female	39	28
	Total	139	100.0
Educational level of Respondents	Certificate	0	0
	Diploma	54	39
	Degree	76	55
	Masters	9	6
	PhD	0	0
	Total	139	100.0
Experience of Respondents in the Organization	Below 1 year	7	5
	1-2 years	46	33
	3-4 years	68	49
	5 years and above	18	13
	Total	139	100.0

Source: Own Survey (2020).

4.2.1 Sex of Respondents

As depicted in table 2 above, out of 139 respondents, 72% of them were male and the remaining 28 % were female respondents. This shows majority of the respondents were male.

41

4.2.2 Educational Level of the Respondents.

Table 2 above shows that, (39%) of respondents have educational level of Diploma while the majority of the respondents (55%) have acquired their first degree, 6 % of the respondents have second degree (Masters) from the total and no respondents acquired PhD. Based on their education status, it can be said that the respondents have the ability to understand and respond the questionnaire.

4.2.3 Respondents Experience in the Organization.

The study determined the working experience held by the respondents in order to ascertain the extent to which their response could be relied up on to make conclusions on the study problem using their working experience. It was divided in to four categories. From the findings in table 2, 5% of the respondents have experience of below 1 year. 33% of the respondents have worked from 1 to 2 years in the organization while 49% of the respondents have served the company for 3 to 4 years in the organization and 13% of the respondents have served the company beyond five years. This indicates that the respondents clearly understand their organization to respond the questionnaires.

4.3 Analysis of Collected Data

4.3.1 Descriptive Analysis

In order to examine the effect of green supply chain management on organizational performance to enhance the practices of organizational performance (Eco-design, Green procurement, green manufacturing and operations and reverse logistics) which enhances the organizational performance on the tables below were measured.

Table 3: Descriptive Statistics of Eco-Design

Descriptive statistics of Eco-Design		
	Mean	**Std. Deviation**
Design of products for reduced materials and energy consumption.	2.34	1.14
Design of products for reuse, recycle, recovery of material, component parts.	2.07	0.091
Design of produces to Avoid or reduce use of hazardous products.	1.75	1.102
Eco-labeling of products.	1.66	1.044
State of art design of reverse logistics.	2.45	1
Overall mean	2.15	0.88

Source: Own Survey (2020).

As it is shown on table 3, the respondents in average disagree with the practice of eco-design in the organization as the mean score ranges between 1.66 to 2.45 and the overall mean is 2.15 which is low. The range of the standard deviation is from 0.091 to 1.14. These indicated, there were no significant variations in the response of as the standard deviation approaches to 1.

Table 4: Descriptive Statistics of Green Procurement

Descriptive statistics of Green Procurement		
	Mean	**Std. Deviation**
Habesha Beer S.C Green procurement leads to successful implementation of procurement plans.	2.91	1.10
Habesha Beer S.C Green procurement leads to sustainability of organizational productivity.	2.86	0.143
Habesha Beer S.C Green procurement leads to compliance with customers' requirements related to the implementation of environmental management system.	2.83	1.202
Habesha Beer S.C Green procurement ensures evaluation of the amount of waste flowing in to business system.	2.97	1.134
Habesha Beer S.C Green procurement leads to decrease of consumption for hazardous/harmful/toxic materials.	2.96	1.15
Habesha Beer S.C Green procurement leads to decrease of frequency for environmental accidents.	2.85	1
Overall mean	2.91	0.95

Source: Own Survey (2020).

As it shown on table 4, average respondents neither agree nor disagree on the supply chain practice of green procurement in the organizational performance. The mean score ranges from 2.83 to 2.97 which is categorized as low. The overall means core of the variable is 2.91. There was no significant variation in response as the overall standard deviation is less than 1.

Table 5: Descriptive Statistics of Green Manufacturing

Descriptive statistics of Green Manufacturing		
	Mean	**Std. Deviation**
Green Manufacturing has led to lower raw material costs.	2.92	0.91
Green manufacturing generate little or no waste or pollution.	3.26	0.094
Green manufacturing promotes reuse of raw materials.	3.15	0.932
Green manufacturing has led to reduced environmental and occupational safety expenses.	3.04	0.964
Green manufacturing leads to compliance with environmental regulations in producing parts and components.	3.01	0.81
Green manufacturing ensures greening of production to cleaner production.	3.31	1
Overall mean	3.12	0.79

Source: Own Survey (2020).

As it show on table 5, on average respondents neither agreed nor disagreed on the supply chain practice of green manufacturing in the organizational performance. The mean score ranges from 3.01 to 3.26 which are indicated that the respondents neither agree nor disagree on their response. The overall means core of the variable is 3.12. There was no significant variation in response as the overall standard deviation is 0.79 which is less than 1.

Table 6: Descriptive Statistics of Operations and Reverse Logistics

Descriptive statistics of operations and Reverse Logistics		
	Mean	**Std. Deviation**
Habesha Beer S.C Operations and reverse logistics recover material that is harmful to environment.	3.5	0.044
Habesha Beer S.C Operations and reverse logistics ensure launching of recycle system in our organization.	3.61	0.91
Habesha Beer S.C Setting internal material recycling system.	3.35	0.832
Habesha Beer S.C Operations and reverse logistics lead to implementation of recycle system in our organization.	3.45	0.874
Habesha Beer S.C Operations and reverse logistics lead to implementation of reused package system.	3.51	1
Habesha Beer S.C Operations and reverse logistics ensure use of packaging materials that can be used for other purposes in our organization.	3.55	0.810
Overall mean	3.51	0.81

Source: Own Survey (2020).

As it shown on table 6, on average majority of the respondents agree on the supply chain practice of operations and reverse logistics in the organizational performance. The mean score ranges from 3.35 to 3.36 which is indicated high. That means the respondents agree on their response. The overall means core of the variable is 3.51. There was no significant variation in response as the overall standard deviation is 0.75 which is less than 1.

Table 7: Descriptive Statistics of Organizational Performance

Descriptive statistics of organizational Performance		
	Mean	**Std. Deviation**
Green supply chain management leads to improved organizational output.	2.52	1.01
Green supply chain management leads to organizational sales turn over.	2.21	1.011
Green supply chain management leads to quality products.	2.14	0.822
Green supply chain management leads to effective waste control.	1.71	0.674
Green supply chain management leads to compliance with environmental regulations.	2.28	0.81
Decrease in cost for energy consumption	2.24	0.71
Decrease in cost of materials purchasing.		
Overall mean	2.18	0.84

Source: Own Survey (2020).

As it shown on table 7, on average majority of the respondents disagree on the supply chain practice of organizational performance related with the green supply chain practices. The mean score ranges from 1.71 to 2.52 which are indicated high. That means the respondents disagree on their response. The overall means core of the variable is 2.18. There was no significant variation in response as the overall standard deviation is 0.84 which is less than 1.

Table 8: Overall Descriptive Statistical Analysis

Descriptive Statistics			
Variables	**N**	**Mean**	**Standard Deviation**
Organizational performance	139	2.18	0.84
Eco-Design	139	2.15	0.88
Green Procurement	139	2.91	0.95
Green Manufacturing	139	3.12	0.79
Operations and reverse logistics	139	3.51	0.75

Source: Own Survey (2020).

Respondents were asked to put their level of agreement with five point likert scale on organizational performance in the organization that Green supply chain management practice are maintained and have a clear policy on Green supply chain management have striven to solve problems faced during implementation. The overall mean and standard deviation result of the organizational performance of the organization were 2.18 which were low and there were no significant variations in the response as the standard deviation was 0.84 which was less than 1. This finding indicates that majority of the respondents replies disagree on the dependent variables. It also implies that the organizational performance of the company does not incorporate the implementation of green supply chain management.

Respondents were asked to put their level of agreement with five point likert scale on Eco-design in the organization that Green supply chain management practice are maintained in the organization. The overall mean and standard deviation result of the organizational performance of the organization were 2.15 which were low and there were no significant variations in the response as the standard deviation was 0.88 which was less than 1. This indicates that majority of the respondents replied disagree on these independent variables. It also imply that the design of products manufactured by Habesha breweries S.C does not consider designing the product by reduced materials, designing the product for reuse, designing the product to avoid hazardous chemicals and eco labeling.

Respondents were asked to put their level of agreement with five point likert scale on Green Procurement in the organization that Green supply chain management practice are maintained in the organization. The overall mean and standard deviation result of the organizational performance of the organization were 2.91 which were low and there were no significant variations in the response as the standard deviation was 0.84 which was less than 1. This indicates that majority of the respondents reply disagree and neutral on these independent variables. It also imply that the purchasing process somehow does not implement the practices of green procurement and at the same time it imply that there is no clear policy and procedure as to the implementation of green procurement.

Respondents were asked to put their level of agreement with five point likert scale on Green Manufacturing in the organization that Green supply chain management practice are maintained in the organization. The overall mean and standard deviation result of the organizational performance of the organization were 3.12 which were low and there were no significant variations in the response as the standard deviation was 0.79 which was less than 1. This indicates that majority of the respondents reply neutral on these independent variables. It also implies that there is no clear and specific manufacturing process that incorporates the practice of green manufacturing.

Respondents were asked to put their level of agreement with five point likert scale on operations and reverse logistics in the organization that Green supply chain management practice are maintained in the organization. The overall mean and standard deviation result of the organizational performance of the organization were 3.51 which were low and there were no significant variations in the response as the standard deviation was 0.75 which was less than 1. These indicate that majority of the respondents reply neutral and agree on these independent variables. It also implies that the general operation of the company to some extent considers the principles of operation and reverse logistics in its day to day operation.

4.3.2 Correlation Analysis

Pearson correlation (r) was used to describe the strength and direction of relationship between the dependent variable which is organizational performance and the four independent variables Eco Design, Green Procurement, Green Manufacturing and Operations and reverse logistics.

Multiple regression analysis is used to predict the value of organizational performance from the value of independent variables. The correlation of the variable is measured by Pearson correlation of coefficient. The result of Pearson correlation is presented in the following table and interpreted by the guide line suggested by Field (2006).

Table 9:   Pearson Correlation Analysis of the study variables

		OP	ED	GP	GM	OR
Organizational Performance	Pearson Correlation	1	$.611^{**}$	$.659^{**}$	$.593^{**}$	$.522^{**}$
	Sig. (2-tailed)		.000	.000	.000	.000
	N	139	139	139	139	139
Eco Design	Pearson Correlation	$.611^{**}$	1	$.495^{**}$	$.289^{**}$	$.302^{**}$
	Sig. (2-tailed)	.000		.000	.000	.000
	N	139	139	139	139	139
Green Procurement	Pearson Correlation	$.659^{**}$	$.495^{**}$	1	$.631^{**}$	$.452^{**}$
	Sig. (2-tailed)	.000	.000		.000	.000
	N	139	139	139	139	139
Green Manufacturing	Pearson Correlation	$.593^{**}$	$.289^{**}$	$.631^{**}$	1	$.452^{**}$
	Sig. (2-tailed)	.000	.000	.000		.000
	N	139	139	139	139	139
Operations and Reverse logistics	Pearson Correlation	$.522^{**}$	$.302^{**}$	$.406^{**}$	$.452^{**}$	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	139	139	139	139	139

Source: Own Survey (2020).

Where: OP=Organizational Performance, EC=Eco-Design, GP=Green Procurement, GM= Green Manufacturing, OR= Operations and reverse logistics.

The above table 9 of Pearson correlation analysis of the study variable shows that the correlation between predictor variables (i.e. Eco Design, Green Procurement, Green Manufacturing and Operations and Reverse logistics) and dependent variables (Organizational performance). Accordingly, Organizational performance has strong and positive correlation with all four of green supply chain management practices at pearson correlation (r) value of 0.611, 0.659, 0.593, and 0.522 respectively as Eco Design, Green Procurement, Green Manufacturing and Operations and Reverse logistics with a significance value of P<0.01.

4.3.3. Multiple Linear Regression Analysis Results

Regression Analysis is a statistical tool to deal with the formulation of mathematical model depicting relationship along with variables which can be used for the purpose of prediction of the value of dependent variable, given the value of the independent variable(s) (Kothari, 2004). Multiple regression analysis is an analysis of association in which the effects of two or more independent variables on a single, interval-scaled dependent variable are investigated simultaneously (William and Barry, 2010).

Before running multiple linear regression analysis, the researcher conducted basic assumption tests for the model. These are statistical assumption tests of normality distribution, linearity of the relationship between the independent and dependent variables, multicollinearity, and, auto-correlation/DurbinWatson/. Each test is explained below:

4.3.3.1. Normality Distribution Test

Multiple regressions require the independent variables to be normally distributed. Normality test helps to determine whether the data used is normal or not, and this assumption is met for statistical tests. Frequency distribution comes in many different shapes and sizes. Therefore, it is quite important, to have some general description for common types of distributions. In an ideal world our data would be distributed symmetrically around the center of all scores.

As such, if we draw a vertical line through the center of the distribution then it should look the same on both sides. This is known as a normal distribution and is characterized by bell-shaped curve. This shape basically implies that the majority of scores lie around the center of the distribution. So, the largest bars in the histogram are near to all around the central value (Field, 2006). The normal distribution graph was shown on figure 2 below.
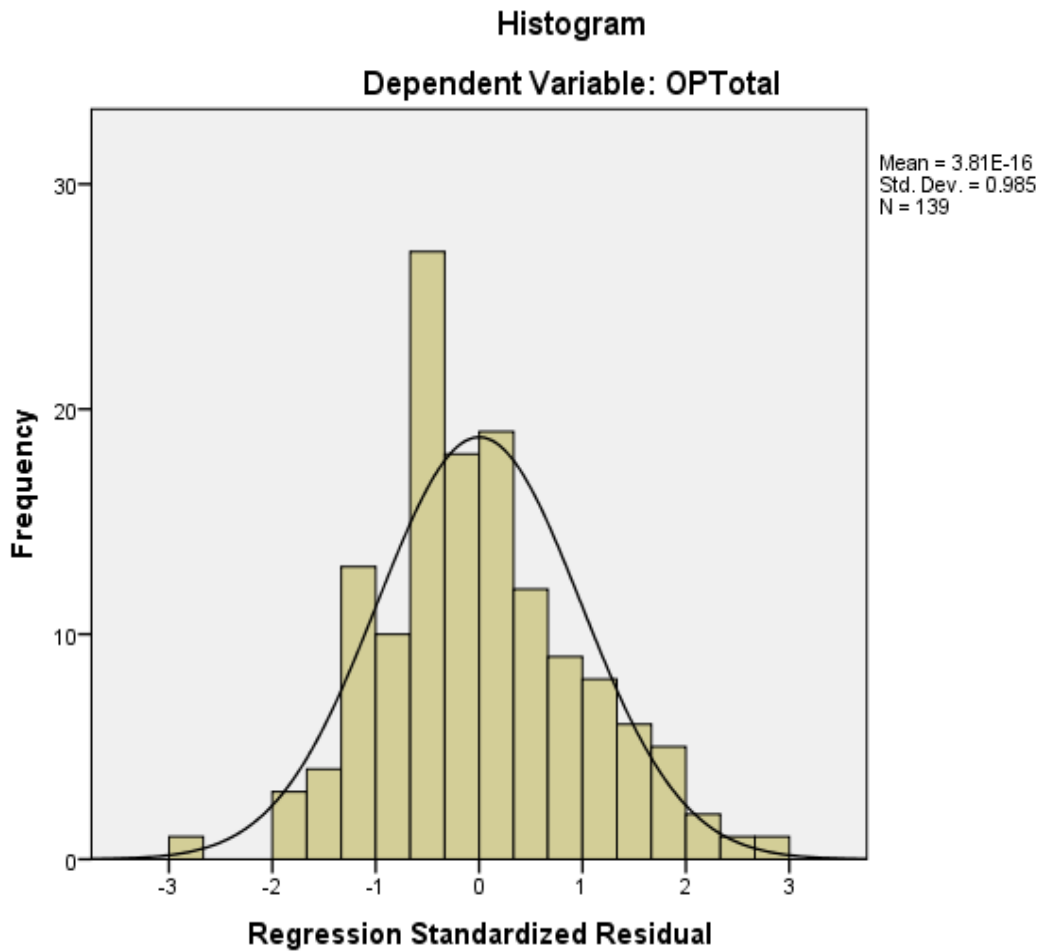
Figure 2: Normal Distribution

Source: Own Survey (2020).

4.3.3.2. Linearity Test

The second assumption for computing multiple linear regressions is test of the linearity of the relationships between dependent and the independent variables. As depicted in the below graph of the visual inspections of the p-p plot there exist the linear relationship between Green supply chain management practices and organizational performance.

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: OPTotal
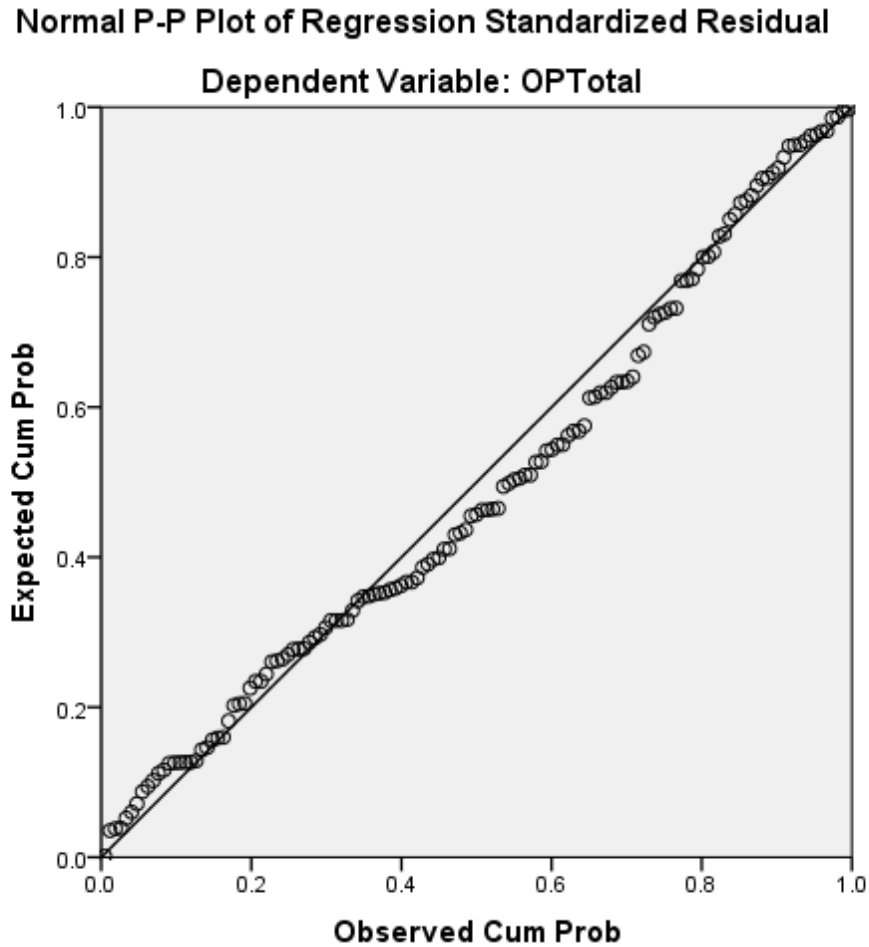
Figure 3: Linearity of the relationship

Source: Own Survey (2020).

4.3.3.3. Multicollinearity Test

Multicolinearity exists when there is strong correlation between two or more predictors in a regression model Saunders et.al (2007). There should be no perfect linear relationship between two or more of the predictors. So, the predictor's variables should not correlate to highly Field, (2006). If there is perfect collinearity between predictors, it becomes impossible to obtain unique estimates of the regression coefficients because there are an infinite number of combinations of coefficients that would work equally well. If there is a high degree of correlation between independent variables, we have a problem of what is commonly described as the "problem of multicollinearity" Kothari, (2004); Field, (2006).

53

This study data multicollinearity assumption is checked by the Pearson correlation coefficient and collinearity statistics.

Checking the multicollinearity assumption is that by looking SPSS analysis output regression table of collinearity statistics value of Tolerance and Variance Inflation Factor /VIF (Field, 2006). The tolerance column value below 0.2 and VIF value above 10 create a multicollinearity problem. Having this, the Tolerance and VIF value is shown in the regression standardized coefficients table 5 below and the analysis indicates that there is a minimum tolerance value of 0.490 which is above 0.2 and the maximum VIF value is 2.042 which is below 10. Therefore, the predictors don't significantly correlate each other; hence, there is no multicollinearity problem.

Table 10: Collinearity Statistics value

Model	Collinearity statistics	
	Tolerance	**VIF**
Eco Design	.738	1.354
Green Procurement	.490	2.042
Green Manufacturing	.553	1.810
Operations and Reverse logistics	.756	1.322

Source: Own Survey (2020).

4.3.3.4. *Auto-correlation /Durbin-Watson Test/*

It is the assumption of independent error acceptable or reasonable test. Durbin-Watson used to test for serial correlation between errors. The Durbin-Watson statistic test can vary between 0 and 4. A value of 2 meaning residual statistics are uncorrelated Field, (2006). A value greater than 2 indicates a negative correlation between adjacent residuals, whereas a value below 2 indicates a positive correlation. Similarly, Ott and Longnecker (2001), defines when there is no serial correlation, the expected value of Durbin-Watson test statistics d is approximately 2.0; positive serial correlation makes d< 2.0 and negative serial correlation makes d > 2.0. Although, values of d less than approximately 1.5 (or greater than approximately 2.5) lead one to suspect

positive (or negative) serial correlation. If serial correlation is suspected, then the proposed multiple linear regression models are inappropriate.

Referring this and the model summary table 12 below; the Durbin-Watson value of this study is 1.815. Therefore, the auto-correlation test has almost certainly met, since it falls between 1.5 and 2.5, and we can conclude that our model is free of serial correlation.

The four assumptions test of multiple regressions are met and the next step was processing the regression analysis to determine the values of the model fit (ANOVA), model summary (R and R^2), and the Beta coefficients. Accordingly, the relative effect of organizational culture practices on employee commitment was identified.

4.3.3.5. ANOVA Model Fit
Table 11: ANOVA Model Fit

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	628.196	4	157.049	57.244	.000[b]
	Residual	367.632	134	2.744		
	Total	995.827	138			

a. Dependent Variable: Organizational Performance.

b. Predictors: (Constant) Eco Design, Green Procurement, Green Manufacturing, Operations and Reverse logistics.

Source: Own Survey (2020).

The regression model overall fit can be examined with the help of ANOVA. Accordingly, the overall significance of the model presented in ANOVA table 11 above, the total variance (57.244) was the difference in to the variance which can be explained by the independent Variables (Model) and the variance which was not explained by the independent variables (error).

The study established that there existed a significant goodness of fit between variables as F-test F $(4,134) = 57.244$, at P=0.000<0.01). This indicated that the model formed between effect of Green supply chain management practices and organizational performance was a good fit for the data.

4.4. Model Summary

Table 12: Model Summary

			Model Summary[b]				
Model	**R**	**R^2**	**Adjusted R Square**	**Std. Error of the Estimate**	**Sig.**	**Durbin-Watson**
1	.794[a]	.631	.620	.165636	.000	1.815
		a. Predictors: (Constant), Eco Design, Green Procurement, Green Manufacturing and Operations and Reverse logistics.				
		b. Dependent Variable: Organizational Performance.				

Source: Own Survey (2020).

In the model summary above (table 12), the multiple regression coefficients R, indicates a very strong correlation of 0.794 between organizational performance and the four independent variables. The R^2 =0.631 reveals that the model accounts for 63.1% of the variation in the organizational performance and it is explained by the linear combination of all the four independent variables of Green supply chain management practices (i.e. Eco- Design, Green Procurement, Green Manufacturing, Operations and reverse logistics). The remaining 36.9% is explained by other factors giving room for further study to investigate other factors which affect organizational performance.

4.5. Beta Coefficient

Table 13: Multiple Regression Beta Coefficient Result

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		Beta	Std.Error	Beta		
1	(Constant)	-.169	1.158		-.146	.000
	Eco Design	.290	.050	.357	5.842	.000
	Green Procurement	.390	.119	.247	3.291	.001
	Green Manufacturing	.219	.064	.242	3.423	.001
	Operations and reverse logistics	.292	.086	.205	3.389	.001

a. Dependent Variable: Organizational Performance.

Source: Own Survey (2020).

As it is defined in chapter three, the standardized coefficients ($\beta1$ to $\beta4$) are the coefficients of the estimated regression model. Hence, by including the error term (ε), the model for organizational performance can be written as;

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_{4} + \varepsilon$

$Y = -.169 + .290 X_1 + .39 X_2 + .219 X_3 + .292 X_4$

The standardized beta coefficient compares the strength of the effect of each individual independent variable to the dependent variable. The higher the absolute value of the beta coefficient, the stronger the effect.

The intercept (β_0 is the point on the vertical axis where the regression line crosses the Y axis. The value of β_0 is -.169 which means the expected value of organizational performance is -.169 when all the four independent variables assume zero value.

As it can be seen from table 13 above, the unstandardized coefficients of Green Procurement is the largest value followed by operations and reverse logistics, Eco-Design, and Green Manufacturing ranks from one to four respectively. The larger the standardized coefficient, the higher is the relative effect of the factors to the organizational performance.

The significance test of the four explanatory variables indicate that all of the explanatory variables are significant with p-value ($p<0.01$) for predicting organizational performance.

All the four independent variables Eco- design, Green Procurement, Green Manufacturing and operations and reverse logistics are found to be statistically significant. The beta coefficients of these factors indicate that a one unit increase in the Green Supply Chain management practices will result increase in organizational performance.

4.6. Hypothesis Test Result

According to Weiers (2008), if P value is less than the specified level of significance (α), reject the null hypothesis; otherwise, do not reject the null hypothesis. The hypothesis result of organizational culture practices which are shown above in table 11 ANOVA and table 13 regression unstandardized beta coefficients, for all alternative hypothesis P value is less than 0.01, and this means reject the null hypothesis. Therefore, the regression analysis agreed to accept alternative hypothesis, as a result all alternative hypothesis was accepted. Hence, organizational culture practices (Eco Design, Green Procurement, Green Manufacturing and operations and reverse logistics) have positive correlation with Organizational Performance.

The researcher used Pearson's correlation coefficient to test the hypothesis. The result of the Pearson's correlation presented in table 9, interpreted by using the Pearson's correlation coefficient relationship between the predictor and outcome variable. Correlation is an effect size we can verbally describe the strength of the correlation using the following guide for the absolute value from 0 to 0.19 is very weak relationship, from 0.20 to 0.39 is weak, 0.4 to 0.49 is moderate, 0.5 to 0.79 is strong and 0.80 to 1.0 shows very strong relationship while the positive and negative sign tells us the direction of their relationship (Stastutor.ac.uk, 2015).

Table 14: Hypothesis Test Result

Hypothesis No.	Hypothesis	P-value	Relationship Direction	Result
H1a	Eco- Design affects organizational performance in Habesha Beer S, co.	0.000	positive	Reject $H1_0$
H2a	Green Procurement affects organizational performance in Habesha Beer S, co.	0.001	positive	Reject $H2_0$
H3a	Green Manufacturing affects organizational performance in Habesha Beer S, co.	0.001	positive	Reject $H3_0$
H4a	Operations and reverse logistics affects organizational performance in Habesha Beer S, co.	0.001	positive	Reject $H4_0$

Source: Own Survey (2020).

The above Pearson correlation coefficient table 9, shows that the correlation relationship between predictor variables (i.e. Eco Design, Green Procurement, Green Manufacturing and Operations and reverse logistics) and dependent variable (Organizational performance). Accordingly, organizational performance has strong and positive correlation with all Green Supply chain management practices in Habesha Beer S.C at Pearson correlation (r) value of 0.611, 0.659, 0.593, 0.522, respectively as Eco- Design, Green Procurement, Green Manufacturing and operations and reverse logistics with significant value of $P < 0.01$.

In general, the entire null hypothesis is automatically rejected and all alternative hypotheses are accepted. This shows the company has to work in these factors to increase the organizational performance.

4.7. Discussion of the study

4.7.1. Eco-Design

From Pearson's correlation coefficient, there is found to be a positive correlation and significantly related between organizational performance and Eco-Design with a correlation coefficient of 0.611, at P<0.01.

From regression model, a unit increase in Eco-Design by keeping other independent variables constant will lead to 0.290 increases in employee commitment at Habesha Beer S.C. This implies that Eco-Design indicate for 29 % of variation in organizational performance.

The study conducted by Juma and Simba (2017) confirmed, lack of Eco-Design could result in decreasing the organizational performance. Therefore, the findings indicated that Eco-Design in the organization affect positively organizational performance in Habesha S.C.

4.7.2. Green Procurement

From Pearson's correlation coefficient, there is found to be a positive correlation and significantly related between employee commitment and outcome orientation with a correlation coefficient of 0.659, at P<0.01. From the regression model, a unit increase in Green Procurement by keeping other independent variables constant will lead to a 0.39 increase in organizational [performance at Habesha Beer S.C. This implies that Green procurement accounts for 39% of variations in organizational performance. Green procurement affects organizational performance in Habesha Beer Sh. Co. Therefore, the findings indicated that Green procurement in the organization affect positively organizational performance in Habesha Beer Sh. Co.

4.7.3. Green Manufacturing

From Pearson's correlation coefficient, there is found to be a positive correlation and significantly related between organizational performance and green manufacturing with a correlation coefficient of 0.593, at P<0.01. From the regression model, a unit increase in green manufacturing by keeping other independent variables constant will lead to a 0.249 increase in organizational performance at Habesha breweries S.C. This implies that green manufacturing accounts for 24.9% of variations in organizational performance. The findings indicated that the decision made by top management of the organization shall maintain considering the practices of the organization regularly against their standard, and if the organization ensures the relevant

green manufacturing system in the organization affect organizational performance at Habesha beer S.C. The finding of interview also confirm that green manufacturing affects the organizational performance positively if it is done appropriately as stated in the above interview result otherwise it affect the performance of the organization negatively. The finding was supported by study conducted by Allen (2011) which established the effect of green supply chain management on organizational performance conforms that green manufacturing maintaining the relationship between the decision made by the management which directly impacted the green supply chain management positively affect the organizational performance. Therefore, the findings indicated that, green manufacturing in the organization affect positively organizational performance in Habesha breweries S.C.

4.7.4. Operations and Reverse logistics

From Pearson's correlation coefficient, there is a positive correlation and significantly related between organizational performance and operations and reverse logistics with Pearson correlation coefficient of 0.522, at $P<0.01$. From the regression model, a unit increase in operations and reverse logistics by keeping other independent variables remain constant will lead to a 0.292 increase in organizational performance at Habesha Beer S.C. This implies that operations and reverse logistics accounts for 29.2% of variations in organizational performance. Clear Green supply chain management policy, proper operations and reverse logistics in the organization affect organizational performance in Habesha Beer S.C. The finding of interview also confirms that if operations and reverse logistics in the organization is good enough and supported by organization it improves the organizational performance otherwise negatively affect the organizational performance. The finding was supported by a study conducted by Neale and Noetheraft (1990), the internal factors affecting green supply chain management in the public sector confirms that, operations and reverse logistics affect organizational performance of health care in public sector. Therefore, the findings indicated that, team operations and reverse logistics affect positively organizational performance in Habesha beer S.C.

CHAPTER FIVE

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Summary of Findings

Out of the 140 Questionnaire distributed to the respondents, 139 questionnaires were filled and returned with a response rate of 99.3%.The sum of the independent variables and dependent variable cronbach's alpha value is ($\alpha = 0.771$) and the reliability test of the study is reliable.

From the findings, out of 140 respondents, 72 % (100) of the respondents were male and the remaining 28 % (39) were Female. 39 % of the respondents had edum the organization. The specific objectives of the study included, analyzing the effect of Eco-design, Green Procurement, Green Manufacturing, and operations and reverse logistics on organizational performance. The researcher had developed and adopted questionnaire from the relevant literature to collect and analyze the data gathered from respondents. Descriptive and Inferential statistical analysis correlation and multiple linear regressions were used to identify the effect of Green supply chain management practices and organizational performance. The following findings were obtained:

The first study question of the study was how Eco-design affects the organizational performance in Habesha Beer S.C. The Pearson's correlation analysis revealed that, there is found to be a positive correlation and are significantly related with a correlation coefficient of 0.611, at P<0.01. The regression model result revealed that, a unit increase in eco-design by keeping other independent variables constant will lead to 0.290 increases in organizational performance at Habesha Beer Sh. Co. This implies that eco-design indicates for 29 % of variation in organizational performance. Therefore, the findings indicated that eco-design taking in the organization affects positively organizational performance.

The second study question was how Green procurement affects the organizational performance in Habesha Sh. Co. The Pearson's correlation analysis revealed that, there is found to be a positive correlation and are significantly related with a correlation coefficient of 0.659, at P<0.01. The regression model result revealed that, a unit increase in green procurement by keeping other independent variables constant will lead to 0.390 increases in organizational performance at Habesha Beer Sh. Co. This implies that green procurement indicates for 39 % of

variation in organizational performance. Therefore, the findings indicated green procurement in the organization affect positively organizational performance.

The third study question was what is the effect of green manufacturing in the organizational performance in Habesha Beer S.C. The Pearson's correlation analysis revealed that, there is found to be a positive correlation and are significantly related with a correlation coefficient of 0.593, at $P<0.01$. The regression model result revealed that, a unit increase in green manufacturing by keeping other independent variables constant will lead to 0.219 increases in organizational performance at Habesha Beer S.C. This implies that green manufacturing indicates for 21.9 % of variation in organizational performance. Therefore, the findings indicated that green manufacturing in the organization affect positively organizational performance.

The fourth study question was how operations and reverse logistics contribute to organizational performance in Habesha S.C. The Pearson's correlation analysis revealed that, there is found to be a positive correlation and are significantly related with a correlation coefficient of 0.522, at $P<0.01$. The regression model result revealed that, a unit increase in operations and reverse logistics by keeping other independent variables constant will lead to 0.292 increases in organizational performance at Habesha S.C. This implies that operations and reverse logistics indicate for 29.2 % of variation in organizational performance. Therefore, the findings indicated that operations and reverse logistics in the organization affect positively organizational performance.

5.2. Conclusions

The main objective of this study was to evaluate the effect of green supply chain management practices on organizational performance in Habesha Beer S.C. with respect to green supply chain management practices. The study has provided empirical justification for the framework that identifies four determinants of green supply chain management practices and describes the relationship among the determinants and organizational performance within the context of Habesha Beer Sh. Co. Based on the findings, the study concludes that there is a relationship between the green supply chain management practices (independent variables) and organizational performance (dependent variables); the correlation relation shows that they have strong and a positive correlation with all green supply chain management practices.

The independent variables studied significantly and positively affect the organizational performance of Habesha Beer Sh. Co. In general, the study concludes that Eco-design, green procurement, green manufacturing and operations and reverse logistics positively affect organizational performance at Habesha Beer S.C. The green supply chain management practices are ranked in terms of their importance in this study is as follows; Green procurement, operations and reverse logistics, Eco-design and green manufacturing.

5.3. Recommendations

Based on the finding of the study, conclusions drown in line with the study objectives; the following points are recommended in order to improve organizational performance of Habesha Beer S.C. In this aspect, management and employee's commitment and vigorous support is critical factors in implementation of green supply chain management practices. Therefore, in order to be able to expand and enhance the green supply chain management practices, the company needs to establish a unit so as to review and convey experiences and techniques as a culture installed on the way forward. Lastly, green supply chain management must be binding on all members and staffs of the company as this will encourages uniformity among members of the organization and thus enhance the organizational performance and group efficiency.

If employees are well acquainted with the green supply chain management, they know how to adjust their own values to fit in to the green supply chain management practices of the organization.

5.4. Limitation and Implication for Further Study

The study was limited to one organization on Habesha Beer S.C. due to administer proximity and logistic simplicity. There are a number of factors that affect green supply chain management practices but this study was limited to only four independent variables affecting the organizational performance. The researcher recommends that other researchers may include other companies as part of the study and also it is better to incorporate government and non-government organization engaged in different business. The study also limited to green supply chain management which affect organizational performance. Further study is recommended to include other factors affecting organizational performance which do not considered in this study.

References

Abass. (2012). The brewing industry and environmental challenges. Journal of Cleaner Production , 16-17.

Abukhader, J. (2004). Logistics and the environment: Is it an established Subject? International Journal of Logistics: Research and Applications , 137-149.

Allen, F. E. (1992) Reducinf toxic waste produces quick results. The Wall Street Journal, New York

Berry, S. (2003). Alcoholic beverage fermentaion: Fermented beverage production. New York: Kluwer Academic/Plenum Publishers.

Boyer, S. (2009). Developing a consensus definition of supply chian management: a qualitative study. International Journal of Physical Distribution and Logistics management , 690-711.

Bratic, D. (2011). Achieving a competitive advantage by SCM. Achieving a competitive advantage by SCM. IBIMA Business Review .

Cameron, Q. (2011). Diagnosing and Changing Organizational Culture: Based on the competing Values Framwork. New York: Jossey Bass.

Chopra, M. (2013). Supply chain management: strategy, planning and operation. Harlow, UK: Pearson Education Ltd.

David, A. C. (2017). Sustainable logistics and supply chian management (2nd ed.). United States: Kogan Page Limited .

Dereje. (2012). The impact of supply chain management practices on the organizational performance of basic metal and engineering industries in Ethiopia. Masters Degree, University of South Africa .

Diane Lesley Holt(2005)," The development and Emperical Testing of Pressure/Response Model of Green Supply Chain Management amongst a cross sectional sample of members of The Chartered Institute of Purchasing and Supply" Middlesex University, Volume I

Donald. (2003). Logistics, An introduction to supply chain management (1st ed.). New York: PALGRAVE MACMILLAN.

Dufour, V. D. (2003). Yeast in foods. Cambridge(UK): Woodhead Publishing.

Fasial. (2011). A Study of total quality management and supply chain management practices. International Journal of Productivity and Performance Management , 268-288.

Gopal, P.R.C, & Jitesh, T. (2012). A Review of Supply Chain Performance Measurement International Journal of productivity and Performance Management, Emerald Article.
Green, Z. B. (2012). Green supply chain management practices. Supply chain Management , 290-305.

Henk, M. A. (2019). Operations, Logistics and Supply chain management. Cham, Switzerland: Springer International Publishing AG.

Ho, L. (2008). What affects organizational performance? The linking of learning and knowledge management. Industrial Management & Data Systems , 2-7.

Ibrahim, D. H. (2012). Supply chain management practices and supply chain performance effectiveness. International Journal of Science and Research , 33-54 ISSN Online .

Kanagachandran, J. (2006). Utilization potential of brewery waste water sludge as an organic fertilizer. Journal of Intercultural Management .

Karimi, E. R. (2014). Analyzing the impact of supply chain management practices on organizational performance through competitive priorities(case study: Iran Pumps Company). International Journal of Academic Research in Accounting, Finance and Management Sciences , 1-15.

Khisa, J.N. (2011). Green Procurement in Public Sector: A Case of Parastatals in Kenya. Unpublished MBA Project, University of Nairobi.
Klassen, R., and McLaughlin, C. (1996). The impact of environmental management on firm performance, Management Science,199-1214

Laskowska. (2009). The impact of national and organizational culture. Journal of Intercultural Management , 5-16.

Lee,J.J.,O'Callaghan, P. and Allen,D.(1995). Critical review of life cycle analysis and assessment techniques and their application to commercial activities. Conservation and recycling, 13, 37-56

Linhoff, B.(1993)Pinch analysis-a state–of-the art overview. Transaction of Chemical Engineering, 71, 503-522

Lin, R-J., Chen, R-H. And Nguyen, T.H. (2011). Green Supply Chain Management Performance in Automobile Manufacturing Industry under Uncertainty. Procedia-Social and Behavioral Sciences, Vol. 25, pp. 233-245.

Lummus, V. (1999). Defining supply chain management: a historical perspective and practical guidelines. Industrial Management and data systems , 11-17.

Madu,C.N..,Kuei,C.and Madu,I.E.(2002). A hierarchic metric approach for integration of Green issues in manufacturing: a paper recycling application. Journal of Environmental Management, 64, 261-272.

McKone-Sweet, K., Hamilton, P. and Willis, S. (2012). The Ailing Healthcare Supply Chain: A Prescription for Change. The Journal of Supply Chain Management, pp. 4-17.

Merewe, v. d. (2002). water management at a malted barley brewery. water management at a malted barley brewery, water Sa 28 , 313-318.

Min, H. and Galle, W. P. (2011). Green Purchasing Practices of US Firms. International Journal of Operations and Production Management, Vol. 21, No. 9, pp 1222-1238

Mustefa, M. (2014). Supply Chain Management Practices and Firm Performance in case of Awash Tannery PLC. AA, Ethiopia: unpublished Master;s thesis.

Mustaffa, N. H. and Potter, A. (2009) 'Healthcare Supply Chain Management in Malaysia: A Case Study', Supply Chain Management. An International Journal, Vol. 14 No. 3, pp. 234 –243.

Mwale. (2014). Supply chain management practices and organizational performance of large manufacturing firms in Nairobi, Kenya.

Myers. (2010). The many benefits of supply chain collaboration. The many benefits of supply chain collaboration, Supply chain management Review .

Myers, C. (2010). Sharing global suplly chain knowledge. Sharing global suplly chain knowledge, Sloan Management Review 49 .

Naslung, W. (2010). What is management in supply chain manageent?A critical review of definitions, frame works and methodology. Journal of Management Ploicy and Practice .

Nelson. (2003). The cultural construction of beer among Greeks and Romans. Londonm and New York: Syllecta Classica.

Ojo, A. M. (2012). Benefits of green supply chain management in construction firms. Nelson Metropolitan University, construction management conference .

Paterson, S. P. (2003). Production of fermentable extracts from cereals and fruits. New York: Kluwer Academic/Plenum .

Rao, P. and Holt, D. (2005), Do green supply chain lead to competitiveness and economic performance? International Journal of Operations and Production Management, 25(9),898-916

Rao, P. (2008). 'Greening the supply chain: a new initiative in South East Asia', International Journal of Operations and Production Management, Vol. 22, No. 6, pp 632-655.

Sarkis, J. (2012). A boundaries and flows perspective of green supply chain management. An international journal .

Shi, L. B. (2012). Natural resource based green supply chain management, supply chain management. Natural resource based green supply chain management , 54-67.

Shi, L. B. (2012). Natural Resource Based Green supply chain. Natural Resource Based Green supply chain. , 54-67.

Singh, T. (2013). Modelling the Barriers of Green Supply Chain Practices: An Indian Perspective. Int. Journal of Logistics Systems and Management, 7(1), 81-107.

Soleas, D. G. (1997). Wine as a biological fluid. history, production, and role in disease prevention , 287-313.

Spekman, K. M. (1998). An empirical investigation into supply chain management. A perspective on partnerships, supply chain managemement , 630-650.

Srivastava S.K.(2007), Green Supply Chain Management: A state-of-the-art literature review, International Journal of Management Review, volume 9 issue1pp.53-80doi:10.1111/j.1468-2370.2007.00202.x

Sunil, P. (2007). Supply chain management strategy, planning and operation. New Jersey: Pearson Education, Inc.

Tamang. (2010). Diversity of fermented beverages and alcholic drinks. New York: CRC Press.

Tan, W. J. (2005). Principles of supply chain management. Ohio: South Africa.

Waters D. (2010). Introduction to Supply Chain Management, (2nd Edition). Palgrave: Macmillan, UK.

yohannes T, M. F. (2013). preparation and physicochemical analysis of some Ethiopian traitional alcoholic beverages. In M. F. yohannes T, Afican J Food Sci (pp. 399-403). AA.

Zellalem T. Beyene (2015), "Green Supply Chain Management Practices In Ethiopian Tannery Industry: An Empirical Study" International Research Journal of Engineering And Technology (Irjet), Volume: 02

Zhu, Q. a. (2004). relationships between operational practices and performance among early adopters of green supply chain managemnet practice in chinese. journal of operations management , 265-289.

Zhu, Q. S. (2012). Environmental management innovation diffusion and its relationships to organizational improvement. Engineering and Technology Management , 168-185.

Annex1: Questionnaire

JIMMA UNIVERSITY - ABH CAMPUS

SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF MASTER OF BUSINESS ADMINISTRATION

Questionnaire to be filled by Respondents;

Dear respondent,

This questionnaire is designed by a graduate student from Jimma University-ABH Campus to conduct a study in partial fulfillment of a master`s degree program in Master of Business Administration. As part of the requirement for the award of the degree, I am undertaking a research on the effect of green supply chain management practices on the organizational performance of Habesha beer S.C. Therefore, seeking your support to fill the questionnaires attached. Kindly reply all the questions.

The outcome of this study will enhance knowledge on the effect of green supply chain management practices on the organizational performance. Contribution in this study is voluntary based. Your name is not required. All information offered will be treated confidentially, and the data will be used only for academic purpose.

Thank you in advance for the available information you are sharing and the precious time you are going to spend for this purpose.

If you have any enquiry please don't hesitate to contact the researcher on:

Email- lindaassefa38@gmail.com

SECTION I: **General (Demographic) Information about the respondent**.

Instruction: please, indicate your response by putting (√) mark in the appropriate box provided.

Sex: 1. Male ☐   2. Female ☐

Educat☐ Level: 1. Diploma ☐   2. Degree ☐   3. Masters ☐   4. PhD ☐

Years of Experience in Habesha Beer S.C: 1. below 1 ☐   2. 1-2 ☐   3. 3-4 ☐

        4) 5 ☐

Department _____

SECTION II: **Questionnaires regarding organizational Culture.**

Please, indicate your level of agreement on the statements by ticking (√) once as per the numbers in the column using the following rating scale.

Where level of Agreements: 1=strongly Disagree 2=Disagree 3= Neutral   4=Agree 5=strongly Agree.

No	Green Supply Chain Management Practices	Level of Agreement				
1	**Eco-Design**	1	2	3	4	5
1.1	Design of products for reduced materials and energy consumption.					
1.2	Design of products for reuse, recycle, recovery of material, component parts.					
1.3	Design of products to avoid or reduce use of hazardous products.					
1.4	Eco-labelling of products.					
1.5	State of art design of reverse logistics.					
No	Green Supply Chain Management Practices	Level of Agreement				
2	**Green Procurement**	1	2	3	4	5

2.1	Habesha Beer S.C Green procurement leads to successful implementation of procurement plans.					
2.2	Habesha Beer S.C Green procurement leads to sustainability of organizational productivity.					
2.3	Habesha Beer S.C Green procurement leads to compliance with customers requirements related to the implementation of environmental management system.					
2.4	Habesha Beer S.C Green procurement ensures evaluation of the amount of waste flowing in to business system.					
2.5	Habesha Beer S.C Green procurement leads to decrease of consumption for hazardous/harmful/toxic materials.					
2.6	Habesha Beer S.C Green procurement leads to decrease of frequency for environmental accidents.					

No	Green Supply Chain Management Practices	Level of Agreement				
3	**Green Manufacturing**	**1**	**2**	**3**	**4**	**5**
3.1	Green Manufacturing has led to lower raw material costs.					
3.2	Green manufacturing generate little or no waste or pollution.					
3.3	Green manufacturing promotes reuse of raw materials.					
3.4	Green manufacturing has led to reduced environmental and occupational safety expenses.					
3.5	Green manufacturing leads to compliance with environmental regulations in producing parts and components.					
3.6	Green manufacturing ensures greening of production to cleaner production.					

No	Green Supply Chain Management Practices	Level of Agreement				
4	**Operations and Reverse logistics**	**1**	**2**	**3**	**4**	**5**
4.1	Habesha Beer S.C Operations and reverse logistics recover material that is harmful to environment.					
4.2	Habesha Beer S.C Operations and reverse logistics ensure launching of recycle system in our organization.					
4.3	Habesha Beer S.C Setting internal material recycling system.					
4.4	Habesha Beer S.C Operations and reverse logistics lead to implementation of recycle system in our organization.					
4.5	Habesha Beer S.C Operations and reverse logistics lead to implementation of reused package system.					
4.6	Habesha Beer S.C Operations and reverse logistics ensure use of packaging materials that can be used for other purposes in our organization.					

No	Organizational Performance	Level of Agreement				
5	**Organizational Performance**	**1**	**2**	**3**	**4**	**5**
5.1	Green supply chain management leads to improved organizational output.					
5.2	Green supply chain management leads to organizational sales turn over.					
5.3	Green supply chain management leads to quality products.					
5.4	Green supply chain management leads to effective waste control.					
5.5	Green supply chain management leads to compliance with environmental regulations.					
5.6	Decrease in cost for energy consumption.					
5.7	Decrease in cost of materials purchasing.					

Thank you for your cooperation!