THE EFFECT OF GREEN SUPPLY CHAINS MANAGEMENT PRACTICES ON THE PERFORMANCE OF THE BREWERY INDUSTRY: IN THE CASE OF HEINEKEN ETHIOPIA

SCHOOL OF COMMERCE

POST GRADUATE PROGRAMS

MA IN LOGISTIC AND SUPPLY CHAIN MANAGEMENT

BY: -

TEWODROS BAYE

ADVISOR:

KIRUBEL BRUK (PHD)

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ADDIS ABABA, ETHIOPIA

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A THESIS SUBMITTED TO THE SCHOOL OF COMMERCE POSTGRADUATE STUDIES IN PARTIAL FULFILMENT FOR THE AWARD OF DEGREE IN MASTER OF ART LOGISTICS AND SUPPLY CHAIN MANAGEMENT

By: -

Tewodros Baye

Advisor:

Kirubel Biruk (PhD)

July, 2024

Addis Ababa, Ethiopia

Declaration

I, Tewodros Baye the undersigned, declare that this study entitled "**The effect of Green Supply Chain Management Practices on the performance of the brewery industry: in the case of Heineken Ethiopia**" is my own work. I have undertaken the research work independently with the guidance and support of my research advisor. This study has not been submitted for any program in this or any other institutions and that all sources of materials used for this thesis have been duly acknowledged.

Tewodros Baye _____ _____

Signature Date

Certification

This is to certify that the thesis entitled: **The effect of Green Supply Chain Management Practices on the performance of the brewery industry: in the case of Heineken Ethiopia** submitted in partial fulfillment of the requirements for the degree of Masters in Logistic and Supply Chain Management, Addis Ababa University School of Commerce and is a record of original research carried out by Tewodros Baye, under my supervision, and no part of the research has been submitted for any other degree or diploma. The assistance and help received during this investigation have been duly acknowledged. Therefore, I recommend it be accepted as fulfilling the thesis requirements.

Kirubel Biruk (PhD) _____ _____

Signature Date

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MA IN LOGISTIC AND SUPPLY CHAIN MANAGEMENT

APPROVAL SHEET FOR SUBMITTING FINAL THESIS

As members of the Board of Examining of the Final logistic and supply chain management Thesis open defense, we certify that we have read and evaluated the thesis prepared by Tewodros Baye under the title "**The effect of Green Supply Chain Management Practices on the performance of the brewery industry: in the case of Heineken Ethiopia** and recommend that the thesis be accepted as fulfilling the thesis requirement for the Degree of Master in Logistic and supply chain management

_____	_____	_____
Chairperson	Signature	Date
_____	_____	_____
Internal Examiner	Signature	Date
_____	_____	_____
External Examiner	Signature	Date

Final Approval and Acceptance

Thesis Approved by

_____	_____	_____
Department PGC	Signature	Date
_____	_____	_____
Dean of College	Signature	Date

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List of Abbreviations/Acronyms

ANOVA: Analysis of Variance

SPSS: Statistical Software Packages for Social Science

VIF: Variance Inflation factor

Abstract

This study was carried out to find out the effect of green supply chain management practices on the organizational performance of Heineken Breweries, Ethiopia. To attain the study objectives, the researcher employed Descriptive and explanatory research design and quantitative research approach. Data were gathered from both primary and secondary sources. The primary data were collected by using questionnaires with both open-ended and close-ended questionnaires from permanent employees of Heineken Ethiopia, while, secondary data includes annual report, regulations, magazines, and articles. The target population of the research was all permanent employees of Heineken brewery company, The total populations of the study in Heineken Ethiopia were 450 from these, 212 samples were selected and distributed to the respondents; finally, all responses were filled and returned with a response rate of 100% returned. Cronbach's Alpha reliability test was used to test the internal consistency of the instrument. After the data collection, the collected data was analyzed using (SPSS) version 21 which, the descriptive statistics include the mean and standard deviation. The inferential statistics (correlation analysis and regression analysis) was also used in analyzing the relation between independent and dependent variables. The results reveal that there is a positive correlation between four determinant variables green procurement practices, green logistics, green manufacturing practices, and reverse logistics and organizational performance of Heineken brewery factory. The study concludes that the organizational performance of Heineken 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.

Key Words: Determinants, Industry performance, multiple regression models, green supply chain management

CHAPTER ONE

INTRODUCTION

This chapter provides a general overview of the study; accordingly, it includes the following nine sections: the first section is the scope of the study which states some concerns on the reliability of green supply management on the effectiveness of brewery sector, and the second section is the statement of the problem part that gives the reason for carrying out this study. After this, research questions, general and specific objectives of the study, significance of the study, scope of the study, and operational definition of terms are present.

1.1. Background of the Study

The term logistics was first discovered by the military through the transfer of supplies and equipment to soldiers on the front line. It however is used nowadays to refer to the process of organizing and transporting machinery from one place to the intended destination. It may be still a new practice all over, but green logistics is slowly taking up all the important roles in the process of production, distribution, consumption, and waste management. The main idea behind it is to make sure that the goods produced are friendly to the environment. Since the 1980s, this concept has been entirely useful to businesses as they try to reduce the harm caused to the environment by supply and logistical operations. The oversight of operations that get resources and render them into intermediate and final products, then transport them via a distribution network to the production site for consumption (Kadam, S. et al, 2017).

Production, distribution, and reverse logistics are, together with many others, the operations included in green supply management methods. Due to the threats posed to the environment by the practices used in the past, manufacturers are being pushed and encouraged to dive into and put into environmentally friendly practice methods. Green logistics is a concept that utilizes the concept of environmentally conscious production in connection with service practices and strategies for product creation. Green supply chain management, or actions of environmentally conscious practices, is crucial for improvement in competitive advantage, cost reduction, customer happiness, and quality purchasing.

Ojo et al (2012) are of the idea that; green supply chain management (GSCM) utilizes the idea of including issues of the environment in supply chain practices, which includes sourcing a product to the final stage where it reaches the consumers. Its main objective is to ensure that the benefits to the environment are more than the otherwise damages that could be caused by its operations.

It therefore helps the organization to achieve consistent growth; Shi et al (2012). The whole process of beer production involves the combination of bi-products involved with water and later fermentation of the mixture with yeast (Wainwright, 1998).

The formation of the final beer product is done after several step-by-step operations which sees the processing of raw materials to the same. Large amounts of water are required to run the whole process of production, from mixing raw materials to washing and cleaning machinery. After approval by the Council of Ministers in 1997, the concept of sustainable development was incorporated into Ethiopia's environmental policy. According to the National Report of Ethiopia of 2012, it aims to improve and enhance the health and quality of life of all Ethiopians and to promote sustainable social and economic development through the sound management and use of natural, human-made, and cultural resources and the environment as a whole; to meet the needs of the present generation without compromising the ability of future generations to meet their own needs (National Report of Ethiopia, 2012).

Regarding this decision, many businesses have since been operating according to the ecological sustainable requirements. Due to the current emergence of various problems in the environment, business operations influence directly the effects on the environment through various activities that they engage in which could lead to pollution or extremely in the use of resources. Policy and enforcement by the government has forced many companies to reduce the activities which have direct impact on the environment. Large amounts of water are required for the whole process of production in the beer processing firms which in turn cause emission of large amounts of contaminated water into the environment.

1.2. Background of the Organization

Being a well-known beer production company, Heineken is objected to keeping its consumers pleased with its numerous products worldwide. Heineken, bearing the founder family name, has sprouted its wide roots to almost all the countries in the world, with its main goal being to be the leading brewer in every market it performs its operations. HEINEKEN is Europe's largest brewer and the world’s second-largest by volume, having branches in over 80 countries and operating more than 169 breweries. It is responsible for the marketing and consumption of more than 300 international, regional, local, and special beers and ciders.

In Ethiopia, it operates at a Greenfield site in Kilinto in Addis Ababa, after being established on 16th January 2015. With a few years in the market and production sector, the Kilinto brewery is already well known and praised for producing the recently launched Walia, together with Bedele and Harar beer brands, with the Flagship Heineken beer also in its book plans for production. The already established Bedele and Harar breweries; which were acquired from the Ethiopian government in 2011, are attributed to the locally acquired workforce consisting of around 280 people. With a total of 310 million Euros investment in the country by Heineken from 2011, it boasts the introduction of the 110 million new breweries into the market.

A new Greenfield brewery whose establishment was commenced in 2012, was announced operational in 2015, signing two Public Private Partnerships; one of which is 'the CREATE project' meant to provide locally sourced malting barley, and a water access project to provide clean water to the people in Harar. This has since resulted in a rapid growth of the Ethiopian beer market.

The great growth of a double-digit market is attributed to the rapidly growing Ethiopian population, urbanization, and increased sources of income for the citizens. This has led to lower per capita consumption in the country as compared to other East African countries. HEINEKEN boasts several key brands such as Bedele Special, Bedele Regular, Harar, Hakim Stout, and Sofi Malt which are all selling fast in the Ethiopian market. Due to the high possibility that the materials and equipment used in the production sector could jeopardize the safety of the environment, brewing companies must adopt green supply chain management techniques.

1.3. Statement of the Problem

There are serious problems, which are more intensified for developing countries like Ethiopia, due to lack of sufficient basic knowledge about the whole concept of supply chain management among business experts, leading to an increased doubt and improper competition; which is related to lack of understanding of what is entailed in the whole supply chain management practices. According to the report from the National Treasury in 2016, the poor performance of the Ethiopian economy leads to inflation, a reduction of exports, and an increase in the prices of products which affects the beverage industry. Logistics is the main physical network that links the market and consumers, with pollution and resource waste being its two main environmental impacts. In addition to the danger associated with used materials and debris that are carelessly

thrown out, hazardous and toxic substances, and vehicle-related noise and air pollution, inefficient use of resources leads to the majority of resource waste (Makena, et.al, 2014).

The growth and development of the green supply chain management concept can be attributed to these consequences; according to Quan et al. (2008). Due to its positive environmental impact, it is generally very important to develop green supply chain management practices. With its goal being to produce, sell, and provide the highest quality beer to its clients in Ethiopia and to become and stay the market leader in this regard, Heineken Ethiopia still pays less attention to green supply chain management due to the challenges of its implementation.

Although its implementation has great advantages to businesses, it is common that some reasons for not implementing a green supply chain are attributed to the high cost of green practice facilities, employees' lack of knowledge of the concept, and a lack of commitment from management officials. According to Eyob F., 2019; and Zelalem T., 2015, however much benefit it has such as a favorable effect on a company's cost, efficiency, positive company image, and productivity, most of the time, outdated logistical methods are used regardless of their effects to the environment.

According to Distell 2016, carbon taxation is one of the many regulations implemented by the government on the beverage industry to regulate the amount of carbon emissions to the environment. On the other hand, the National Treasury, 2016 discovered that the measure would lead to a reduction in the sales of products due to less consumption. Although there have been several studies conducted within the beverage industry for instance by Gideon S, (2016), Linda A., (2020), and Stacey, Mudaraa, Ng, Jebeesa H., (2023); there was not an extensive focus on how the green supply chain management influence organization performance directly; therefore, the study is directed to investigate the role of the green supply management practices in the sustainability of the brewery industry in the case of the Heineken beer industry in Ethiopia.

1.4. Objectives of the research

1.4.1. General objective

The general of the study was to investigate the effect of green supply chain management practices on organizational performance the case of Heineken brewery industry in Ethiopia.

1.4.2. Specific Objectives

The specific objective of this study is the following:

- To assess the effect of green procurement practices on the performance of Heineken brewery factory
- To examine the effect of green logistics on the performance of Heineken Brewery Factory
- To identify the effect of manufacturing practices on the performance of Heineken brewery factory
- To determine the effect of reverse logistics on the performance of Heineken brewery factory

1.5. Hypotheses of the Study

H1: Green procurement practices have a positive and significant effect on the performance of Heineken brewery factory

H2: Green logistic has a positive and significant effect on the performance of Heineken brewery factory.

H3: Green manufacturing practices has a positive and significant effect on the performance of Heineken brewery factory

H4: Reverse logistics has a positive and significant effect on the performance of Heineken brewery factory

1.6. Significance of the Study

This study will contribute to enhanced positive competition in the brewery industry. Being an important concept to consumers, investors, and regulatory bodies, sustainability has created the need for breweries to adapt to new practices. The study sheds light on how breweries can improve their market position by embracing sustainability and meeting the expectations of stakeholders by embracing green supply chain management. The study is also inclined to provide information related to the policy development and regulatory frameworks in the brewery industry. Outlining the role of green supply chain management in the sector, the study provides insights into the potential roles played by regulations, incentives, and certifications in promoting market sustainability. The knowledge from this study can be of great help to policymakers and industry organizations in encouraging brewers to adopt sustainable practices. Valuable information from the study promotes effective decision-making in the brewery sector by equipping the managers and executives with knowledge about the great benefits and setbacks brought forth by adopting sustainable practices. This will not only guide decision-making processes related to supply chain management strategies in the industry, resource allocation, and

sustainability initiatives but also may contribute to the existing body of knowledge on this topic, helping future scholars who wish to undertake a study on a related topic.

1.7. Scope of the Study

The scope of the study is inclined to the sole investigation of how green supply chain management can influence performance of the Heineken brewery firm. Its main focus was the brewing industry, keeping in mind the uniqueness of its nature, and entail data collection from the breweries and the stakeholders involved to analyze the sole relationship with the green supply chain practices and performance without including other manufacturing industries. Green supply chain management practices such as green procurement practices, green logistics, manufacturing practices, and reverse logistics be some of the primary focus of this study, looking into their effects on the industry. The study acknowledges limitations and provide relevant solutions specific to the brewery industry. The study applied a mixed research approach to analyze and interpret the collected data.

1.8. Definition of Operational Terms

Green Supply Chain Management: This is the practice of management of activities that go the extra mile to boost the performance of acquired materials or the sources from which they are acquired (Stonebraker & Liao, 2006).

Green Marketing: This is a practice that involves taking advantage and putting into consideration the consumer change in attitude towards a brand. The said changes are influenced by the organization's policies and practices, leading to an effect on the quality of the environment. It also includes efforts companies use to show concern for their community, including corporate social responsibility plans and sustainability efforts. (Shane, 2013)

Supply Chain Management: This is a process by the organizations to involve the suppliers and consumers in the decision-making process which focuses on the planning, implementation, and control of the logistics operations to drive materials through the supply chain. (Mentzer, 2001)

Green Purchase: Also known as environmentally preferred purchasing; it involves looking for products that environmentally friendly as compared to other products in the market (Rao, 2012).

Green Reverse Logistic: It refers to the conservational processes that involves the recycling and reusing prices and the flow of raw materials, finished products and useful information about performance from the consumers end to the point of manufacture.(Preuss, 2005).

Green Risk Management: This is the process of controlling the risk associated with the operations to the environment, bearing in mind the climatic changes and other issues concerning the environment by focusing the investments on the health of the environment and adopting risk mitigation practices intended to reduce the risks associated with the company's overall returns, maintaining its portfolio (Min & Galle, 1997).

1.9. Organization of the Study

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, and scope of the study. 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

REVIEW OF RELATED LITERATURE

With the main focus and purpose of the study being mentioned in the previous chapter, this chapter presents the review of related literature. The chapter is organized in four sections. While the first section involves reviewing the theoretical foundations of the concept of green supply chain management, the second section presents a review of related empirical studies on the effect of private tutorials on students' performance. Going into the last section, the researcher tries to show the conceptual framework.

2.1. Theoretical Review

2.1.1. Green Supply Chain Management Practices

According to Zhu et al., 2008, internal environmental management is critical to improving the organization's environmental performance.

Zhu and Sarkis (2004) indicate that quality management promotes the smooth implementation of GSCM. Their idea is that rigorous quality control and learning from experiences of their quality management programs can help organizations improve their environmental practice. The ISO 14001 environmental management system (EMS) standard helps organizations to create structured mechanisms for positive development in environmental performance (Kitazawa and Srakis, 2000). Through GSCM and logistics, firms are encouraged to adapt to the closed-loop supply chain (Beamon 1999). Closed-loop supply chain management stands for "the approach, control, and operation of a system to promote high value over the entire life-cycle of a product with the dynamic recovery of value from different types and amounts of returns over time" (Guide and Van Wassenhove 2006).

Some studies focused on external environmental factors such as customers and suppliers. According to Carter and Ellram, 1998, to improve their environmental supply chain performance, organizations need to have a good work relationship with the government, suppliers, customers, and even competitors. According to Kopicki et al., 1993, whereas reuse stands for both the use of a product without re-manufacturing and is a form of source reduction, recycling is the process that makes disposal material reusable by collecting, processing, and remanufacturing into new products. As an environmental practice, resource reduction helps

organizations to minimize waste which promotes more efficient forward and reverse distribution processes.

Eco design; is a process that sees that firms improve their performance and reduce the effects of manufactured products on the environment (Zhu et al., 2008). Green or sustainable supply chain management is the process of coordination of important organization-to-organization business processes for enhancing the long-term performance of the firm and its supply chain partners (Wu and Dunn, 2012). Environmental conservation can be achieved by activities such as recycling, and repacking in environmentally friendly packs (Basu and Wright, 2008).

According to Zelbst 2012, the implementation of GSCM practices leads to decrease in all forms of pollution, which means an improvement in environmental performance. In healthcare practices, green supply chain management includes all efforts performed by hospital managers to ensure that their products and services obey the environmental set-up regulations and requirements, (Gopal 2012). This practice is continuous and should be adhered to from the time an item or equipment enters or reaches a healthcare facility. The whole process of the supply chain involves the thorough scrutinization of end products and management of waste (Waters, 2010).

2.1.1.1. Green Procurement

Green procurement mainly focuses on eliminating waste, in the production process. Eliminating waste is the focal point of the purchasing activity, it is important that a company improves its approach in reuse and recycling of waste products. According to Singh (2011), the success of completion of green purchasing activities depends on the close cooperation between suppliers and buyers.

According to scholars, the procurement of food for stuff for hospital consumption should have the least number of preservatives, while foods containing pigments and other organic modifications should be avoided due to their low durability period.

2.1.1.2. Green Packaging

Since medical products are known to be too delicate, this process involves products being packaged in a way that does not go against the specified environmental guidelines. According to Willis, (2012), many healthcare centers, are avoiding chlorine- bleached paper and using reusable packs to transport and store their products. Packaging for this packaging is mainly secondary for transportation and minimal usage of paper bags is recommended to avoid getting

overheated, melting, and enhance durability of the package. Packaging for treatment is mainly done for on-site usage products, not for storage and is only done in small packs or dosages.

2.1.1.3. Reverse Logistics

This involves movement of products in a cycle from the consumers end back to the point of origin for the purpose of evaluation and value addition. Since hospitals consume a relatively amount of energy, water, and other renewable and non-renewable resources, it leads to the production of a wide variety of waste which could be extremely hazardous pollutants and other harmful objects including toxic drugs. According to Drake (2011), Zhu (2012), and Bohlen (2013); health facilities reduce waste production and emissions by adopting important practices such as; composting, recycling, and reducing packaging, and using reusable products.

2.1.1.4. Green Design and Manufacturing

Preuss (2005) states that the relationship between supply chain management and the conservation of the environment also needs to be considered from the opposite perspective. Even though the approach to environment conservation depends on the abundance of materials and technical abilities of the cycle from supplier to consumer, the consumption of products requires well-thought-out logistics operations. Any company should check on its ability to manage product reverse flow since the approach taken in the marketing process and logistics over the product's life depends on its life cycle. The volume of solid waste produced can be reduced through recycling although, according to Lembke, (2012), the reverse logistics channels have received minimal attention. Leading manufacturers should ensure that their reverse supply chains are efficient, accurate, and time-conscious; Failure to address the reverse supply chain can lead to lost revenues and additional expenses.

2.1.1.5. Green Transportation Practices

Green transportation practices prioritize reducing carbon emissions and minimizing the environmental impact of transportation activities. By adopting eco-friendly vehicles and alternative fuel options, such as electric or hybrid vehicles, biodiesel, or compressed natural gas (CNG), the brewery factory can contribute to reducing air pollution and greenhouse gas emissions. This aligns with sustainability goals, regulatory requirements, and the expectations of environmentally conscious consumers. Green transportation practices can lead to cost savings for the brewery factory. While there may be initial investments required to adopt eco-friendly vehicles or alternative fuel infrastructure, the long-term operational costs can be reduced. Green

transportation practices often result in lower fuel expenses, maintenance costs, and potential savings through government incentives or grants for adopting sustainable transportation methods. In summary, green transportation practices can contribute to the performance of a brewery factory by promoting environmental sustainability, achieving cost savings, improving operational efficiency, enhancing brand reputation, ensuring regulatory compliance, and engaging employees. By embracing these practices, brewery factories can reduce their carbon footprint, contribute to a greener future, and gain a competitive edge in the market (Tibben-Lembke, 2002).

2.1.2. Theory of Green Supply Chain Management

2.1.2.1. Globalization Theory

Increased concern for the environment by firms is slowly becoming part of the conservative culture and in turn, has helped to restructure the approaches of organizations. Globalization has not only promoted an avenue of more opportunities but has also created threats. Through the setting up of subsidiaries, multinational companies are causing threats to local companies by high capital investments and the ability to reduce prices during a competitive market. According to Mohan and Sahay, (2000), for the company to be prepared and perform in a competitive environment, there are various requirements which include; time management, improvement of cost and quality relation, Enterprise Resource Planning, and Quality Management. This theory creates room for investigation of the influence of ICT and supplier participation as independent variables and their influence on the organization's performance.

2.1.2.2. Organizational theory

According to Hatch 2006; Pfeffer, (1997), the operation of organizational theory in a firm is affected by many other fields and disciplines such as economics psychology, political science, sociology, and engineering. There has risen a need to study the organizational theory within the supply chain to bolster the inter-organizational relationship. Due to its role in the promotion of various management practices and studies, the application of this theory to supply chain management separately is becoming more established has not been reviewed widely, and there is a need to review the literature on green procurement about several organizational theories. Although its impact and relationship to environmental management. This theory will go the extra mile to guide the study to investigate the influence of various leadership levels and management on the relationship between independent variables and dependent variables.

2.1.2.3. Stakeholder Theory

According to Freeman (2005) any group or individual who can impact or is affected by the activities of an organization‘s objectives is referred to as a stakeholder‖. This theory suggests that the external produce of companies affects many parties who are within or outside of the organization (Maignan & Mcalister, 2003). According to Björklund (2010), external influence often causes stakeholders to increase pressures on companies to reduce negative impacts and increase positive ones. Gunther & Scheibe's (2005) statutory requirements by governments and stakeholder demands are forms of pressure on organizations to reduce negative impacts on the environment although they have been less effective compared to internal practices such as motivation to increase performance. Björklund (2010) the following are the categorizations of stakeholders: primary and secondary, direct or indirect, or based on honesty, urgency, and power. These stakeholders' pressure within the supply chain and between its members can cause the environmental external influences to be internalized (Gunther & Scheibe, 2005). Therefore, according to Wuyts et al. (2004), GSCM is a method of managing companies' or organizations' external influences that may affect stakeholders.

2.1.2.4. Green Supply Chain Management Practices and Organization Performance

SCM practices impact not only overall organizational performance but also the competitive advantage of an organization by improving its competitive advantage through cost, product innovation, quality assurance, delivery dependability, and time to market. From previous research, it is observed that various supply chain management practices influence the competitiveness of an organization. According to (Hanfield, (1997) and Power, (2001), strategic supplier partnership can improve supplier performance, reduce time to market and increase the level of customer responsiveness and satisfaction. Sharing of information and feedback enables firms to increase dependable deliveries and introduce products to the market quickly leading to high levels of supply chain integration. Lee, (1999) suggests that information sharing and information quality positively influence customer satisfaction and partnership quality. Through interaction with suppliers and customers, manufacturers can improve their operational performance (Zhu, 2012). According to the scholar, internal GSCM practices such as integrated environmental management systems and staff involvement can improve operational

performance. He argues that producing an environmentally friendly product may create a final product that is safer and costs less with higher and consistent quality.

The globalization theory of green supply chain management will be used in this study. It is important to note that there is no specific "Globalization Theory" of green supply chain management. Although the globalization theory is not specific to green supply chain management, the concept of globalization and its associated factors, such as market access, collaboration with other firms, implementation of harmonious regulation, and environmental governance, significantly influence the implementation and effectiveness of green supply chain management practices globally. The relationship and interdependence between economies and societies globally create not only opportunities but also challenges for companies in the brewery industry, like Heineken Ethiopia, to integrate sustainable practices within their supply chains. Understanding and navigating the requirements of globalization is necessary for the implementation of successful green supply chain management practices that promote environmental sustainability and responsible business practices that work globally.

2.2. Empirical Review

After conducting a thorough survey of US risk management managers about green supply chain risk management Min and Galle (1997) found that the primary driving force to green risk management is the ability of a firm to meet the governing regulations rather than the quality of successful partnerships and environmental management. The extent of a firm's flexibility in the green purchasing process is influenced by whether it has centralized or decentralized its decision-making. Environmentally sustainable (green) supply chain management has led to the reduction of environmental risks and impacts while improving the ecological efficiency of these organizations; thus, emerging as a key organizational practice to create profit and meet market share objectives.

Having examined the relationship of the supply chain risk management team with environmental management processes, they first suggest that environmental issues are an important part of supply chain risk management as they affect the organizations' planning due to tough rules and the need to keep environmental accountability. From their investigation, the scholars find out that organizations are integrating their supply chain risk management department to reduce operating costs and improve their customer service.

Borchardt, Wendt, Pereira, and Sellitto (2011) investigated how to remodel a product to meet environmental requirements and the results strengthened the ideas presented in the theoretical framework that the introduction of new technologies based on Eco-design can help organizations to enhance their public image by creating competitiveness in the market and promoting the ability to adhere to regulatory requirements. Further analysis of technological prowess and market potential to accept a remodeled product will provide managerial support to the Eco-design team.

European Journal of Business and Management (2013) suggests that green procurement is the selection and acquisition of products and services that minimize negative effects on the environment and involves certain environmentally friendly activities such as; manufacturing, transportation, use, and recycling of disposable materials.

According to a study by Walton et al (2006) cited in Jackson (2010), environmental problems play an important role in influencing strategic planning and forcing organizations to adapt more effective regulations to cater for the demands of environmental health accountability.

Green et al (2012) state the overall organization's output is influenced by some factors which include; a green supply chain, green marketing, green packaging, and environmentally friendly distribution. According to Ninlawan and Seksan (2010), there are important aspects of green supply chain management strategies required by organizations to increase market value for their products.

2.2.1. Theoretical and Methodological Gap

Based on the empirical review of the effect of green supply chain management on the brewery industry and specifically focusing on Heineken Company Ethiopia, it is visible that several methodological and practical gaps require attention. To begin with, the review indicates a lack of comprehensive theoretical frameworks specifically addressing the relationship between green supply chain management and the brewery industry, creating the need for developing or adapting theoretical frameworks that can better explain the effects of such practices on their field operations. Furthermore, there is a gap in understanding the underlying mechanisms and processes through which green supply chain management strategies affect sustainability, operational efficiency, and competitiveness in the market according to the review. This study will further focus on bringing to the open these and other mechanisms to create a better

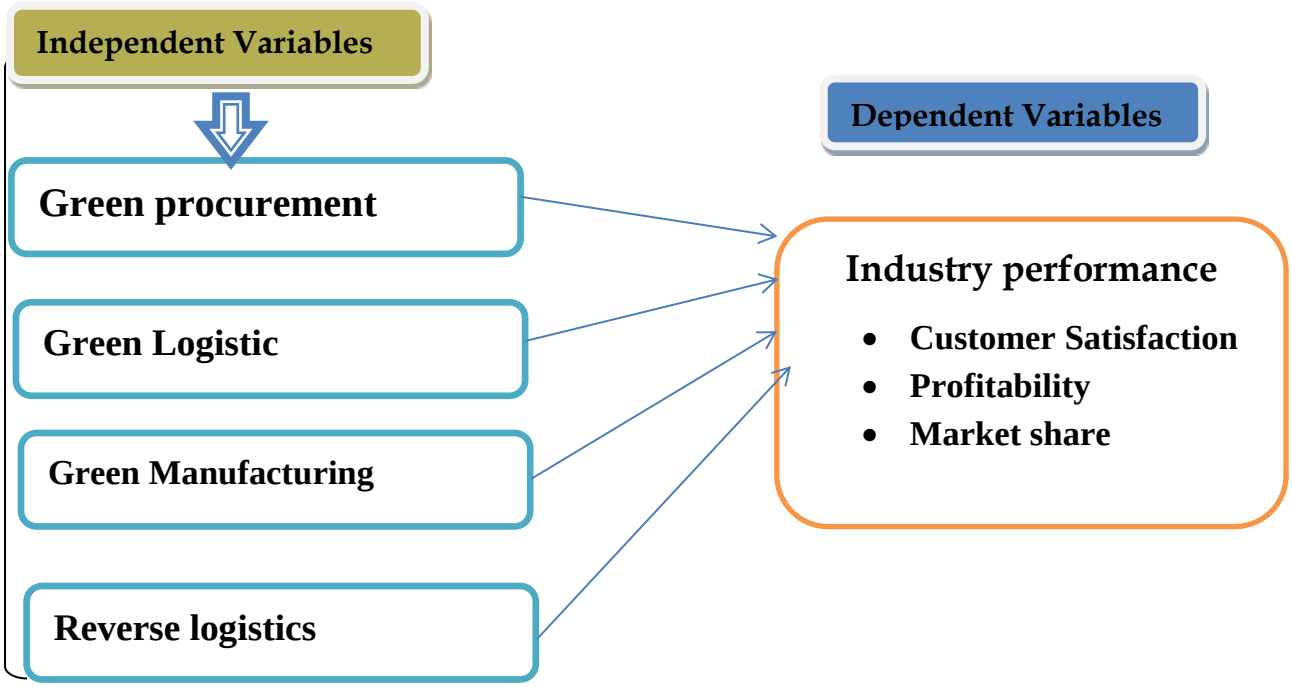
comprehension of the influence of green supply chain management practices on the brewery industry.

Due to the dominance of quantitative studies existing from the empirical review as far as the methodology is concerned, there is a need to do more qualitative research to capture the experiences of the stakeholders engaging in green supply management in the industry, including Heineken Ethiopia. Performing this quality-based research can promote a more understanding of the factors that influence the success or failure of green supply chain management practices. There have also been extensive case studies specifically investigating the implementation and outcomes of green supply chain management practices in the brewery industry, particularly within the context of Heineken Ethiopia. There is a need to do extensive case studies particularly aimed at green supply chain management to provide information about the challenges, success factors, and the results of its implementation in the brewery industry. It can be concluded that the empirical review shows a gap in attending to the specific challenges and opportunities brought about by green supply chain management. This calls for research that addresses the local regulatory frameworks, cultural factors, and resource limits that affect the effective implementation of green supply chain management practices in the Ethiopian brewery industry.

2.3. Conceptual Framework

Previous studies from scholars about the case suggested some conceptual frameworks concerning the relationship between the implementation of green supply chain management and performance. This proposed conceptual framework is included in the figure 2.1 below. One factor represented in the framework is the impact of GSCM practices with particular independent variables such as: Green transportation Green procurement, reverse logistics, and green manufacturing on the Performance of Heineken Breweries. The framework is therefore a guideline for this study and the succeeding practices.

Figure 2. 1: The conceptual framework or model of the study



Source: Developed by the researcher, 2024

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This chapter presented the research methodology part of the study. The procedures and techniques used in the collection, processing, and analysis of data are also stated. To be precise, the main focus of the study is research design and approach, target population, sample size determination, sampling techniques, methods used to collect data, data analysis, and considerations of ethical differences.

3.1. Research Design

Kothari (2004) notes that this is the process of setting conditions that help to select procedures for data collection and analysis that aim to show the relationship between the research purpose and the economy under procedure". It is essential to have a research design as it enhances the efficiency of research operations, yielding maximal information with minimal expenditure of effort, time, and money. The purpose of this study is to identify the influence of green supply chain management on the brewery industry in the case of Heineken Ethiopia, and to establish causal relationships between the dependent variable (effect on industry performance) and the independent variable (measurements of green supply management). This requires explanatory research whose main objective, according to Kumar (2011), is to determine why and how two factors are related to one another. The research uses qualitative data collection methods, such as document analysis and interviews, to enable us to record the opinions of key stakeholders within Heineken Ethiopia and investigate the company's sustainability initiatives and supply chain practices. Important themes, patterns, and relationships will be highlighted through thematic analysis which gives extensive information on the effect of green supply chain management on the brewery industry.

3.2 Research Approach

Good research can entail any of three basic approaches, which include; the quantitative approach, the qualitative approach, and the mixed approach (Creswell, 2003). First, quantitative involves examining existing theories by focusing on the relationship between dependent and independent variables. Additionally, its approaches are commonly described as deductive and it includes tests of statistical hypotheses and general inferences about features of a population. According to Guba and Lincoln (1994), it is frequently noted that this research approach assumes

that there is a single “truth” that exists, regardless of existing human opinion. The qualitative research approach involves gathering deep information about people's experiences, beliefs, behaviors, and social phenomena; through exploiting individual interpretations and opinions rather than relying solely on numerical data or statistical analysis. This approach gives room for researchers to explore and describe phenomena in a more detailed manner. Due to the need for the researcher to infer from a practical test of statistical hypotheses and a general qualitative description of the study, a mixed research approach has been used. We adopt the use of questionnaires to gather feedback and opinions of interviewees on the effect of green supply chain management practices on the brewery industry.

3.3. Target Population and Sampling Techniques

3.3.1. Target Population

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 populations of this research were the employees of Heineken Brewery Company who are working on the main factory.

3.3.2. Sample Size

Since it is not possible to examine the entire population, the study done on samples, where every person in the population has the same chance of being included in the process. Involving the entire population in this study would not be possible due to the difficulty of conducting a comprehensive survey with a limitation of budget and time constraints (Mark 2009). All permanent employees of Heineken Ethiopia were the target of this study due to their unlimited access to more information as compared to the daily wage workers. Yamane's (1967) sample size determination formula (Equation 1) used to determine the sample size. The formula states that the confidence level at 95% with degree of variability = 0.5 and level of precision (e) = 5% (0.05).

$$n = \frac{N}{1+N(e)^2} \quad \text{---------- (I)}$$

Where **N** is the total number of permanent employees in Heineken Brewery, **n** is the desired sample size, and **e** is the precision level. From the information at the head office, the total

number of permanent employees at Heineken Brewery in Addis Ababa is 450. Those include human resource officers, production officers, marketing officers, and sales officers.

$$n = \frac{450}{1 + 450\ (0.05)^2} \approx 212$$

Therefore, according to the equation above, samples of 212 respondents were selected to participate in the study, whose responses were considered in the analysis.

3.3.3. Sampling Method

Due to the difficulty to do a study on the entire population, a sampling method is used. Each person in the selected section of population has given equal chances to be involved in the sample. Survey and explanatory research methods were used on randomly selected participants to ensure accurate results from the largest possible number of participants. This involves a probability sampling, in which simple random sampling was used to ensure equal chances of being selected are given to the population being studied.

3.4. Data Sources

For the efficiency and accuracy of an ideal percentage, there are both primary and secondary sources of data; the primary source comes from the open and close-ended questionnaires filled by workers of Heineken Ethiopia. On the other hand, secondary data were acquired from other previously published magazines, journals, manuals unpublished materials, or relevant books, research reports, and articles.

3.5. Methods of Data Collection

Due to the variability index that may be posted by the information gathered, there were close-ended questionnaires provided to the target population. The researcher tests the reliability and validity of the questionnaires before handing them over. Questionnaires are the preferred method of data collection because they tend to be less costly and consume less time as compared to other methods. Although a close-ended questionnaire has been given to selected employees of the organization, the open-ended questions been used as it gives more freedom for respondents to express their views on the issue of the study. Likert's-scale of five ordinal measures of agreement on each contributing factor (from 1-5) be used to rate the responses, as in: strongly disagree = 1; disagree = 2; Neutral = 3; Agree = 4; and strongly agree = 5. Respondent's experiences ideally important when answering the effects part as the most recurrent effects required based on their service time or daily living in the society under investigation. The direct

method approach used in collecting the data in addition to structured interviews and document review since it reduces the rate of non-response rate which always occurs during a study of this nature. While secondary sources such as published and unpublished documents may be used as evidence for the study, data collectors trained to administer the questionnaire to the targeted population.

3.6. Dependent and Independent Variables

3.6.1. Dependent Variables

Organizational Performance refers to the effective and efficient ability of a variable to achieve its objectives and fulfill its mission. This includes several criteria, including financial prowess, efficiency, strategic alignment, and the ability to adapt to changing circumstances. Assessing organizational performance involves evaluating key performance indicators across different areas of the business, such as employee productivity, customer satisfaction, financial metrics, and the successful execution of strategic plans. A high level of organizational performance indicates that the company is utilizing its resources effectively, satisfying stakeholders' requirements, and aiming for sustained success in a competitive environment. According to Hamilton (2012), organizational performance is a comprehensive measure that considers both short-term results and long-term sustainability of an organization.

3.6.2. Independent Variables

Green procurement practices and industry performance

By sourcing environmentally friendly ingredients, such as organic grains and hops; green procurement practices can have a positive impact on the performance of a brewery factory through its ability to promote sustainability and efficiency. The growth of these organic ingredients is done using sustainable farming practices that minimize the use of pesticides and synthetic chemicals, which then enables the brewery company to produce beers with a lower environmental impact and appeal to environmentally conscious consumers. According to Brenner (2010), by integrating these practices into their procurement strategies, brewery factories can have an advantage in the competitive market environment leading to a more sustainable industry.

Influence of Green transportation practices and industry performance

The main focus of green transportation of reducing carbon emissions and minimizing the environmental impact of transportation activities. The brewery factory can contribute to reducing

air pollution and greenhouse gas emissions by adopting eco-friendly vehicles and alternative fuel options, such as electric or hybrid vehicles, biodiesel, or compressed natural gas. Green transportation practices can contribute to the performance of a brewery factory by promoting environmental sustainability, achieving cost savings, improving operational efficiency, enhancing brand reputation, ensuring regulatory compliance, and engaging employees. By embracing these practices, brewery factories can reduce their carbon emissions, contribute to a greener future, and have a competitive place in the market.

Positive impacts of green transportation practices on industrial performance

Saving on energy and water consumption

Green manufacturing practices focus on energy saving. By implementing energy-saving technologies, optimizing equipment and processes, and utilizing renewable energy sources, the brewery factory can lower its energy usage, leading to low costs, improved operational efficiency, and a reduced environmental impact. Green manufacturing practices water conservation to minimize water usage and preserve this valuable resource; by implementing water-efficient technologies, such as high-efficiency brewing machinery and water recycling systems, the brewery factory can reduce its water consumption. This not only helps conserve water resources but also lowers water consumption costs and enhances the achievement of sustainability objectives (Lembke, 2012).

Influence of Reverse Logistics on Industrial Performance

Reverse logistics plays a crucial role in industrial performance through the invention of effective return policies. Through the invented policies and analyzing returned products, the brewery factory can perform the process through examination of patterns and reasons for returning products. Using this information, companies can improve production planning, optimize inventory levels, and minimize future returns thus reducing costs, improving the flow of finances, and promoting efficient operation. Since reverse logistics directly affect customer service and satisfaction, providing hassle-free returns, exchanges, and repairs, the brewery factory can improve customer experience and loyalty. As noted by Khisa (2011), timely and efficient handling of customer returns leads to positive brand perception and can lead to repeated purchases and positive recommendations to other potential customers.

3.7. Method of Data Analysis

The data that was collected through questionnaires was tabulated and analyzed using the Statistical Package for the Social Sciences (SPSS) software package version 21. Data collected from primary sources was edited, coded, and tabulated. These activities were done to ensure the accuracy of data, completeness of data, and the detection of errors and omissions. The analysis techniques were performed using descriptive statistics such as frequency, percentage, mean, and standard deviation to summarize and describe the study variables. Furthermore, inferential statistics like correlation and multiple linear regressions was used. Correlation analysis was employed to examine the relationship between the independent variables (green procurement practices, green logistics practices, green manufacturing practices, and reverse logistics practices with the dependent variable organizational performance. Whereas, multiple regression analyses was carried out to determine the explanatory power of the independent variables on organizational performance.

3.8. Specification of Econometric model

For descriptive analysis; tables, frequency, percentages, and graphs are used to analyze the data. Besides, results of the descriptive statistics such as mean, and standard deviation values reported to describe the characteristics of variables under investigation. Furthermore, to determine whether the model used in the study is appropriate and to fulfill the objectives and assumption of the classical linear regression model, several diagnostic tests has used; for example; normality, variability, autocorrelation, multicollinearity and linearity. To this end, the researcher used multiple linear regression model analysis to measure the dependent variable i.e. students' academic performance which will end up being a function of the independent variables. The equation of multiple linear regressions in this study generally involved two sets of variables: dependent variables (brewery industry performance) and independent variables (green procurement practices, green logistics practices, green manufacturing practices, and reverse logistics practices). The objective of this analysis to predict the dependent variable which would affect the effectiveness of independent variables. The basic goal of applying regression equations in this study is to make the researcher more effective through controlling, describing, understanding, and predicting the stated variables. To show the effect the multiple regression equation would form and to examine the effect of private training on students' academic performance, the researcher has analyzed it by using the following multiple regression model.

$$OP = \beta 0 + \beta 1X1 + \beta 2x2 + \beta 3X3 + \beta 4X4 + \Sigma 0 + e$$

$$OP = \beta 0 + \beta 1(GPP) + \beta 2(GLP) + \beta 3(GMP) + \beta 4(RL) + e$$

Where; OP= the dependent variable (Organizational performance)

GPP= the first independent variable (Green Procurement Practices)

GLP= the second independent variable (Green Logistics Practice)

GMP= the third independent variable (Green Manufacturing Practices)

RL= the fourth independent variable (Reverse logistic)

β0 =intercept of the equation e = error term

After analysis, the researcher finally presents the data in tables and statement form and tries to draw key conclusions based on the analysis information and give some recommendations that might be useful to the organizations. An alpha level of 0.05 has been applied as the level of significance for this study.

3.9. Validity and Reliability

3.9.1. Validity

Validity involves the degree to which the study is measuring what it is supposed to measure. More simply, it focuses on the accuracy of the measurement. All measures that were used to construct the instruments were an acceptable level of construct and content validity in previous studies the researcher was used in this study with slight modification. Besides, proper detection by an advisor was also taken to ensure the validity of the instruments. Additionally, several measures were employed to ensure that the results are free from material errors from the design of the questionnaire. Such measures are clarity of instructions, clarity of the questions, the layout of the questionnaire, and other comments. Since the questionnaire was developed after a thorough review of organizational performance academic literature, it is assumed that the construct validity is held.

3.9.2. Reliability

Kothari (2004) asserts that a measuring instrument is reliable if it provides consistent results. Cronbach's alpha is a coefficient of reliability. It is commonly used as a measure of the internal consistency or reliability of a psychometric test score for a sample of examinees. According to this; a measure of between 0.8 and 0.95 is considered to have very good reliability, between 0.7 and 0.8 good reliability, and fair reliability between 0.6 and 0.7 coefficient alphas. This study

was using Cronbach's alpha to measure the reliability. Thus, showing as an indication of the acceptability of the scale for further analysis and it is shown in Table 3.1 below.

Table 3. 1: Reliability Statistics

Variable description	Overall Cronbach's Alpha	N of Items
Green Procurement Practices	0.833	5
Green Logistics practices	0.738	5
Green manufacturing practices	0.788	9
Reverse Logistics Practices	0.907	6
Organizational Performance	0.840	7
Overall reliability	0.922	32

Source: Own survey, 2024

As illustrated in the table above, all green supply chain management dimension factors (green procurement practices, green logistics practices, green manufacturing practices, and reverse logistics practices) and organizational performance were classified as acceptable which is greater than 0.70, and almost all constructs were between 0.738 and 0.907. As a result, all constructs were accepted as being reliable for the research. Generally, the overall Cronbach's alpha value of the dependent & independent variables has fulfilled the requirement of Cronbach's alpha.

3.10. Ethical considerations

When collecting data for the study, first an authorized correspondence memo to conduct the research was obtained from Addis Ababa University School of commerce. Then the letter was handed to Heineken Brewery Company. Then the researcher was explaining the purpose and nature of the study to respondents and asks for their informed consent to participate or not. Apart from that, some briefings was written on the heading of every questionnaire as respondents' information was strictly confidential and only taken for academic purposes, and was not be used for any personal interest also the whole process of the study is controlled to be within acceptable professional ethics. Moreover, a statement confirms the prohibition of including any identity detail or personal references in the questionnaire. This is to avoid any biased responses or unauthentic data provided by respondents and to make participants safer in filling out the questionnaire. After that, the researchers was collected the information and analyze the study according to the responses. Findings were reported completely and honestly, without misrepresenting what has been done or intentionally misleading others as to the nature of it.

CHAPTER FOUR

DATA ANALYSIS, DISCUSSION AND INTERPRETATION

This chapter presents the analysis, discussion, and inferences made based on the responses obtained from the respondents. Statistical methods of analysis were used, including descriptive and inferential analysis. To analyse the demographic profiles of the respondents, the researcher used percentage and frequency calculations, presented in tables. To analyse the responses obtained from the closed-ended questionnaires, the researcher used descriptive statistics (mean and standard deviation) as well as inferential analysis (multiple regression model and Pearson correlations).

4.1. Response rate

In order to satisfy the specific objective of the study, the researcher distributed 212 questionnaires. This is for the sake of considering defective questionnaires and to collect all sample size. The table shows that a total of 212 questionnaires were distributed to the respondents. Out of these, all 212 questionnaires were successfully collected, representing a response rate of 100%. This high response rate indicates that the data collection process was effective and the respondents were engaged in providing their inputs.

Table 4. 1: Response rate

	Totals in Number	Percentage (%)
Total distributed	212	100
Questionnaire defected	-	-
Questionnaire Collected	212	100

Source: Own survey, 2024

4.2. Demographic Profile of Respondents

This section summarizes the demographic characteristics of the sample, which includes gender of the respondent, age, education level, work experience. The purpose of the demographic analysis in this research is to describe the characteristics of the sample such as the proportion of males and females in the sample, range of age and education level, so that the analysis could be more meaningful for readers.

4.2.1. Gender Distribution of the Respondent

The gender breakdown of the respondents shows that the sample is predominantly male, with 127(59.9%) of the respondents being male and 85(40.1%) being female. This suggests that the workforce or employee population at Heineken beer has a higher representation of males compared to females. This could be due to various factors, such as the nature of the industry, organizational policies, or societal/cultural norms influencing the gender distribution in the workforce. The relatively higher proportion of male respondents should be taken into consideration when interpreting the survey results, as it may reflect the perspectives and experiences of a male-dominated sample. It is important to be mindful of potential gender-based biases or differences in the responses that may arise from this uneven gender distribution in the sample. Overall, the gender demographic provides valuable insight into the composition of the survey respondents and should be considered in the analysis and interpretation of the survey findings.

Table 4. 2: Gender distribution of the Respondents

Gender distribution of the Respondents		Frequency	Percent
Valid	Male	127	59.9
	Female	85	40.1
	Total	212	100.0

Source: Own survey, 2024

4.2.2. Age Distribution of the Respondent

Table 4. 3: Age distribution of the respondent

Age of respondent		Frequency	Percent
Valid	20-30 years	65	30.7
	31-40 years	108	50.9
	41-50 years	31	14.6
	50 years and above	8	3.8
	Total	212	100.0

Source: Own survey, 2024

The age distribution of the respondents shows that the largest age group is 31-40 years, accounting for 108(50.9%) of the sample. This is followed by the 20-30 years age group, which makes up 65(30.7%) of the respondents. 31(14.6%) were between the age groups of 41 and 50.

While the remaining 8(3.8%) were ages above 50. This age profile suggests that the workforce at Heineken beer factory is relatively young, with a predominance of employees in the 31-40 and 20-30 age ranges. This could indicate that the organization may have a focus on attracting and retaining younger talent or that the industry itself tends to have a younger demographic. The underrepresentation of older age groups (over 50 years) in the sample may be a reflection of the overall age distribution within the organization or could also suggest potential challenges in the recruitment and retention of more experienced employees. These age-related insights can be valuable in understanding the survey responses, as different age groups may have distinct perspectives, experiences, and priorities that could influence the findings. Considering the age distribution can help provide a more nuanced interpretation of the survey results.

4.2.3. Education Level of the Respondents

Table 4. 4: Education Level of the respondent

		Frequency	Percent
Education Level of the respondent	Below grade 10	11	5.0
	Grade 12 completed	17	8.0
	Certificate	21	10.0
	College Diploma	32	15.0
	First Degree	95	45.0
	Postgraduate degree and above	36	17.0
	Total	212	100.0

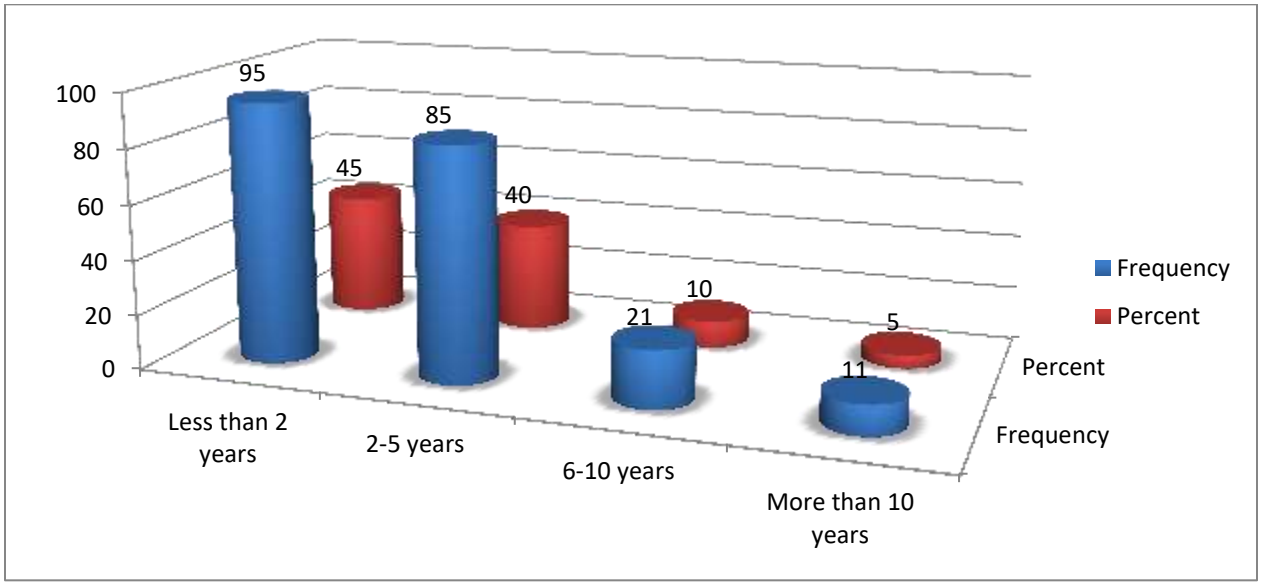
Source: Own survey, 2024

The data shows that the majority of the respondents (45%) have a first degree (bachelor's degree) as their highest level of education. This is followed by those with a master's degree or higher, who account for 17% and college diploma 15%of the sample. The remaining 13% of respondents sum of grade 12 and grade 10 educational qualifications. This education profile suggests that the workforce at Heineken beer factory is relatively well-educated, with a significant proportion of employees holding advanced degrees (master's and above). This could indicate that the organization values highly educated and skilled personnel, or that the nature of the industry requires a highly educated workforce. The distribution of education levels can provide insights into the knowledge, skills, and perspectives that the respondents may bring to the survey. Employees with different educational backgrounds may have varying views, priorities, and

problem-solving approaches, which could influence the survey findings. Considering the level of education of respondents can help researchers interpret the survey results more accurately and identify any potential biases or patterns that may be associated with the educational attainment of the sample.

4.2.4. Work Experience of the Respondents

Figure 4.1. Work experience of the respondent



Source: Own survey, 2024

According to the following table, majority of the respondents (85%) have less than 5 years of work experience, with 45% having less than 2 years and 40% having 2-10 years of experience. The proportion of respondents with more extensive work experience (6-10 years and more than 10 years) is relatively low, at 10% and 5% respectively. This suggests that the workforce at Heineken beer factory tends to be relatively young and inexperienced, with a predominance of employees in the early to mid-stages of their careers. This could be due to the organization's focus on hiring and retaining younger talent, the nature of the industry, or other factors. The skew towards less experienced employees may have implications for the survey responses, as more experienced workers may have different perspectives, problem-solving approaches, and insights compared to their less experienced colleagues. This should be considered when interpreting the survey findings. Additionally, the limited representation of highly experienced employees (more than 10 years) may indicate potential challenges in the organization's ability to retain and leverage senior-level expertise. Overall, the work experience profile provides valuable

context for understanding the survey respondents and the potential influences on the survey results. Overall, the work experience profile paints a picture of a relatively balanced and experienced workforce at Heineken beer factory, which can contribute to a more comprehensive understanding of the survey results.

4.2.5. Title of Employment for the Respondents

This category makes up the largest portion of the workforce, with 176 employees or 80.2% of the total. This indicates that the majority of the employees at this organization are in non-supervisory, frontline roles. There are 24 employees (11.3%) who hold unit or section head roles. These are likely middle management positions responsible for overseeing and coordinating specific functional areas or teams. There are 6 employees (5.7%) who are classified as managers of the organization. These are the top-level leadership roles within the company. This category accounts for 6 employees (2.8%).

Table 4. 5: Title of Employment for the respondents

Title of Employment for the respondents		Frequency	Percent
Valid	Manager of the organization	6	5.7
	Unit (section head)	24	11.3
	Non-managerial position	176	80.2
	Others	6	2.8
	Total	212	100.0

Source: Own survey, 2024

The workforce is heavily skewed towards non-managerial, frontline roles, which make up 80.2% of the total. There is a relatively small proportion of middle management (11.3%) and senior leadership (5.7%) positions. The distribution of job titles/positions suggests this may be a fairly hierarchical and structured organization, with a large base of non-supervisory workers and fewer management/executive roles.

4.3. Descriptive Statistics Measurement of Variables

The descriptive statistics of the study variables are summarized in the table below. The responses were generated on a five-point Likert scale; 5= Strongly Agree, 4= Agree, 3= Neutral, 2= Disagree, and 1= Strongly Disagree. The respondents were required to state their level of agreement or disagreement. To determine the level of the agreement on the 5-point Likert scale, the range is calculated by Pimentel (2010) formula as follows: (5 - 1 = 4) then divided by five as

it is the greatest value of the scale (4 ÷ 5 = 0.80). Afterward, number one which is the least value in the scale was added to identify the maximum of this cell. The length of the cells is determined below based on traditional way and if mean score from 1- to 1.80 is (strongly disagree); from 1.81 to 2.60 is (disagree); from 2.61 until 3.40 is (neutral); 3.41 until 4:20 is (agree) and score from 4.21 until 5.00 is (strongly agree). Based on this Likert type scale, the level of agreement or disagreements of respondents are presented as follows:

4.3.1. Employees Response on Effect of Green Procurement Practices

The study required to find the effects of Green Procurement Practices on organizational performance in Heineken Brewery Company. The findings of the study were discussed below.

Table 4. 6: Descriptive Analysis of Green Procurement Practices

Descriptive Statistics	N	Mean	StD.
Heineken Brewery green procurement minimizes the cost of raw materials	212	3.74	1.55
Heineken Brewery procurement eliminates the emission of toxic gases and hazardous liquid wastes	212	3.77	1.55
Heineken Brewery green procurement improves the productivity of the organization	212	3.83	1.53
Heineken Brewery green procurement creates positive attitude among the society towards the factory	212	3.65	1.59
Green procurement is included in Heineken Brewery as one of their strategy	212	3.67	1.56
Aggregate mean	212	3.73	1.56

Source: Own survey, 2024

As shown from the table 4.6 above the analysis examines the effect of Green Procurement Practices on organizational performance in Heineken Brewery Company. Accordingly, as shown from the table, there was a high response rate in connection with the statement which specified that Heineken Brewery green procurement improves the productivity of the organization with a mean response of (M =3.83 and SD =1.53). There was also a low moderate response rate in connection with the statement which specified that Heineken Brewery green procurement creates positive attitude among the society towards the factory with a mean response of (M = 3.65 & SD = 1.59). The aggregate mean score for all items was (M=3.73, and SD=1.56), indicating while

Heineken's green procurement efforts are viewed positively in many respects; there is also significant variation in employee perceptions. Some see clear benefits in terms of cost savings, environmental impact, and societal perception, while others are more skeptical of the extent of these impacts. The lower scores and higher variances on the productivity and strategic priority items also indicate these may be areas where Heineken has more work to do to fully integrate green procurement across the organization.

4.3.2. Employees Response on Effect of Green Logistic

The study required to find the effects of Green logistic on organizational performance in Heineken Brewery Company. The findings of the study were discussed below.

Table 4. 7: Descriptive Analysis of Green Logistic

Descriptive Statistics	N	Mean	StD.
Heineken Brewery implements green logistics operation strategies	212	3.70	1.73
Heineken Brewery green logistics strategy reduces the number of vehicle for material transportation	212	3.62	1.80
Heineken Brewery green logistics reduces the emission of carbon dioxide and other toxic gases	212	3.73	1.63
Heineken Brewery green logistics is preferable in transporting row materials and products	212	3.81	1.66
The green logistic of Heineken brewery factory is good enough	212	3.90	1.61
Aggregate mean	212	3.75	1.69

Source: Own survey, 2024

The descriptive statistics table 4.7 provides insights into the effect of green logistics on organizational performance at Heineken Brewery, indicating that respondents rated these practices moderately, with a mean response of M = 3.75 and SD = 1.69. Notably, there was a high response rate regarding the perception that Heineken's green logistics are effective, reflected in a mean score of M = 3.90 and SD = 1.61. However, a lower moderate response was observed regarding the statement that these practices reduce the number of vehicles used for material transportation, which received a mean score of M = 3.62 and SD = 1.80. The aggregate mean score of 3.75 suggests that while respondents generally perceive the impact of green logistics on organizational performance positively, there is variability in opinions about specific

aspects, highlighting the need for further investigation and potential improvements in certain areas to enhance overall efficiency and sustainability in logistics operations.

4.3.3. Employees Response on Effect of Green Manufacturing Practices

The study required to find the effects of green manufacturing practices on organizational performance in Heineken Brewery Company. The findings of the study were discussed below.

Table 4. 8: Descriptive Analysis of green manufacturing practices

Descriptive Statistics	N	Mean	StD.
Heineken Brewery has committed of Green Manufacturing practices	212	3.80	1.56
Heineken Brewery uses alternative energy to avoid unnecessary expense	212	3.75	1.50
Heineken Brewery uses nontoxic row materials.	212	3.53	1.71
Green Manufacturing meets the demand of consumers.	212	3.66	1.66
Solid & water waste are disposed or discharged.	212	3.36	1.80
Employees' skills in green manufacturing or environmentally friendly manufacturing	212	3.83	1.61
Green manufacturing practices changed the competitiveness of the organization	212	3.59	1.72
Green manufacturing practices are positively accepted by the working staff & community	212	3.70	1.60
Green manufacturing practices ignite the motivation for productiveness	212	3.77	1.61
Aggregate mean	212	3.67	1.64

Source: Own survey, 2024

The descriptive statistics table 4.8 provides insights into the effect of green manufacturing practices on organizational performance at Heineken Brewery, revealing that respondents rated the presence of these practices as moderately effective, with a mean response of M = 3.67 and SD = 1.64. The data highlights a strong perception regarding employees' skills in green manufacturing, which received a high mean score of M = 3.83 and SD = 1.61, indicating that staff are well-equipped to engage in environmentally friendly practices. However, there was a lower moderate response regarding the proper disposal or discharge of solid and water waste, reflected in a mean score of M = 3.36 and SD = 1.80. The aggregate mean score of 3.67 suggests

that while respondents view the overall implementation of green manufacturing practices positively, there are specific areas, such as waste management, that may require further attention and improvement to enhance organizational performance. Generally, the study suggests that Heineken has made progress in implementing green manufacturing practices, but there are opportunities to strengthen its commitment, expand the use of alternative energy and non-toxic materials, better meet consumer demands, enhance employee skills and acceptance, and leverage green manufacturing as a competitive advantage.

4.3.4. Employees Response on Effect of reverse logistics

The study required to find the effects of **reverse logistics** on organizational performance in Heineken Brewery Company. The findings of the study were discussed below.

Table 4. 9: Descriptive Analysis of reverse logistics

Descriptive Statistics	N	Mean	StD.
Reversed reusable materials (empty pallets and barrels) benefited Heineken Brewery	212	3.80	1.52
Reversed materials helped reduce the procurement of new industrial materials	212	3.75	1.54
Heineken's customers attitude towards the reverse logistics or returned materials	212	3.81	1.45
Reverse logistics benefits to Heineken in minimalizing the reliability of the customers	212	3.86	1.45
Harmful products for environment are reserved for recovery and disposal by Heineken Brewery	212	3.67	1.55
Reverse logistics ensure the recycling system of the organization (Heineken Brewery)	212	3.74	1.55
Aggregate mean	212	3.77	1.51

Source: Own survey, 2024

The descriptive statistics table 4.9. provides insights into the effect of reverse logistic practices on organizational performance at Heineken Brewery, revealing that respondents rated the presence of these practices as moderately effective, with a mean response of M = 3.77 and SD = 1.51. The data highlights a strong perception regarding Reverse logistics benefits to Heineken in minimalizing the reliability of the customers, which received a high mean score of M = 3.86 and

SD = 1.45, indicating that the importance of reverse logistics practices in supporting organizational performance, yet they also imply the need for ongoing assessment and refinement of these practices to maximize their benefits. However, there was a lower moderate response regarding Harmful products for environment are reserved for recovery and disposal by Heineken Brewery, reflected in a mean score of M = 3.67 and SD = 1.55. The aggregate mean score of 3.77 suggests that there may be concerns about the effectiveness of these specific practices. This variability highlights the need for Heineken to continually assess and refine its reverse logistics strategies, particularly in areas related to environmental sustainability, to ensure that they not only support organizational performance but also align with broader environmental goals. Overall, the data suggests that Heineken has established a relatively effective reverse logistics system that is providing various benefits, such as material reuse, reduced new material procurement, customer reliability management, and responsible disposal of harmful products. However, there are opportunities to further strengthen customer engagement, optimize material recovery, and integrate reverse logistics more seamlessly with the company's recycling and sustainability initiatives.

4.5. Organizational Performance

Table 4. 10: Descriptive Analysis of Organizational Performance

Descriptive Statistics	N	Mean	StD.
Green supply chain management leads to improved organizational output	212	3.81	1.61
Green supply chain management leads to organizational sales turnover	212	3.75	1.61
Green supply chain management leads to quality products	212	3.73	1.52
Green supply chain management leads to effective waste control	212	3.86	1.58
Green supply chain management leads to compliance with environmental regulations	212	3.76	1.53
Decrease in cost for energy consumption	212	3.85	1.58
Decrease in cost of material purchasing	212	3.87	1.65
Aggregate mean	212	3.80	1.58

Source: Own survey, 2024

The provided descriptive statistics table 4.10 offers valuable insights into organizational performance in Heineken Brewery Company. The majority of respondents reported green supply chain management decrease in cost of material purchasing with a mean score of (M=3.87, and SD=1.65). This suggests that the majority of respondents perceive that green supply chain management practices contribute positively to reducing material purchasing costs. Additionally, this perception underscores the potential economic benefits of integrating sustainability into supply chain operations, suggesting that Heineken Brewery's commitment to green supply chain management not only aligns with environmental goals but also enhances financial performance. They also perceived green supply chain management leads to effective waste control, with a mean score of (M=3.86, and SD=1.58) indicates that a strong consensus among participants that these practices not only help in minimizing waste generation but also enhance the overall efficiency of waste management processes within the organization. The positive perception of waste control reinforces the idea that Heineken Brewery's commitment to sustainability can lead to improved operational performance while also supporting environmental goals. Followed by, green supply chain management decrease in cost for energy consumption, with a mean score of (M=3.85, and SD=1.58). Green supply chain management leads to improved organizational output with a mean score of (M=3.81, and SD=1.61), Green supply chain management leads to compliance with environmental regulations with a mean score of (M=3.76, and SD=1.53). Green supply chain management leads to organizational sales turnover with a mean score of (M=3.75, and SD=1.61), and green supply chain management leads to quality products with a mean score of (M=3.73, and SD=1.52). The aggregate mean score for organizational performance is generally positive, with a mean score of (M=3.80, and SD=1.58), suggesting a strong belief that the integration of sustainable practices positively influences various aspects of the organization.

4.6. Inferential Analysis

Inferential statistics is one of two branches of statistics in which a random sample of data is taken from a population to describe and make inferences about the population. Etikan & Bala (2017) said inferential statistics assist a study in making data descriptions and drawing conclusions and inferences from the respective set of data. To formulate a suitable model to evaluate the relationship between green procurement practices, green logistics, green manufacturing practices, and reverse logistics and Organizational performance in the case of Heineken Ethiopia, the study carried out an inferential analysis that involved the Pearson Correlation Coefficient and Linear Regression analysis and then fitting the data in the regression model to determine whether it's valid. The inferential analysis aims to make conclusions out of the data b/n the independent and dependent variables.

4.6.1. Correlation Analysis

Correlation analysis is a technique used to indicate the relationship of one variable to another and can be considered as a standardized covariance that shows the extent to which a change in one variable corresponds systematically to a change in another (Zikmund et al, 2013). This study employs correlation analysis, which investigates the strength of the relationships between green procurement practices, green logistics, green manufacturing practices, and reverse logistics and organizational performance.

Correlation analysis is useful way of exploiting relation (association) among variables. The value of the coefficient (r) ranges from -1 up to +1. The value of coefficient of correlation (r) indicates both the strength and direction of the relationship. If r = -1 there is perfectly negative correlation between the variable. If r = 0 there is no relationship between the variable and if r = +1 there is perfectly positive relationship between the variables. For values of r between + and 0 or between 0 and -1, different scholars have proposed different interpretation with slight difference.

For this study decision rule given by Marczyk et al., (2005) was used to describe the strength of association among the variables as follows. Accordingly, correlations of .01 to .30 are considered weak, correlations of .30 to .70 are considered moderate, correlations of .70 to .90 are considered strong, and correlations of .90 to 1.00 are considered very strong. So to determine the relationship between green procurement practices, green logistics, green manufacturing practices, and reverse logistics & organizational performance, the Pearson correlation was computed in Table 4.11 below.

Table 4. 11: Pearson Correlation coefficients between dependent and independent variables

Correlations						
		Green procurement practice	Green logistic	Green manufacturing practice	Reverse logistic	Organizational performance
Green procurement practice	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	212				
Green logistic practice	Pearson Correlation	.556**	1			
	Sig. (2-tailed)	.000				
	N	212	212			
Green manufacturing practice	Pearson Correlation	.366**	.486**	1		
	Sig. (2-tailed)	.000	.000			
	N	212	212	212		
Reverse logistic	Pearson Correlation	.286**	.271**	.390**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	212	212	212	212	
Organizational performance	Pearson Correlation	.652**	.619**	.614**	.477**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	212	212	212	212	212
**. Correlation is significant at the 0.01 level (2-tailed).						

Source: Own survey, 2024

The above table of Pearson correlation analysis of the study variable shows that the correlation between predictor variables (i.e. green procurement practices, green logistics, green manufacturing practices, and reverse logistics) and dependent variables (Organizational performance). Accordingly, Organizational performance has a moderate and positive correlation with all four of green supply chain management practices at Pearson correlation (r) value of 0.652, 0.619, 0.614, and 0.477 respectively as green procurement practices, green logistics, manufacturing practices, and reverse logistics with a significance value of $P<0.01$.

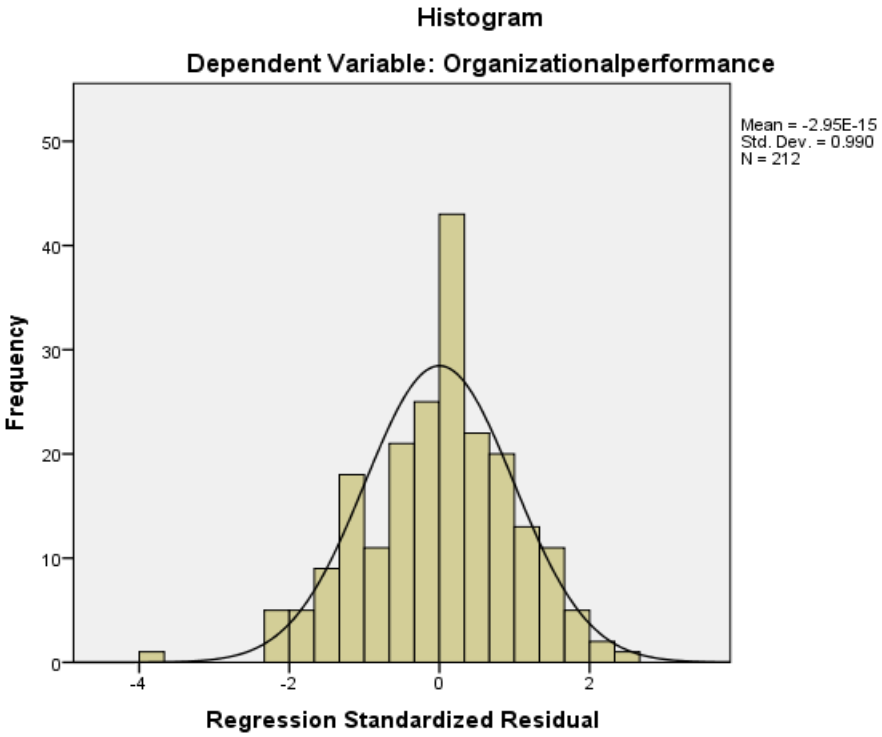
4.6.2. Model Assumptions Test

Before regression analysis was conducted, a series of diagnostic tests were performed. This was meant to ascertain that the data did not violate the assumptions underlying the application of linear regression. These tests included normality, multi-collinearity, and linearity.

4.6.2.1. Normality Test

To conduct a rigorous research analysis, it is essential to ensure that all variables used in multiple linear regressions are normally distributed. This requirement can be assessed by employing techniques such as histogram analysis and fitting a normal curve or normal P-P Plot. The underlying assumption of normality pertains to the mean of the residuals being zero. To verify this assumption, researchers often employ normality tests, which determine the degree to which a dataset adheres to a normal distribution. In the present study, the researcher opted to test the normality of the data using histogram methods. According to Fidell (2001), a bell-shaped histogram indicates that the residuals are normally distributed around a mean of zero. By examining Figure 4.1, it can be observed that the data conforms to the normality assumption, thus ensuring the validity of the analysis.

Figure 4. 1: Normality Test

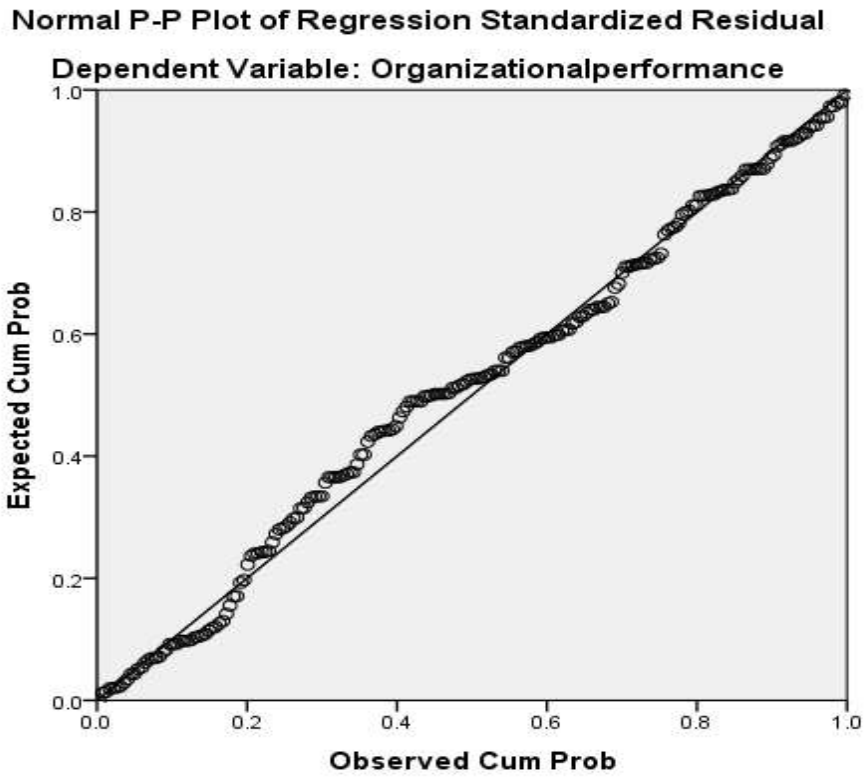


Source: Own Survey, 2024

4.6.2.2. Linearity Test

Linearity refers to the degree to which the variation in the dependent variable is related to the variation in the independent variables. Simply it explains the relation and movement of dependent and independent variables. The study conducted a linearity test to determine whether the relationship between independent variables (green procurement practices, green logistics, green manufacturing practices, and reverse logistics) and organizational performance (dependent variable) is linear or not.

Figure 4. 2: Linearity Test Results



Source: Own survey, 2024

As depicted in the above graph of the visual inspections of the p-p plot there exist the linear relationship between green supply chain management practices and organizational performance. As shown in the diagram, the diagonal line observed across the residual plots indicates a normal distribution of residuals. Furthermore, the absence of any noticeable variations in the redistribution of residuals suggests a clear linear pattern. The scatter plot of residuals also indicates a consistent spread without any significant deviations. Consequently, it is reasonable to

conclude that the researcher's inferences regarding the population parameter based on the sample are valid, and the relationship between the variables can be deemed linear.

4.6.2.3. Test of Multicollinearity

The term Multi-collinearity indicates the existence of exact linear association among some or all explanatory variables in the regression model. When independent variables are multi-collinear, there is overlapping or sharing of predictive power. To detect multi-collinearity the researcher uses the variance inflation factor (VIF) and the tolerance value tests to verify multicollinearity. According to Pallant (2005), if the value is very small or less than 0.10 it shows there is the problem of multicollinearity. And also if the (VIF) for each independent variable is < 10 multicollinearity isn't considered a problem. The larger the value of the VIF above 10 is the more collinear the variable (Hair et al. 1998).

Table 4. 12: Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Green procurement practice	.667	1.500
	Green logistic practice	.598	1.671
	Green manufacturing practice	.686	1.457
	Reverse logistic practice	.823	1.215

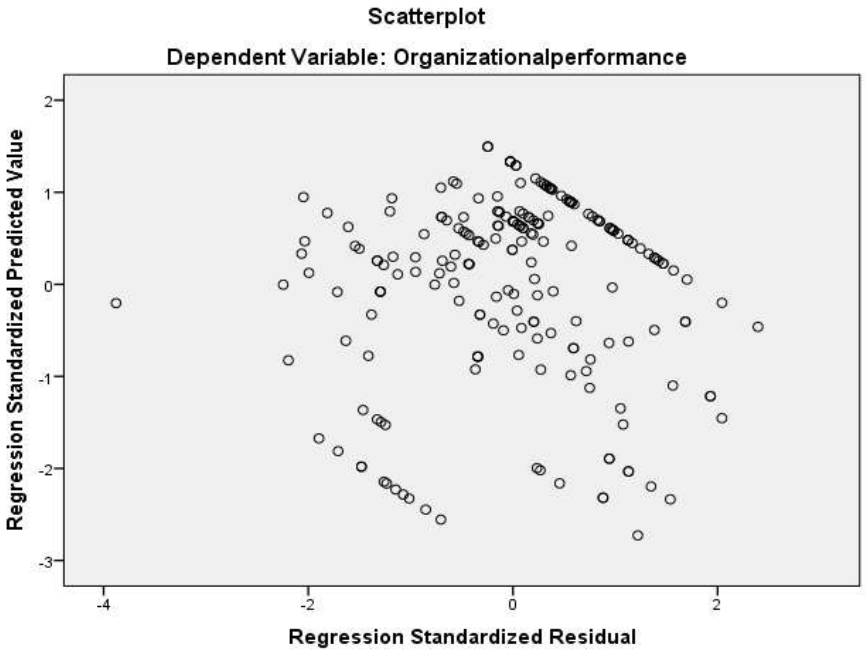
Source: Own survey, 2024

As shown in the collinearity Statistics table the result of the analysis shows that the tolerance values for independent variables (green procurement practice, green logistic practice, green manufacturing practice, and reverse logistic practice) are 0.667, 0.598, 0.686, and 0.823 respectively. Therefore, there is no violation of the above-stated assumption. Also, the VIF results for green procurement practice, green logistic practice, green manufacturing practice, and reverse logistic practice are1.500, 1.671, 1.457, and 1.215 respectively. As shown in the table, the value of the VIF of all independent variables was found to be smaller than ten and the tolerance test result is greater than 0.1. These values indicated that there is no Multicollinearity problem on this research explanatory variable.

4.6.3. Homoscedasticity Test

The assumption of Homoscedasticity indicates that the variance of error is equal and constant across all levels of the variables. Homoscedasticity is related to the assumption of normality because when the assumption of normality is met, the relationship between the variables is homoscedastic. Heteroscedasticity occurs when the variance of errors differs at different values of the independent variables. To assess homoscedasticity, the researcher created a scatterplot of standardized residuals versus standardized predicted values using SPSS and found that Heteroscedasticity was not a major problem as shown in the figure 4.3 below.

Figure 4. 3: Heteroscedasticity



Source: Own survey, 2024

As shown from the figure above, testing for homoscedasticity lies with an assumption in regression analysis that the residuals at each level of the predictor variable(s) have similar variances. Using the plots of ZResid against ZPred, the distribution checks whether the graph looks like a random array of dots evenly dispersed around zero. This means that at each point along with any predictor variable, the spread of residuals should be fairly constant. It shows that the overall customer satisfaction is plotted against each predictor variable of e-banking service quality. The plot shows how the points are randomly and evenly dispersed throughout the plot.

And, these patterns are indicative of a situation in which the assumptions of linearity and homoscedasticity have been met.

After the data was checked for the above-required multiple regression assumptions and the researcher confirmed that it has met all these assumptions, multiple regression analysis was carried out to determine how well the regression model fits the data (model summary), independent variables statistically significantly predict the dependent variable (ANOVA) and statistical significance of each of the independent variables (regression coefficients).

4.6.4. Regression Analysis

The researcher further sought to establish the effect of each of the independent variables; (green procurement practice, green logistic practice, green manufacturing practice, and reverse logistic practice) on the dependent variable of organizational performance in Heineken Ethiopia. The regression model below was used to determine the extent to which the predictors affect the dependent variable.

4.6.4.1. Model Summary

This section presents the multiple linear regression results of that made to examine the effect of independent variables on customer satisfaction. Multiple regressions were performed between organizational performance as the dependent variable and green procurement practice, green logistic practice, green manufacturing practice, and reverse logistic practice as independent variables.

Table 4. 13: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.806[a]	.650	.643	.67495
a. Predictors: (Constant), reverse logistic, green logistic, green manufacturing practice, green procurement practice				
b. Dependent Variable: Organizational performance				

Source: Own survey, 2024

As shown in Table 4.13 above, the multiple regression coefficients R, indicates a very strong correlation of 0.806 between the four independent variables (green procurement practices, green logistics, manufacturing practices, and reverse logistics and the dependent variables (organizational performance). The R^2 =0.650 reveals that the model accounts for 65.0% 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. green procurement practices, green logistics, manufacturing practices, and reverse logistics). The remaining 35.0% is explained by other factors giving room for further study to investigate other factors which affect organizational performance.

4.6.4.2. The Analysis of Variance (Model Fitness)

Model fit has been seen among the various components of organizational performance, for this survey, four variables were selected. The effect of these four independent variables; green procurement practices, green logistics, manufacturing practices, and reverse logistics was examined on the dependent variable i.e. organizational performance using multiple regressions.

Table 4. 14: The Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	175.079	4	43.770	96.081	.000[b]
	Residual	94.300	207	.456		
	Total	269.379	211			
a. Dependent Variable: Organizational performance						
b. Predictors: (Constant), reverse logistic, green logistic, green manufacturing practice, green procurement practice						

Source: Own survey, 2024

As shown in Table 4.14 above, the analysis of variance (ANOVA) was conducted on the variables. The ANOVA provides an assessment of the overall significance of the model in terms of statistical significance. The results of the analysis indicated that the F ratio, with an F value of 96.081, is significant at a p-value of 0.000. This indicates that the four independent variables (green procurement practices, green logistics, manufacturing practices, and reverse logistics) collectively have a significant relationship with the dependent variable. The critical F-value at a 5% level of significance is 0.456. Since the calculated F-value of 96.081 is greater than the critical value, it confirms that the model is indeed significant. The magnitude of the F-value is large enough to conclude that the combined coefficients of the independent variables are not jointly equal to zero. This implies that the combination of these variables effectively predicts the dependent variable.

4.6.4.3. Multiple Regression Analysis

Multiple regression analysis is used to find out whether there was a statistically significant relation between customer satisfaction and the four components of green supply chain management or not. Multiple regressions are used to develop a formula that shows the relationship between the dependent variable (organizational performance) and the independent variables (green procurement practices, green logistics, manufacturing practices, and reverse logistics). The standardized beta coefficient tells us the unique contribution of each factor to the model. A high beta value and a small p-value (<0.05) indicate the predictor variable has made a significant statistical contribution to the model. On the other hand, a small beta value and a high p-value (p >0.05) indicate the predictor variable has little or no significant contribution to the model George et al (2003).

Table 4. 15: Regression Coefficients Analysis

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.164	.211		-.775	.439
	Green procurement practice	.344	.047	.367	7.283	.000
	Green logistic	.208	.051	.217	4.083	.000
	Green manufacturing practice	.335	.056	.297	5.980	.000
	Reverse logistic	.179	.041	.197	4.356	.000
a. Dependent Variable: Organizational performance						

Source: Own survey, 2024

The above regression examines the relationship between the independent variables such as (green procurement practices, green logistics, manufacturing practices, and reverse logistics), and the dependent variable, which is organizational performance. The significance level for all mentioned independent variables shows a level below 0.05, which means that there, is a significant relationship between these independent variables and organizational performance. Since all variables received an error of less than 0.05. The alternative hypothesis will be accepted stating that there is a relation between the independent variables and the dependent variable.

Regression equation

A multiple regression model was used to determine whether independent variables, as symbolized by GPP=green procurement practices, GLP=green logistics practice, GMP= green manufacturing practices, and RL=reverse logistics altogether affected the dependent variable OP= Organizational performance. The Multiple regression models were as follows:

$$OP = \beta 0 + \beta 1X1 + \beta 2x2 + \beta 3X3 + \beta 4X4 + \Sigma 0 + e$$

$$OP = \beta 0 + \beta 1(GPP) + \beta 2(GLP) + \beta 3(GMP) + \beta 4(RL) + e$$

$$OP = -.164 + 0.367(GPP) + 0.217(GLP) + 0.297(GMP) + 0.197(RL) + e$$

Where; OP= the dependent variable (Organizational performance)

GPP= the first independent variable (Green Procurement Practices)

GLP= the second independent variable (Green Logistics Practice)

GMP= the third independent variable (Green Manufacturing Practices)

RL= the fourth independent variable (Reverse logistic)

β0 =intercept of the equation e = error term

4.7. Hypothesis Summary

Hypothesis testing was based on standardized coefficients beta and P-value to test whether the hypotheses were accepted or failed to be accepted.

Table 4. 16: Analysis of Hypothesis

Hypothesis	Beta Coefficient	Significant (P<0.05)	Decision
H1: Green Procurement Practices has a positive and significant effect on organizational performance.	.367	.000	Accepted
H2: Green Logistics Practice has a positive and significant effect on organizational performance.	.217	.000	Accepted
H3: Green Manufacturing Practices has a positive and significant effect on organizational performance.	.297	.000	Accepted
H4: Reverse logistic has a positive and significant effect on organizational performance.	.197	.000	Accepted

Source: Own Survey, 2024

As shown in the table above, the research starting hypotheses were tested based on the standardized coefficients and beta and p-value to test whether the research hypotheses were accepted or rejected. Accordingly, based on the finding the researcher concluded that all the four green supply chain management dimensions were practiced and significantly contributed to the organizational performance. Each green supply chain management factor has a statistically significant and positive effect on the organizational performance of Heineken Ethiopia.

4.8. Discussion

The researcher investigated the effect of Green Supply Chain Management Practices on the performance of the brewery industry: in the case of Heineken Ethiopia. The independent variables used to identify organizational performance are green procurement practices, green logistics, manufacturing practices, and reverse logistics. The major findings of the study are summarized and presented below:

The results of Multiple Regression revealed that green procurement practice has a significant effect on organizational performance with $\beta = 0.367$, at 95% confidence level ($P<0.05$). The Beta value ($\beta = 0.367$) shows that if there is a one-unit increase in green procurement practice, it affects organizational performance by 36.7%. Therefore, the researcher has accepted the hypothesis. This indicates that green procurement practice significantly affects organizational performance in Heineken Ethiopia. The results of this research were in accordance with the theory used in this research, and supported the results of previous researches such as the research by Spicer (2020), Kaikai (2020), Zhu et al. (2013) and Linda Assefa (2020). One possible explanation for this unexpected result could be that the implementation of green procurement practices may involve significant upfront costs or operational complexities that outweigh the long-term benefits, at least in the short term.

The results of Multiple Regression revealed that green logistics practice has a significant effect on organizational performance with $\beta = 0.217$, at 95% confidence level ($P<0.05$). The Beta value ($\beta = 0.217$) shows that if there is a one-unit increase in green logistics practice, it affects organizational performance by 21.7%. Therefore, the researcher has accepted the hypothesis. This indicates that green logistics has statistically significantly affected organizational performance in Heineken Ethiopia. The finding of the study is in line with the study conducted by Siud Nega (2021), Neale (1991), Diabat and Govindan (2011) and Linda Assefa (2020). They

found that green logistics practices, including reverse logistics, can positively impact organizational performance by reducing costs and enhancing environmental sustainability.

The results of Multiple Regression revealed that green manufacturing practice has a significant effect on organizational performance with β= 0.297, at 95% confidence level (P<0.05). The Beta value (β= 0.297) shows that if there is a one-unit increase in green manufacturing practice, it affects organizational performance by 29.7%. Therefore, the researcher has accepted the hypothesis. This indicates that green manufacturing has statistically significantly affected organizational performance in Heineken Ethiopia. The finding was supported by study conducted by Allen (2011), Zhu and Sarkis (2004) and Linda Assefa (2020). They conform that green manufacturing maintaining the relationship between the decisions made by the management which directly impacted the green supply chain management positively affect the organizational performance, and the adoption of green manufacturing practices, such as waste reduction and environmental management, can lead to improved organizational performance.

The results of Multiple Regression revealed that reverse logistics has a significant effect on organizational performance with β= 0.197, at 95% confidence level (P<0.05). The Beta value (β= 0.197) shows that if there is a one-unit increase in reverse logistics, it affects organizational performance by 19.7%. Therefore, the researcher has accepted the hypothesis. This indicates that reverse logistics significantly affect organizational performance in Heineken Ethiopia. The finding of the study is in line with the study conducted by Siud Nega (2021), Neale (1991), and Linda Assefa (2020), Govindan et al., (2015); and Lebreton & Tuma (2006). One possible explanation for this unexpected result could be that the implementation of reverse logistics practices may require significant investments and operational changes that outweigh the potential benefits in the short term.

In summary, the regression analysis reveals green procurement practices, green logistics, manufacturing practices, and reverse logistics show a positive and significant relationship with organizational performance. These findings suggest that Heineken should carefully assess the costs, benefits, and long-term implications of implementing various green practices to optimize its overall organizational performance.

CHAPTER FIVE

SUMMRY OF FINDINGS, CONCLUSION AND RECOMMENDATION

The study was aimed to investigate the effect of supply chain amazement practice on performance of Heineken brewery factory. Throughout this study, the researcher had investigated the effect of five determinants (Green procurement practices, green logistics practices, green manufacturing practices and reverse logistics Practices) on Liquidity on performance of Heineken brewery factory. This study has applied multiple regression model to see the relationship dependent and independent variables. According to the regression result, all those independent variables can significantly effect on performance of Heineken brewery factory.

5.1. Summary of the Major Findings

The following summaries of major findings of the study are presented based on the analysis and interpretation of collected data.

- ✓ To achieve the study objective, data were collected using structured questionnaires and analyzed using Statistical Package for Social Sciences (SPSS) software version 21. A total of two hundred twelve (212) questionnaires were dispatched to respondents, and two hundred twelve (212) were received back from respondents giving the study a response rate of 100%.
- ✓ To achieve the study objective, this study utilized descriptive statistics (frequencies, percentages, mean, and standard deviation) to analyze the data, while inferential statistics (correlation analysis, regression, and multivariate analysis) were used for data interpretation. The findings were presented through tables, graphs, and figures, ensuring easy comprehension and communication of the research results
- ✓ From the Correlation Analysis Matrix, it is found that all four green supply chain management dimensions green procurement practices; green logistics, manufacturing practices, and reverse logistics are found to have a positive correlation with the organizational performance in Heineken Brewery Company.
- ✓ The first study question of the study was how green procurement practice affects the organizational performance in Heineken Ethiopia. The regression analysis revealed that, there is found to be a positive correlation and are significantly related with a coefficient of 0.367, at $P<0.01$. The regression model result revealed that, a unit increase in green

procurement practice by keeping other independent variables constant will lead to 0.367 increases in organizational performance at Heineken Ethiopia. This implies that green procurement practice indicates for 36.7% of variation in organizational performance. Therefore, the findings indicated that green procurement practice taking in the organization affects positively organizational performance.

- ✓ The second study question was how green logistic practice affects the organizational performance in Heineken Ethiopia. The multiple regression analysis revealed that, there is found to be a positive correlation and are significantly related with a correlation coefficient of 0.217, at $P<0.01$. The regression model result revealed that, a unit increase in green logistic practice by keeping other independent variables constant will lead to 0.21.7 increases in organizational performance at Heineken Ethiopia. This implies that green logistic practice indicates for 21.7% of variation in organizational performance. Therefore, the findings indicated green logistic practice in the organization affect positively organizational performance.
- ✓ The third study question was how green manufacturing practice affects the organizational performance in Heineken Ethiopia. The multiple regression analysis revealed that, there is found to be a positive correlation and are significantly related with a correlation coefficient of 0.297, 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 0.297 increases in organizational performance at Heineken Ethiopia. This implies that green manufacturing indicates for 29.7 % 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 Heineken Ethiopia. The multiple regression analysis revealed that, there is found to be a positive correlation and are significantly related with a correlation coefficient of 0.197, 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 0.197 increases in organizational performance at Heineken Ethiopia. This implies that operations and reverse logistics indicate for 19.7 % of variation in organizational

performance. Therefore, the findings indicated that operations and reverse logistics in the organization affect positively organizational performance.

- ✓ The regression analysis of the study showed the R-value of the model was 0.806, indicating a high level of relationship between the independent and dependent variables. The R^2 value of the regression model was 0.650, meaning that 65.0% of the variance in organizational performance could be explained by green procurement practices, green logistics, manufacturing practices, and reverse logistics. However, it should be noted that the remaining 35.0% of the variance in organizational performance was not addressed in this particular study.
- ✓ The F-ratio in the ANOVA table shows that the independent variables significantly predict the dependent variable, F = 96.081, P=0 .000 (i.e., the regression model is a good fit for the data at p< 0.01). A high beta value and a small p-value (<0.05) indicate the predictor variable has made a significant statistical contribution to the model since the p-value for F-Statistics (0.000) is less than the significance level of 0.05.

5.2. Conclusion

The main objective of this study was to evaluate the effect of green supply chain management practices on organizational performance in Heineken Brewery Company. 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 Heineken Brewery Company. 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 Heineken Brewery Company. In general, the study concludes that green procurement practice, green logistic, green manufacturing and operations and reverse logistics positively affect organizational performance at Heineken Brewery Company.

This study has adjusted R^2 value of 0.650 meaning that 65.0% of the variation in the dependent variable is explained by independent variable excluded in the model. While the remaining 35.0% is explained by other variables excluded from the model (it goes to the error term).

5.3. Recommendation

From the above results of the study, the researcher recommends the following:

- Heineken 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.
- 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.
- Heineken should conduct a thorough assessment of the financial and operational implications of green procurement practices. This should include evaluating the upfront costs of transitioning to greener suppliers, the potential for increased material or service prices, as well as the long-term benefits in terms of reduced environmental impact, improved brand reputation, and potential cost savings. It better to explore strategies such as phased implementation, renegotiating supplier contracts, or identifying alternative green suppliers that offer more favourable terms.
- Heineken should establish clear Key Performance Indicators (KPIs) to track the impact of green procurement on organizational performance. This could include metrics such as cost savings, waste reduction, supplier compliance, and customer satisfaction. Effective communication and training programs also will be crucial to help employees understand the rationale and benefits of green procurement. This can include educating procurement teams on sustainable sourcing criteria, providing guidance on supplier evaluation and selection, and fostering a culture of environmental stewardship across the organization.
- Heineken should work closely with its logistics partners, suppliers, and customers to create a comprehensive green logistics ecosystem. This can involve joint initiatives, such as optimizing transportation routes, implementing collaborative warehousing and distribution systems, and sharing best practices on sustainability. Heineken should also regularly review and update its green logistics strategies to align with evolving industry trends, customer expectations, and technological advancements. This can involve benchmarking against industry peers, incorporating customer feedback, and exploring

innovative solutions to optimize the environmental and economic performance of the logistics network.

- Integration of sustainable practices: Heineken should explore opportunities to further integrate sustainable practices into its manufacturing processes, such as implementing circular economy principles, exploring renewable energy sources, and optimizing water usage and waste management. Investing in advanced manufacturing technologies and innovations can support Heineken's green manufacturing initiatives. This can include technologies like energy-efficient equipment, advanced monitoring and control systems, and intelligent waste management solutions.
- Heineken should conduct a detailed review of its reverse logistics processes to identify areas for improvement, such as streamlining product return management, enhancing product refurbishment and recycling, and optimizing disposal and waste management procedures. Before implementing large-scale changes to reverse logistics, Heineken should consider running pilot programs to test and refine the new processes. This can help the company better understand the operational and financial implications and make informed decisions about the long-term integration of reverse logistics.
- Engaging with customers, suppliers, and regulatory bodies can help Heineken identify opportunities to enhance the efficiency and effectiveness of its reverse logistics practices. This can include gathering customer feedback, collaborating with recycling partners, and ensuring compliance with evolving environmental regulations. Heineken should carefully evaluate the long-term benefits of reverse logistics, including potential cost savings, resource recovery, and improved environmental compliance. These factors should be incorporated into the overall assessment of reverse logistics' impact on organizational performance. to the bank and other responsible bodies:

5.4. Limitation and Implication for Further Research

The study was limited to one organization on Heineken Brewery Company. 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 nongovernment 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.

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Appendix

Addis Ababa University

School of Commerce

Master of Logistic and Supply Chain Management

Dear Respondents,

I am, Tewodros Baye a graduate student at Addis Ababa University School of Commerce. Currently, I am researching to identify "The **effect of Green Supply Chain Management Practices on the performance of the brewery industry: in the case of Heineken Ethiopia**" for partial fulfillment of my Master in Logistic and Supply Chain Management. I kindly ask you to answer honestly and to the best of your knowledge, the questionnaire given. The information collected is used strictly for scholarly purposes and is handled as confidentially as possible. To this end, I kindly request you complete the following short questionnaire regarding the stated objective. It will take no longer than 15 minutes of your time. Your response is of the utmost importance to me. Therefore, you're genuine, honest, and prompt response is valuable input for the quality and successful completion of the project.

Note:

- Please don't write your name.
- Please answer by putting a "√" mark on the box with the point that highly reflects your idea parallel to your choice.
- Information was treated confidentially.
- Your honest & unbiased response will greatly contribute for the research to achieve its objectives.

For any concerns and/or suggestions, please contact the researcher through the following addresses:

- Tewodros
- +251 9

Thank you in advance for your time and consideration!

Part One: Demographic Information

Direction: Please put a tick (√) mark in the appropriate box which expresses yourself

1. Gender Male ☐ Female ☐
2. Age 20-30 years ☐ 31-40 years ☐ 41-50 years ☐ 50 years and above ☐
3. Educational attainment below grade 1 ☐ grade 12 completed ☐ certificate ☐ college Diploma ☐ Bachelor Degree ☐ Master's degree and above ☐
4. Work experience. 1-2 years ☐ 3-5 years ☐ 6-10 years ☐ >= 10 years ☐
5. Title of Employment for the respondents manager of the organization ☐ unit (section head) ☐ Non managerial positions ☐ others ☐

Section two: The following tables are classified by the four basic dimensions of green supply chain management (i.e. green procurement practices; green logistics, Green manufacturing practices, and reverse logistics). Each table is composed of statements that the researcher believes can best explain the green supply chain management practices of Heineken brewery company. There are five blank boxes beside each statement listed. The five numbers above the boxes represent the degree to which the respondent agrees with each statement. Therefore, the respondents are kindly requested to put "√" in the box that indicates '1' means strongly disagree, '2' Disagree, '3' Neutral, '4' agree, and '5' strongly agree

No	**Green Supply Chain Management Dimensions**	1	2	3	4	5
Green Procurement Practice						
1	Heineken Brewery green procurement minimizes the cost of raw materials					
2.	Heineken Brewery procurement eliminates the emission of toxic gases and hazardous liquid wastes					
3.	Heineken Brewery green procurement improves the productivity of the organization					
4	Heineken Brewery green procurement creates positive attitude among the society towards the factory					
5	Green procurement is included in Heineken Brewery as one of their strategy					
Green Logistic practice						

1	Heineken Brewery implements green logistics operation strategies					
2	Heineken Brewery green logistics strategy reduces the number of vehicle for material transportation					
3	Heineken Brewery green logistics reduces the emission of carbon dioxide and other toxic gases					
4	Heineken Brewery green logistics is preferable in transporting row materials and products					
5	The green logistic of Heineken brewery factory is good enough					
Green manufacturing practices						
1	Heineken Brewery has committed of Green Manufacturing practices					
2	Heineken Brewery uses alternative energy to avoid unnecessary expense					
3	Heineken Brewery uses nontoxic row materials.					
4	Green Manufacturing meets the demand of consumers.					
5	Solid & water waste are disposed or discharged.					
6	Employees' skills in green manufacturing or environmentally friendly manufacturing					
7	Green manufacturing practices changed the competitiveness of the organization					
8	Green manufacturing practices are positively accepted by the working staff & community					
9	Green manufacturing practices ignite the motivation for productiveness					
Reverse Logistic						
1	Reversed materials helped reduce the procurement of new industrial materials					
2	Heineken's customers attitude towards the reverse logistics or returned materials					
3	Reverse logistics benefits to Heineken in minimalizing the reliability of the customers					
4	Harmful products for environment are reserved for recovery and disposal by Heineken Brewery					

5	Reverse logistics ensure the recycling system of the organization (Heineken Brewery)					
6	Reversed materials helped reduce the procurement of new industrial materials					

Organizational Performance

Section three: The major indicators of organizational performance are listed below. Please indicate whether these organizational performance dimensions have been indicated in the Heineken brewery factory. After you read each dimension of organizational performance, evaluate them about your bank and then put a tick mark (√) under the choices below. Where, 1 stands for Strongly Disagree, 2 for Disagree, 3 is Neutral, 4 is Agree, and 5 is Strongly Agree.

NO		1	2	3	4	5
Organizational Performance						
1	Green supply chain management leads to improved organizational output					
2	Green supply chain management leads to organizational sales turnover					
3	Green supply chain management leads to quality products					
4	Green supply chain management leads to effective waste control					
5	Green supply chain management leads to compliance with environmental regulations					
6	Decrease in cost for energy consumption					
7	Decrease in cost of material purchasing					

If you have any additional comments or suggestions, please add them in the given space below

_____

_____

Thank you very much for filling out the questionnaire!!!!!