UNIVERSITY OF EDUCATION, WINNEBA
SCHOOL OF BUSINESS
DEPARTMENT OF PROCUREMENT AND SUPPLY CHAIN MANAGEMENT

ASSESSING THE EFFECTS OF SUSTAINABLE SUPPLY CHAIN MANAGEMENT PRACTICES ON ORGANIZATIONAL PERFORMANCE OF MANUFACTURING FIRMS: A STUDY OF EKUMFI JUICE FACTORY

EMMANUEL DANSO MIREKU

MASTER OF BUSINESS ADMINISTRATION

2023

UNIVERSITY OF EDUCATION, WINNEBA

ASSESSING THE EFFECTS OF SUSTAINABLE SUPPLY CHAIN MANAGEMENT PRACTICES ON ORGANIZATIONAL PERFORMANCE OF MANUFACTURING FIRMS: A STUDY OF EKUMFI JUICE FACTORY

EMMANUEL DANSO MIREKU
(220016705)

A dissertation in the Department of Procurement and Supply Chain Management, School of Business, submitted to the School of Graduate Studies, in partial fulfilment

of the requirements for the award of a degree of Master of Business Administration (Procurement and Supply Chain Management) in the University of Education, Winneba.

NOVEMBER, 2023

DECLARATION

Student's Declaration

I, the undersigned student declares that this dissertation, with the exceptions of quotations and references contained in published works that have all been identified and duly acknowledged, is entirely my original work, and it has not been submitted whether in part or whole for another degree elsewhere.

Student Name	Index Number	Signature	Date
Emmanuel Danso Mireku	220018578	...……..……	.....

Supervisor's Certification

I, Dr. Mawuko Dza, do hereby certify that this dissertation was supervised following the guidelines and supervision of research laid down by the University of Education, Winneba.

Supervisor's Name	Signature	Date
Dr. Mawuko Dza	……..……	…….

DEDICATION

To my wife, Esther Danso Mireku and children, Aseda Danso Mireku, Angel Mensah Mireku, Ivan Nagba Mireku and Carwyn Owiredu Mireku

ACKNOWLEDGEMENTS

I am grateful to the God Almighty for giving me the strength to undertake this project work. His grace has sufficiently brought me this far. I express my sincere gratitude to Dr. Mawuko Dza, my supervisor who has been supportive and cooperative in making this dissertation a successful one. I must mention that without him, this work could not have been completed. I also acknowledge the various writers whose works, articles I referenced and the support of all those who contributed to the success of this work. Special thanks go to all the lectures at the department of Procurement and Supply Chain Management. God Bless You. Finally, I wish to thank my family, friends, and colleagues for their support and cooperation.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Given the growing environmental concerns and the need for ethical corporate conduct, businesses are placing greater emphasis on sustainable procurement practices as a crucial element of their overall business strategies. The objective of this study is to examine the complex correlation between sustainable supply chain management and organizational performance. Additionally, the study evaluates the impact of implementing sustainable supply chain management practices on the overall performance of organizations. This study utilizes an extensive examination of the theory of constraints and the resource-based view theories, as well as relevant literature, to identify the various dimensions of sustainable supply chain management and their potential impact on organizational performance. The findings of the study indicate that the firm being examined can solely attain its anticipated performance growth by adopting sustainable supply chain management practices. The research methodology employed in this study was quantitative in nature. The study utilized both descriptive and inferential statistics. The researchers employed a purposive sampling technique to carefully select a sample of 50 individuals from the designated study area. The data collected underwent processing utilizing the Statistical Package for Social Sciences (SPSS) version 26 software. The findings of the analysis revealed a statistically significant and positive correlation between the implementation of sustainable supply chain management practices and the overall performance of the Ekumfi Juice Factory. Additionally, upon conducting further analysis, it was revealed that there exists a strong and statistically significant correlation between the implementation of lean manufacturing practices, efficient inventory management, and effective supplier management practices, and the overall performance of the organization. Hence, it is advisable that the Ekumfi Juice factory places emphasis on the implementation of sustainable supply chain management strategies, which involve the establishment of well-defined supplier criteria and the promotion of collaborative efforts.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The manufacturing sector plays significant roles in economic development through employment creation, revenues and production of necessity products (Khouryieh, 2021). The sector provides numerous opportunities in dairy, beverage, meat, vegetables, fruits, seafood and convenient food and non-consumables. It averagely contributes about 65 percent to job creation and Gross Domestic Products (GDP) in both advanced and developing economies (Khouryieh, 2021; KPMG, 2019). In advanced economies notably US, UK and Germany, for instance, the sector racked over US$1.7 trillion in revenues in 2019 and contributed over 27 percent to GPD (Market Research Report, 2020). In US alone, sales of manufactured goods reached US$2 trillion in 2020; earning US$750 billion in revenues (Khouryieh, 2021).

The sector contributes about 35 percent to GDP and 42 percent to employment creation in developing economies (Satyasai & Singh, 2021). In 2019, it accounted for about USD179 billion and USD305 billion of total revenues in Brazil and India alone (India Brand Equity Foundation, 2020). In Ghana, the sector also averagely contributes about 15% and 20% to economic growth through GDP (Ghana Statistical Service, 2020). With the continuous increase in global population, the sector looks promising with a global estimated growth of US$4.1 trillion by 2024 from US$2.1 trillion in 2019 (Research & Markets, 2020). In Africa, the sector has a significant potential to develop at a fastest annual growth rate of 10 percent by 2023 (Trading Economics, 2019). Arguably, firms in the manufacturing sector can only achieve its projected growth rate by embracing sustainable supply chains.

Manufacturing firms do not operate in isolation; thus, rely on several actors notably farmers, suppliers, investors, distributors and consumers to achieve their set goals. According to Kumar, Singh and Modgil (2020), supply chain is a virtual network with actors who perform independent but integrated roles to achieve set targets. Wijetunge (2017) stressed that the output of a poorly performing actor could have significant rippling effects on focal firms and the entire chain; thus, the need to embrace sustainable supply chain management (SSCM) practices. SSCM emphasises that every actor is accountable for any negative impact or risk caused by varying actions along a chain network (Baliga, Raut & Kamble, 2019); only achievable through the implementation of SSCM practices notably lean, inventory and supply management (Ali, Zailani, Iranmanesh & Foroughi, 2019).

SSCM practices ensure that supply chains use resources prudently by reducing waste, pollution and other hazardous elements associated with their activities (Afum et al., 2020). In the US, China, Malaysia and UK, sustainable practices are far advanced; contributing to the dominance of their food processing industries in global markets. In the US, for instance, the Environmental Protection Agency (EPA) ensures that manufacturing firms adhere to green practices including sustainable purchasing, pollinator protection, waste diversion and pollution prevention (Naidoo & Fisher, 2020). Similarly, in China, the Amendment to the Environmental Protection Law was passed in 2015 to monitor and evaluate the sustainable practices of its manufacturing industry. The drive for sustainable practices is strengthened by the global warming, climate change and ozone depletion arising from the activities of manufacturing supply chains (United Nations Environment Programme (UNEP), 2020).

Also, manufacturing firms consume large quantities of non-renewable, renewable materials and energy which lead to air, water and land pollution (Kumar et al., 2020).

According to Phawitpiriyakliti, Keawkunti, Saisama and Sangma (2020), the ever-increasing scarcity of raw materials coupled with high material costs have also pushed manufacturers toward sustainable SCM practices; to reduce energy and material consumption, waste generation and promote innovation. Similar studies have also argued that implementing SSCM practices improves sustainable performance along three key dimensions: economic, environmental and social (Afum et al., 2020). Kota, Mishra, Jasti and Kale (2021), for instance, found green SCM to ensure recycling of purchased inventories without posing grave dangers to the environment and humans; achieving sustainable performance.

In developing economies, stakeholders notably consumers are increasingly urging food processing industries to embrace sustainable practices due to the harmful effects of their activities on the environment (Afum et al., 2020). Other key indicators comprising working conditions, climate change, poverty and health-related concerns largely attributable to the actions of food manufacturers have also increased the need for the adoption of SSCM practices (World Protection Agency, 2020). Christiaensen (2020) added that manufacturers in Africa especially those within the sub-Saharan Africa (SSA) are primarily responsible for both social and environmental problems; thus, should embrace the responsibilities of helping to mitigate such effects while contributing to economic growth.

Previous studies have found key SSCM practices adopted by manufacturing firms in Ghana to include lean, supply, inventory and green management (Afum et al., 2020; Opoku, Fiati, Kaku, Opoku-Agyeman & Ankomah, 2020) specifically found manufacturers to embrace inventory and supply management. It can be argued that these practices are still underdeveloped in Ghana as compared to other economies notably Singapore, Malaysia, India, China and US. With the United Nations pushing

manufacturing firms including those in Ghana to meet its sustainable development goals; this study investigates how sustainable supply chain management practices affect the sustainable performance of food processing firms in Ghana.

1.2 Statement of the Problem

Supply chains of food manufacturers have grown in complexity and competitiveness; posing serious threats to food safety (Andam, Tschirley, Asante, Al-Hassan & Diao, 2018). Although, regulatory actions notably Sustainable Development Goals, zero emissions and environmental protection are increasingly developed, food contamination coupled with environmental and health-related concerns continue to rise; especially in developing economies (UNEP, 2020; Andam et al., 2018). In Ghana, for instance, the food sector is noted for high energy consumption, poor hygiene at all stages in the production cycle, poor storage facilities and misuse of chemicals (Andam, Ragasa, Asante & Amewu, 2019). Other factors include poor preventive controls, uncertain demands, contaminated raw materials and unstable utility supply (Asante, Ragasa, & Andam, 2020). These factors have posed serious questions about the sustainable practices adopted by food manufacturers in the country.

The connection between food processors and its upstream actors notably local suppliers have generally been weak; leading to raw material quality issues, unnecessary supply delays, regular inventory shortages, post-harvest losses and high operational costs (Agyapong, 2020). The Ministry of Food and Agriculture reported in 2018 that only 5 percent of raw materials produced meet the quality standards and subsequently processed by the food processors; thus, 95 percent of post-harvest losses are annually recorded. These are indications of poor supply and inventory management in the food chain; contributing largely to the industry's imminent collapse (Chavez, Yu, Jajja, Song & Nakara, 2020). In the face of post-harvest losses; Ghana spends over US$1 billion

annually on food imports to feed its ever-growing population (Ridolfi, Hoffman, & Baral, 2018). The Ghana Statistical Service (GSS) (2020) also revealed that the food processing industry contributed a meagre 4.9 percent presenting US$850 million to GDP in 2020.

It could also be argued that Ghana's economy is at the highest risk of collapse arising from environmental safety concerns, influx of wastes, toxins and contaminated food products, high unemployment and overreliance on imported food products. These situations are clear evidences of sustainability issues which are synonymous with poor performance of the food processing industry. Afum et al. (2020) concluded that Ghana's manufacturing sector can only overcome its woes and subsequently achieve better sustainable performance (i.e., economic, social, environmental) by adopting green and lean management. Although some studies have also linked SSCM practices with sustainable performance; most of them have focused on global manufacturing hubs like India, US, Malaysia and China (Chavez et al., 2020), with little concentration on Ghana. However, research focusing the food industry remain limited.

Opoku et al.'s (2020) study focused on inventory management and operational performance; thus, excluded sustainable performance. Also, a study on sustainability by Kusi-Sarpong et al. (2016) focused on only the green dimension of sustainable practices and even in the mining industry. Ahmadi, Kusi-Sarpong and Rezaei (2017) investigated social sustainability of manufacturing supply chains but employed the qualitative approach. Bai, Kusi-Sarpong, Badri Ahmadi and Sarkis (2019) focused on supplier management of SSCM; whereas, Afum, Gao, Agyabeng-Mensah and Sun (2021) focused on lean and green practices within Ghana's manufacturing SMEs. This study, therefore, addresses existing research gaps in literature by examining SSCM

practices comprising green, lean, supply and inventory management and Sustainable performance of food processing firms in Ghana.

1.3 Purpose of the Study

This study investigated the effect of sustainable supply chain management practices on the sustainable performance of food processing firms in Ghana.

1.4 Research Objectives

The following research objectives were developed to:

i. examine the effect of lean management practice on organizational performance at the Ekumfi juice factory.
ii. examine the effect of inventory management practice on organizational performance at the Ekumfi juice factory
iii. examine the effect of supply management practice on organizational performance at the Ekumfi juice factory.

5.5 Research Questions

i. What is the effect of lean management practice on organizational performance at the Ekumfi juice factory?
ii. What is the effect of inventory management practice on organizational performance at the Ekumfi juice factory?
iii. What is the effect of supply management practice on organizational performance at the Ekumfi juice factory?

1.6 Significance of the Study

This research's outcome would inform policies and practices of the beverage manufacturing industry as it provides new insights into the phenomenon of sustainable supply chain management and organizational performance within a developing

economy, Ghana. This is because; the study exposes beverage processing firms to sustainable practices that significantly promote organizational performance in areas of finances and operations. This helps policy makers and management to implement relevant policies that would improve the sustainability of operational activities of the processing industry in Ghana and other related economies. The study enables assist industry to adopt and improve sustainable practices such as lean, inventory and green practices to promote resilient supply chains and competitiveness.

The study provides significant contributions to previous researches in terms of theory and methodology. With theory, for instance, this study extends previous knowledge within the boundaries of critically bounding assumptions of sustainability as far the theory of constraints and systems theory are concerned. In terms of the theory of constraints, for instance, this study justified the need for firms to adopt key sustainable practices to address possible constraints.

1.7 Scope of the Study

Despite the significant contributions of this study, it was limited in scope in terms of geography and focus. In terms of geography, for instance, the study was delimited to the Ekumfi juice factory in the Central region. Also, the study excluded other beverage manufacturing firms elsewhere. In terms of focus, the study concentrated on only beverage manufacturing firms and invariably excluded other classes of firms notably plastics, rubber and wood processors.

1.8 Overview of Methodology

The study employed an explanatory and quantitative approach to deductively study the relationship between sustainable supply chain management practices and organizational performance at the Ekumfi juice factory in Ghana. The quantitative

approach was employed to examine the relationship between SSCMP and organizational performance. In view of this, questionnaire was the main research instrument used to collect primary data from the firms for the study. Respondents will be selected purposively to gather data. The primary data gathered will be analyzed using Statistical Package for Social Sciences (SPSS) version 26 software.

1.9 Organisation of the Study

The study was organised under five chapters where Chapter one was concerned with in the introduction section. It precisely focused on the background, problem statement, objectives and hypotheses. Issues related to delimitations, limitations and study's organisation were also discussed. Chapter two was concerned with the literature review section, while the Chapter three focused on the research approach, study design, data collection instrument, data processing and analytical tools. The fourth chapter addressed the results and discussion; while, Chapter five provided the study's summary and conclusions. It also presented valuable recommendations for policy formulation and further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature that is relevant during this study. Additionally, the chapter explores and provides additional aspiring to the theoretical foundations likewise as empirical problems underpinning the phenomena being studied. The chapter included a conceptual review, empirical reviews of related studies, and the development of a conceptual framework to show the links between the variables in a visual manner.

2.2 The Concept of Sustainability

Due to the ongoing environmental and social concerns that contemporary corporations, particularly manufacturing firms, pose, the concept of sustainability is becoming more and more relevant (Govindan, Rajeev, Padhi & Pati, 2020; Rajeev et al., 2017). Because there is no agreed definition for this notion, it has been defined in a number of different ways. For instance, the definition of sustainability is the avoidance of diminishing natural resources while maintaining ecological balance in the interest of environmental safety (Rajeev et al., 2017). It also means addressing one's current needs without sacrificing the capacity of future generations to handle theirs (Clayton & Radcliffe, 2018). The comprehensive approach to meeting the social, ecological, and economic requirements of the current generation without compromising can also be used to describe this idea (CIPS, 2018).

It is a socio-ecological process, according to Epstein, Elkington, and Herman (2018), that is characterized by the search for an ideal, long-term solution or way of doing things that is shared by everybody. The growing importance of sustainability in supply chain management and operations strategies can be attributed to the fact that, in addition to increased expectations for strong economic performance, important stakeholders are

increasingly holding businesses accountable for their performance on the environmental and social fronts (Alshehhi, Nobanee & Khare, 2018; Marchese et al., 2018). The conclusion that sustainability encompasses the triple bottom line and goes beyond ecology to emphasize socialism and economism may therefore be drawn. Sustainable supply chain management has benefited from the promotion of this idea.

2.3 Supply Chain Management

The idea of supply chain management (SCM) has significantly changed to incorporate sustainability (Deshpande & Swaminathan, 2020; Wamba & Queiroz, 2020). The relevance of sustainable supply chain management may have increased as a result of the activities of modern supply chains (SSCM). Due to this, recent academics and industry professionals have abandoned the idea of SCM in favor of SSCM (Khan, Yu, Z., Golpîra, Sharif & Mardani, 2020).

The term "SSCM" refers to "the strategic, transparent and accomplishment of a corporation's social, environmental, and economic goals through a systematic coordination of important inter-organizational business activities for improved long-term economic performance of the firm and its supplier chains" (CIPS, 2018). Recent external demands from consumers, pressure groups, competitive requirements, and regulatory requirements have led to an increase in the notion of SSCM being implemented by businesses.

In order to better the long-term economic goals of individual companies within a chain, SSCM also refers to the process of managing SCM activities while taking into account the triple bottom line (TBL), which is made up of environmental, social, and economic factors (Jum'a, Zimon & Ikram, 2021; Le, 2020). Therefore, SSCM is a crucial method that aids actors in a chain in improving their overall performances. Consequently,

researchers are now focusing on SSCM with regard to TBL rather than close-loop or reverse supply chains (Das, 2018; Li, J., Fang & Song, 2019). In a nutshell, SSCM is concerned with how supply chains integrate TBL to maintain competitiveness while enhancing value addition. Making sure SSCM assists supply chains in remaining competitive by enhancing product quality, being socially responsible, and minimising disposal costs.

2.4 Sustainable Supply Chain Management Practices

SSCM practices refer to the various practices which are adopted by supply chain actors to meet customers' present requirements without compromising that of future generations (Le, 2020; Marchese et al., 2018). Decades ago, the green and or lean management were the commonly used SSCM practices by most businesses especially manufacturers. However, other practices notably supply or supplier management, inventory management, logistics management and total quality management have been embraced in recent times. With respect to the study, this section extensively discussed three SSCM practices comprising green, inventory and supply management practices.

2.4.1 Inventory Management Practices

Inventory management is important for firms because inventory constitutes a substantial proportion of the current asset group (Duru, Oleka, & okpe, 2014; Mburugu, 2020). Mismanagement of inventories may lead to significant financial problems for a firm (Muhayimana, 2015). Therefore, inventory management is of high importance in financial management decision. This is because excess or shortage of inventory may bring danger to the company (Duru, Oleka & Okpe, 2014). As such, a well-functioning inventory system has a great effect on total firm's performance (Akindipe, 2014). Inventory refers to resources or materials and supplies that have economic value which

a business carries either for sale or to provide inputs or supplies for production (Arnorld et al., 2008; Vrat, 2014; Opoku et. al., 2020).

Inventory management refers to maintaining the firm's stock and ensuring that all input materials of production are available to the firm when needed as well as tracking the existing inventories and its use (Kwadwo, 2016; Eneje, Nweze & Udeh, 2012; Muhayimana, 2015). Inventory management is vital and needed in various areas within the firm especially in a supply network so as to protect production against any disturbance of running out of production inputs or materials and goods (Ogbo, Onekanma & Ukpere, 2014; Opoku et. al., 2020). According to Swaleh and Were (2014), excess inventory consumes a lot of space and can increase possibility of spoilage which can lead to a financial burden and loss, while insufficient inventory has the potential of interrupting business operations.

The main goal and objective of inventory management system is to keep the necessary required inventory at any time so that production runs smoothly without interruption (Panigrahi, 2013). Another reason for inventory management is to maintain a system that minimizes total cost and establishing the amount of stock to be ordered at optimal level as well as the period between orders (Anene, 2014). Inadequate inventory has an adverse potential effect on the smooth running of the business, while excess inventory involves extra cost, which can reduce the firm's profits (Panigrahi, 2013). Excessive stock is not desirable for longer periods because high inventory levels increase carrying cost and as inventory increases; the profitability decreases (Priyanka & Hermant, 2015). Hence, a suitable inventory control strategy will help in ensuring that the firms always keep an optimal amount of assets. Freeing frozen amounts in the form of stocks or inventories increases the firm's efficiency in the use of its resource (Ziukov, 2016).

Poorly managed inventory creates huge gaps in internal controls which could lead to financial risks: theft and fraud schemes (Rajeev, 2008; Weiss, 2014; Zakaria, Nawawi & Salin, 2016). It could also expose firms to production and delivery delays, countless faulty products and unnecessary product shortages (Chase, Jacobs & Aquilano, 2004; Koumanskos, 2008; Rajeev, 2008). Hence, the goal of inventory management is to strengthen internal controls to ensure optimal and quality inventory while providing value to customers (Brigham & Ehrhardt, 2005; Sitienei & Memba, 2015). Proper inventory management strikes a balance between too little and too much inventory (Elsayed & Wahba, 2013; Sitienei & Memba, 2015). Inventory below or above optimal levels could affect a firm's productivity by increasing production costs.

2.4.2 Green Management Practices

Green management is one of the core SSCM ideas that dates back to the 1990. By actively integrating environmental management practices across a product's life cycle, it focuses on removing certain practices from supply chain activities that have negative environmental effects (Khan et al., 2018). Essentially, it has to do with achieving operating objectives without compromising environmental safety (Khan et al., 2018). By using trustworthy, rapid, and efficient manufacturing methods and equipment, green management aims to increase business performance. According to Ghazilla et al. (2015), effective production processes and systems that rely on inputs that don't contaminate or waste resources during production were also recognized as a part of green management.

Green management, according to Rehman, Seth, and Shrivastava (2016), emphasizes the necessity for businesses and their supply chain partners to manage waste and pollution on stakeholders, the environment, and natural resources in general. According to Maruthi and Rashmi (2015), the operations of manufacturing supply chains produce

dangerous compounds that, if mismanaged, cause climate change, global warming, excessive pollution, and an unhealthy environment. Important production issues are also covered by green management, such as waste management, pollution control, environmental protection, and adherence to environmental legislation. Green product designs with recyclable and reusable components are also included (Micheli et al., 2020; Tumpa et al., 2019).

2.4.3 Supply Management Practices

The relevance of suppliers' involvement in contemporary supply networks is rising. The most valuable resource (raw materials) in manufacturing businesses' systems is typically provided by suppliers (Hajmohammad & Vachon, 2016). As a result, maintaining relationships with suppliers inside the network of the supply chain is essential to obtaining high-quality raw materials even when the supply chain is disrupted. Supply management, according to Hajmohammad, Vachon, Klassen, and Gavronski (2013), enables focal enterprises to utilize suppliers' expertise to enhance environmental innovations. According to Gualandris, Golini, and Kalchschmidt (2014), supply management is a crucial SSCM approach that guarantees supplier integration is effectively created and managed.

Supply chains that support supply management are able to communicate with their suppliers in a way that improves logistics and reduces waste and emissions (Mani, Gunasekaran & Delgado, 2018). Strong codes of conduct are created by implementing supply management rules and procedures to monitor the activities of focal enterprises and their supply networks. Jia, Zuluaga-Cardona, Bailey, and Rueda (2018) claim that supply management guarantees that businesses find, acquire, and manage the suppliers and resources that are essential to enhancing business operations. It mostly consists of purchasing data, tangible commodities, services, and other pertinent resources that help

businesses run and maintain their competitiveness (Jia et al., 2018; Gualandris & Kalchschmidt, 2016). Supply management, therefore, ensures that supply chains achieve high sustainable performance through costs control, resource allocation, information sharing and risk management.

2.5 Organizational Performance

Organizational performance refers to how well a company utilizes its core activities' resources to create income in a certain period of time. Stevenson (2004) defines performance as the consequence of an individual or group's development input in any activity that has an impact on outcomes. According to Goodwin (2003), performance refers to an organization's exact results as a counter to expected outputs. The metric is then compared to a set average standard of similar businesses in the same industry. In terms of monetary value, an organization's performance is the extent of the consequences of its policies and activities. The outcomes may be seen in the firm's returns, which are a specific estimate of how a company might make money from its assets (Shapiro, 2007).

Strong governance and constant redesign to achieve results are the foundations for the organization's potential to achieve its goals through effective leadership (Sarkis 2015). Companies enhance their efficiency analysis from a typical corporate view to include a dual corporate/customer view. This more comprehensive approach can assist in resolving disputes or utilizing synergies between raising service efficiency and raising service quality (Sarkis, 2015). Sustainable supply chain management has become a crucial instrument for a business to capitalize on competitive advantages, claim Bobis and Staniszewski (2014). According to Kennard (2016), SSCM is a method for reconciling company requirements with economic development, social development, and environmental preservation. He outlines the benefits of a SSCM policy, including

improved internal and external standards, evaluation of results, and respect for environmental and social legislation as part of pricing control. Sustainable procurement is a long-term strategy for achieving an organization's goals.

Strong governance and constant redesign to achieve results are the foundations for the organization's potential to achieve its goals through effective leadership (Sarkis 2015). Companies enhance their efficiency analysis from a typical corporate view to include a dual corporate/customer view. This more comprehensive approach can assist in resolving disputes or utilizing synergies between raising service efficiency and raising service quality (Sarkis, 2015). Sustainable supply chain management has become a crucial instrument for a business to capitalize on competitive advantages, claim Bobis and Staniszewski (2014). According to Kennard (2016), SSCM is a method for reconciling company requirements with economic development, social development, and environmental preservation.

For the duration of an organization's existence, SSCM can be a lever to fulfill larger firm's objectives, supplier involvement, and accountability, among other themes. As part of the triple bottom line for organizational recognition, SSCM may encourage innovation, support the social and economic environment, and contribute to a greater return on investment and competitive advantage (McCrudden, 2014). This lays the groundwork for incorporating sustainable development into supply chain processes to ensure the company's larger goals and objectives are met. According to Chen, Paulraj, and Lado pillars (2015), SSCMP contributes to an organization's competitive advantage.

2.6 Empirical Review

2.6.1 Inventory Management Practices and Organizational Performance

Numerous studies have been done on operational and financial performance as well as inventory management practice (IMP) and firm performance (FP). This section summarizes recent research on IMP and FP, with an emphasis on how financial performance connects to the economic performance dimension of sustainable performance, while environmental and social performance relates to operational performance. For instance, a 2017 study by Sunday and Eginiwin examined the inventory control and financial performance of furniture and restaurant manufacturing companies in Delta State, Nigeria. Ten out of thirty firms from each stratum were chosen for the study using a stratified sampling technique and a descriptive design. Structured questionnaires were also used in the study to collect data, and multiple regression software was used to analyze the results. According to the study, inventory management has a detrimental impact on financial results.

In contrast, a study on the effect of inventory management on the performance of listed manufacturing enterprises in Ghana was undertaken by Bawa, Asamoah, and Kissi (2018). The study used cross-sectional secondary data from 14 Ghana Stock Exchange listed companies during a ten-year period (2007–2016). (GSE). The study concluded that inventory management has no impact on the efficiency of Ghanaian manufacturing enterprises using multiple regression and Pearson correlation. This was due to the study's failure to uncover any meaningful connections between them. When Atnafu and Balda (2018) looked at how IMPs affected the productivity and competitiveness of manufacturing enterprises in Ethiopia, they found a different result. The study used the SEM technique to analyze data from 188 manufacturing SMEs. The study found IMP to significantly improve firm performance and competitiveness.

The impact of inventory management strategies on the operational performance of manufacturing enterprises in Ghana was examined by Opoku et al. in 2020. This study concentrated on manufacturing companies in Ghana's metropolises of Tema, Accra, and Kumasi. This study used the ordinary least square regression method using 114 valid data points. Inventory management techniques considerably enhance the operational performance of manufacturing companies in Ghana, according to this quantitative and explanatory study. The study came to the conclusion that inventory management has a significant impact on improving the operational performance of manufacturing organisations.

It might be argued from the numerous assessments that earlier research did not clearly link inventory management with performance. This is due to the fact that attention has been placed primarily on operational (Acho, 2021; Opoku et al., 2020), financial (Orobia et al., 2018), and overall company performance (Muchaendepi et al., 2019; Atnafu et al., 2019; Bawa et al., 2018). As a result, there is a void in the literature regarding how inventory management affects emerging economies, particularly Ghana, in terms of environmental, economic, and social performance. Additionally, the majority of earlier studies concentrated on the overall manufacturing industry rather than just a specific kind of manufacturing firms, particularly food processing enterprises.

2.6.2 Green Management Practices and Organizational Performance

The contribution of eco-innovation and green manufacturing to enhancing organisational performance was studied by Sezen and Cankaya (2013). 53 manufacturing companies in Turkey's chemistry, automotive, and electronic sectors filled out questionnaires for this study to collect primary data. This study demonstrated that green manufacturing significantly and favorably enhanced operational

performance using the linear regression method. The study did not find a substantial impact of green manufacturing on the sustainable performance financial performance dimension. According to the study's findings, manufacturing companies who use green manufacturing techniques are likely to see an improvement in their performance overall, but there won't be any appreciable changes in the financial performance metric. According to a 2017 study by Abdul-Rashid, Sakundarini, Ghazilla, and Thurasamy, green manufacturing techniques have the potential to improve the sustainability of Malaysian manufacturing companies. The SEM approach was utilized to analyze the relationship while data from Malaysian certified manufacturing companies were gathered via questionnaire survey. The study found that using sustainable manufacturing techniques significantly improved organisational performance. According to the study's findings, adopting sustainable practices can help manufacturing companies perform better financially and operationally.

The impact of green supply chain management (GSCM) on the performance of manufacturing and hospitality businesses in Ghana was investigated by Baah et al. in 2021. The study looked at how GSCM affects the operational, financial, environmental, social, and market performance of manufacturing SMEs, among other things. The industrial and hospitality companies' core data was analyzed using the SEM analytical tool. The results of the study showed that GSCM improves operational, market, environmental, financial, and social performance. Simply put, a unit rise in GSCM is likely to result in a unit increase in the firms under study's operational and sustainable performance.

It could be deduced that previous studies have linked green management with sustainable performance among manufacturing industries in various economies including Ghana. However, majority of the studies have focused on the composite of

manufacturing industries with only a few papers focusing specific classes of manufacturing firms. After extensive review, only Bon et al. (2018) focused on three classes of manufacturing industries; however, relying on its findings to make policies in the food processing industry could be misleading. Also, none of the limited studies in Ghana focused on the manufacturing industry; creating huge literature gap.

2.6.3 Supply Management Practices and Organizational Performance

The impact of sustainable supply chain management methods on the performance of Chinese businesses was established by Wang and Dai (2018). The study used the resource-based view theory to examine one of its many goals: the impact of external supplier management on company performance. The study targeted 172 Chinese manufacturing companies, and data analysis was done using the PLS structural equation modelling tool. According to the report, managing suppliers considerably enhances the social, environmental, and economic performance of Chinese manufacturing companies. It was determined that supplier management, which includes monitoring, evaluating, and collaborating with suppliers, will increase long-term performance.

In order to better understand how sustainable supply chain management practices (SSCMP) affect the performance of businesses in emerging economies, Baliga, Raut, and Kamble (2019) undertook quantitative research. This study looked at the impact of supply management practices, such as supplier selection, trust, supply base, and supplier recognition, on the sustainability of supply chains for Indian manufacturing companies. The survey tool was created after a thorough literature analysis, and it was used to collect first-hand information from 211 functional heads and supply chain managers in the sector. Amos 2.0 was used to process the data, and the structural equation modelling programme was used to analyze it. According to the report, supply

management has a considerable positive impact on the social, environmental, and financial performance of Indian manufacturing companies.

In their 2019 study, Duque-Uribe, Sarache, and Gutiérrez looked into sustainable SCM methods and sustainable performance in the healthcare sector. The study determined the effects of 12 SSCM strategies, including supplier, waste, and storage management, on sustainable performance (i.e., environmental, social, economic). The study discovered that supplier management greatly enhances the long-term sustainability of hospital performance. This conclusion was in line with Yang and Zhang's (2017) research on buyer-supplier performance in China's manufacturing industries as well as sustainable supplier management methods. The study primarily looked at how performance is influenced by sustainable supplier practices, particularly supplier monitoring, selection, development, and collaboration. Data was collected from 256 Chinese manufacturing companies and analyzed using the PLS-SEM method. It was found that sustainable supplier management plays valuable role in improving manufacturing performance in China.

Deductively, empirical evidence exists on how supply management influences firm performance; focusing on sustainable performance. However, studies focusing on manufacturing firms within the sub-Saharan Africa (SSA) notably Ghana remains scanty. More precisely, none of the studies reviewed have been conducted within Ghana; creating geographical gap. Also, majority of the studies focused on various sectors including manufacturing firms; however, those focusing on specific classes of firms notably food processing firms remain scantly and unclear. This could affect the food processing firms' ability to make relevant policies aimed at improving supply management and sustainable performance. Thus, this study, among other objectives,

investigated supply management and sustainable performance of food processing firms within a developing economy.

2.7 Theoretical Framework

2.7.1 Theory of Constraints

Originated in the 1984s by Eliyahu Goldratt (Goldratt, 1990), the theory of constraint assumes that every organization or firm has at least one constraint thus a limiting factor which could destroy or hinder its entire system from achieving the organizational goals (Watson et al., 2007). The constraint identified in the organization is termed or seen as the weakest link in a system (Kim et al., 2008). The theory categories constraints into four key elements, namely physical, policy, paradigm and market (Gunay &Vayvay,2014). Physical constraints consist of tangible items such like space, machines breakdowns and raw material shortages, all of which affects firms' performance (Simsit et al., 2014) And raw material shortages, for instance, resulting from excessive demand or lack of substitutes may lead to difficulties in meeting customers' demands.

According to Wu, Zheng and Shen (2020), the TOC emphasizes that overcoming any constraint requires continuous systems improvement through implementation of appropriate strategies, policies and total quality management. The theory practically offers clear and scientific processes for addressing any limiting factor until it ceases to exist. Mishra (2020) revealed that firms can only be efficient and effective when they eliminate bottlenecks in their production systems without compromising value addition to consumers. Cox III and Boyd (2020) also suggested that firms are likely to experience severe supply shortages, inventory-related issues, financial difficulties, poor demand forecasting, long lead times and consequently threaten their survival and competitiveness in the face of production bottlenecks.

In recent times, the theory has been improved to embrace the concept of sustainability among supply chains. Mishra (2020) suggested that the activities of manufacturing

supply chains have exposed the environment to numerous environmental, social and economic-related issues notably pollution, climate change and global warming; subsequently threatening resources and value creation. Thus, TOC has become increasingly vital in modern business environments where the need to ensure environmental safety, social wellness and strong economic elements is synonymous to firm survival, growth and competitiveness (Balderstone, 2020; Cox III & Boyd, 2020). This is because, the theory proposes continuous systems development through implementation of relevant strategies, procedures, methods and practices notably sustainable supply chain management practices such as lean management, supply management, inventory management and green management.

According to the study, the theory of constraints contends that food processing supply chains, particularly in developing economies, may be subject to obstacles like inventory shortages, supply delays, significant production waste, power outages, problems with material ordering, and resource scarcity that endanger the quality of their output, the value they add to consumers, the survival of the firm as a whole, and their ability to compete. Consequences of these restrictions include pollution (of the air, land, and water), problems with waste disposal, and health-related problems. The TOC recommends that food processing companies in Ghana use sustainable techniques, particularly lean, green, inventory, and supply management, in order to get around obstacles and improve sustainability.

2.7.2 Resource Based Theory

Penrose (1959) described a firm as an administrative organization and a collection of productive resources, both physical/material and human, that offer a firm with a variety of services, utilizing the resource-based view (RBV) theory. As a result, a close association between the information held by human resources and the services offered

by those same human resources demonstrates that enterprises are actual knowledge reservoirs. As stated by Penrose, (1980); Wernerfelt, (1984); Barney, (1991), the RBV of the firm place's focus on the inside of the firm, its resources and capabilities, to explain the profit and value of the firm.

As a result, Hoopes et al. (2003), used the theory to explain why enterprises in the same industry perform differently. In this sense, this theory is applicable in this study for it has helped to learn the required resources needed both material and human resource in organizations and firms for an effective operational performance as firms cannot survive without resources. Assessing the significant properties of resources that are critical for the effectiveness of organisations was outlined by Zhang and Xia, (2017). These four criteria are valuable, rare, low imitability and organized to capture value.

Valuable: Resources are said to be valuable if they can assist in intensifying the worth of the product or service rendered to customers or other dependents on the organisation. This can be enhanced by dwindling the production cost, increasing differentiation, or other broad alterations to increase the superiority and wealth of the product or service. Organisations may experience a competitive advantage if their resources meet this condition (Zhang & Xia, 2017).

Rare: According to Zhang and Xia (2017), any resources (tangible or intangible) that may only be obtained by one or a few organizations may be called rare. Organizations may suffer competitive parity if they have the same or equivalent competencies or resources.

Imitability: Organizations with rare or precious resources can gain a competitive advantage in the short term. On the other hand, in order to sustain this competitive advantage, the resources must be costly to substitute or copy, or else competitors would

begin to obtain comparable or the same resources, causing them to reduce the gap. (Zhang & Xia, 2017).

Organized to capture value: Resources alone do not provide a competitive edge. Organizations cannot hope to gain a competitive advantage if their processes and systems are not built to properly leverage the available resource. This could be due to not deploying knowledgeable or talented people in the appropriate function or department, or to not fully utilizing the organization's strong reputation.

In general, this concept argues that there is no single approach to manage a company. Organizational growth is determined by the resources available. A valuable resource must enable an organization to conduct and behave in ways that will boost its competitiveness and financial gains (Blind, Mangelsdorf & Pohlisch, 2018). When resources enable an organization to implement tactics that improve its efficacy, they are valuable. Management must examine available resources for organizations to be competitive.

2.8 Conceptual Framework

This section presented the conceptual framework to further explain and link the study's relevant concepts understudy. The framework specifically provided a graphical presentation of the study's objectives which are valuable in organizing empirical research. This graphical demonstration was drawn based on two key variables:

independent (i.e., SSCM practices) and dependent (i.e., organizational performance). The conceptual presentation was shown in Figure 2.1.

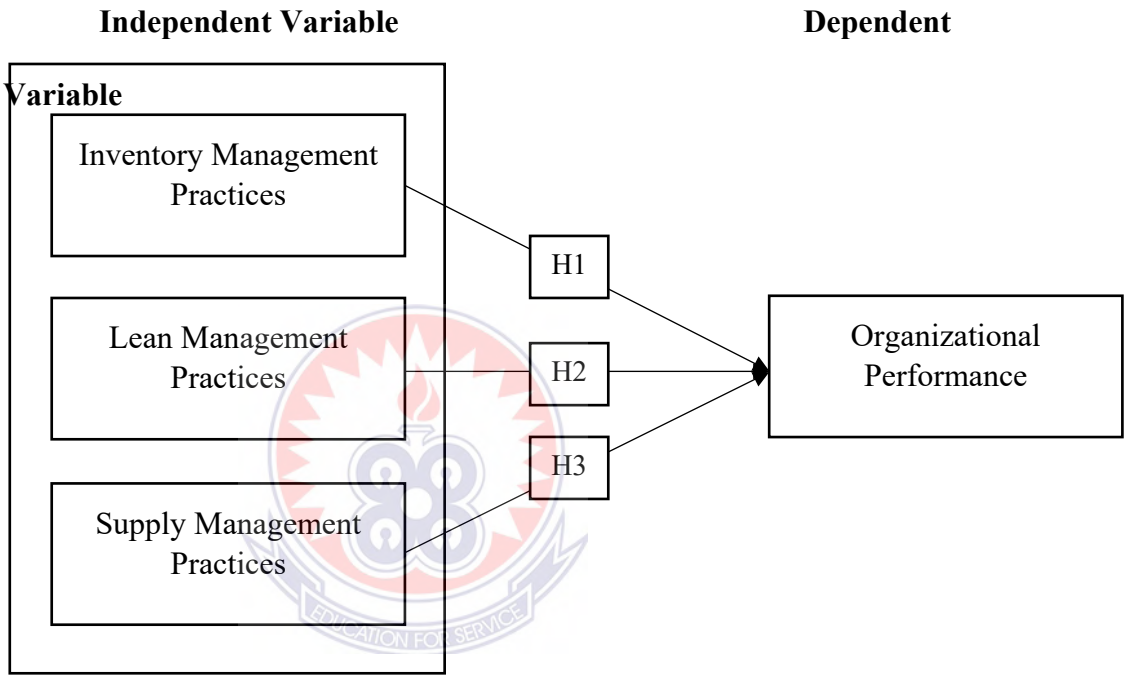

Figure 2. 1: Conceptual framework

From Figure 2.1, the independent variable, SSCM practices, was represented by Inventory management practices, lean management practices and supply management practices. The dependent variable, organizational performance, on the other hand, was represented. The framework emphasizes the correlation between the study's exogenous and endogenous variables as seen in the various arrows pointing latter.

2.9 Chapter Summary

This chapter has provided information relating to the theories underpinning the study, the key concepts that were investigated, empirical review, and conceptual framework. These reviews were done in line with the overall theme of the study. This also provides grounds for solid discussion to be carried out in the next chapter with a focus on claims in the extant literature.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section deals with the general approach the researcher took in carrying out the research project. The chapter presents information on how each of the scientific approaches to conducting this empirical study was undertaken, given cognizance to their respective preconditions. The study design, population, research strategy, sampling technique, data collecting instrument, data collection procedure, and data processing and analysis are all covered in this chapter. The ethical concerns that motivate this work are explored in further depth.

3.2 Research Design

Research design assists researchers in gathering, evaluating, and interpreting data from an observation. It also specifies the generalization domain, indicating whether or not the resulting interpretation may be applied to a new circumstance (Amoani, 2015). Three basic research designs employed in conducting research and it include descriptive design, exploratory design, and explanatory design.

The study employs an explanatory research design. The primary purpose of explanatory research is to explain why things happen and to predict what will happen next (Viotti & Kauppi, 2019). Given that study examines the effects of sustainable procurement on supply chain performance, an explanatory research design with cross-sectional survey approach was employed.

3.3 Research Approach

The study employed quantitative research approach. This is because the constructs were numerically measured through recognized measurement scales such as nominal, the

quantitative approach includes collecting numerical data and evaluating it using mathematical methods, notably statistics, to explain phenomena (Shiau, Sarstedt & Hair, 2019; Sarstedt & Cheah, 2019; Chapman & Feit, 2019; Carr et al., 2019). This procedure generally starts with data collecting based on a hypothesis or theory, and then uses descriptive or inferential statistics to analyze the results (Tashakkori & Teddlie, 2003). Quantitative methods are sometimes characterised as assuming the existence of a single "truth" that is unaffected by human experience (George, 2019). The quantitative research approach is based primarily to test the concept by observation and data collecting, based on a hypothesis that is deductively constructed from theory with the findings either confirming or rejecting the theory after analysis (Zyphur & Pierides, 2019; Tong, 2019). The approach is often applied to social science and educational research (Saunders et al., 2013). This is because it involves assigning numbers to variables.

3.4 Study population

Population of a study consists of "a group of people or firms who are of interest to the researcher and meet the criteria that the researcher wants to study, or a group of people who share some common characteristics" as indicated by Amrhein, Trafimow and Greenland (2019). According to Saunders, Thornhill and Lewis (2007) the whole set of cases from which a sample is selected is referred to as the population. The population may be thought of as the target group about whom the researcher wants to learn more and develop conclusions (Leedy & Omrod, 2010). Robson (2010) furthermore, the term "population" does not always relate to individuals; it may also refer to situations in which someone might be questioned, as well as periods and places. Since the unit of analysis are the employees, top and middle level staffs of the Ekumfi Juice Factory in the Central Region of Ghana were the target population for this study.

There are 150 employees at the factory. 30 out of the total employees are top and middle level managers whilst the remaining 120 are operational workers.

3.5 Sampling Procedure

Before selecting and contacting respondents for the study, it became necessary for an appropriate representative sample size to be determined from the sampling frame.

A purposive sampling technique was used to select the top and middle level employees within the population. Purposeful sampling would be very beneficial as the researcher would have to use a face-to-face approach to administer the instrument of the study only to employees of interest (Chowdhury & Quaddus, 2016). Purposive sampling, also known as judgmental or subjective sampling, is a nonprobability sampling method in which researchers pick persons from the general community to participate in surveys based on their own judgment. Purposive sampling is utilized by researchers when they wish to target a certain group since all survey participants are picked because they fulfill a specified profile. A total of 6 interview guides was administered to ascertain the perceptions of workers. A sample size of 50 managers is judged appropriate for this study. Pallant (2013), claims that even if the replies are not normally distributed, a sample size of 6 or more does not violate or pose severe issues in statistical measures.

3.6 Sources of Data

There are basically two types of data reliability namely: primary and secondary. The researchers intend to use both primary and secondary data to collect information.

3.6.1 Primary Source of Data

Primary data is firsthand information obtained by the researcher on variables of interest for a specific purpose of study (Asumadu & Osei-Owusu, 2011). Primary data refers to the data that the researchers gathered themselves to solve the problem at hand or answer the research question. Examples of primary data include; survey administered by the author; data received from conference etc. The researcher intended to use the primary data (questionnaire) to collect information since it is the first-hand information that would help in the area of study. The researchers used questionnaire (personally administered).

3.6.2 Secondary Source of Data

Secondary source of information are textbooks, published journals, dissertation of past students, government publications, industry analysis offered by media and websites etc. The secondary data constituted the core of the literature review of the entire research work

3.7 Data Collection Instrument

A structured questionnaire was used to obtain primary data. Closed-ended questions are included in the survey. Explanatory investigations are highly organized by nature (Maxwell, 2012), necessitating the use of structured primary data gathering methods. Questionnaires were employed as the study tool for data collection. A questionnaire is a group of questions that has been established for the purpose of gathering information from respondents (Malhotra & Birks, 2007). Questionnaire surveys are likely the most extensively used data collection approach in research and they can be used to measure aspects that are critical to corporate organization and development (Malhotra & Birks, 2007).

Closed-ended questionnaire demand respondents to choose from a limited number of options and to consider each option independently of the others. Closed-ended items included a checklist; a list of the behaviours, qualities, or other entities that the researcher is looking into – and a Likert scale which is more beneficial when behaviour, attitude, or another phenomenon of interest needs to be evaluated in a continuous manner (Leedy & Ormrod, 2010). When compared to interviewing, there are some advantages of employing questionnaires (McCall, 2005). It makes data collection easy (Zhao, Liang & Dang, 2020) and facilitates data processing (Kumar & Kumar Baradiya, 2019) although it is time-consuming (Deshpande, Pradhan, Sikdar, Deshpande, Jain, & Shah, 2019; Patten, 2016; Charlton, 2000).

3.8 Data Processing and Analysis

According to Vonrhein et al. (2011) data analysis entails simplifying data and explaining it in a manner that seeks to answer the research questions posed. Data analysis was also defined by Yan, Wang, Zuo and Zang, (2016) "as the process of bringing order, structure and meaning to the mass of information collected" as stated in Mertens (2005). Given the study's explanatory character, a quantitative approach to data analysis was used, which included the use of statistical techniques. There were two types of statistical analysis carried out. The first was a descriptive analysis, which centered on the generation of descriptive results on the demographic characteristics of respondents and companies, as well as the structure of interest in the sample, using statistical instruments such as frequency (percentages) and means (standard deviations) (including measures and composite scales for the sharing of information and procurement quality performance).

Two types of statistical analysis were carried out. The second inferential study, which used correlation and structural equation modeling to get findings, was focused on determining the link between the constructs of interest to the research. The study was carried out using IBM Statistical Package for Social Science (SPSS version 25.0). The SPSS process macro will be configured on the main SPSS application. This made it easier for the moderation analysis to be performed. This statistical software was recommended for use in studies in social sciences (Zickmund, 2009). Descriptive and multiple regression statistical tools were used to analyze the data. The findings were presented in figures and Tables for easy understanding and discussion.

3.9 Validity and Reliability of Instrument

To ensure content validity of the instrument, the study ensured proper definition of measuring items, scale scrutiny by experts and scale pre-testing. These were in line with the principles of Sekaran and Bougie (2018). Reliability and validity are two key components to be considered when evaluating a particular instrument. The level of the reliability of an instrument is measured by Cronbach's Alpha value (Saunders & Lewis, 2012). As posited by Pallant (2020), Cronbach's alpha coefficient for variables is generated to validate the reliability of the instrument. The individual consistency reliability should be 0.7 or higher. If it is exploratory research, 0.6 or higher is acceptable (Hoque et al., 2018). Pallant (2020), suggests an additional requirement of a minimum Cronbach's Alpha value of 0.7 or above to ensure that items included in a scale measure what the scale intends to.

Table 3. 1: Reliability Analysis

Variable	Questionnaire Items	Cronbach's Alpha
Lean Management Practice	5	.788
Inventory Management Practice	5	.772
Sustainable Performance	5	.857

3.10 Ethical Consideration

The study considered and treated some key ethical issues in social sciences research because social science research is tainted with numerous ethical confrontations that must be handled professionally (Green, 2019; Wax, 2019). The benefits, as well as the purpose of the study, were fully explained to all stakeholders particularly participants (Bell, Bryman & Harley, 2018; Iphofen & Tolich, 2018). Again, informed verbal consent of participants was sought and no respondents were coerced into participating in the study. Where respondents had, issues concerning responding to some of the items, active steps were taken to resolve such misunderstanding. Issues such as confidentially, privacy and unanimity were carefully treated through the design of a robust structured questionnaire (Chambers & Nimon, 2019; Chiauzzi & Wicks, 2019; Lo, Grotevant & McRoy, 2019; Das, Ester & Kaczmirek, 2018). No data manipulation was carried out during the data processing and analysis stage of the study. The findings were duly reported as generated.

3.11 Chapter Summary

This section has provided information regarding the methodological approaches that will be employed to obtain the primary data, how data will be processed and analyzed given cognizance to the statistical tools and specific research objectives as well as

how findings of the study were summarized and presented for easy interpretation and understanding.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter reports the results and make dialog on the research findings of the study. The data for these analyses were obtained through the administration of questionnaires. In line with the main research goal, this chapter reflects on the core research objectives as outlined in chapter One. The first section discusses the demographic background of respondents; however, the second section discusses results according to the research questions guiding this study.

4.2 Demographics of Respondents

In order to understand the socio-demographic characteristics of the respondents, the first section of the questionnaires was designed in such a way that the respondents could provide answers relating to their backgrounds. After analyzing their answers, the information that was obtained had been summarized and shown in Table 4.1.

Table 4. 1: Descriptive statistics of the respondents

Categories	Frequency	Percent (%)
Sex		
Male	35	70.0
Female	15	30.0
Total	**50**	**100**
Age		
21-30	10	20.0
31-40	32	64.0
41-50	7	14.0
51-60	1	2.0

Total	**50**	**100**
Years of work		
Less than 1 year	15	30.0
1-5 years	20	40.0
6-10 years	5	10.0
More than 10 years	10	20.0
Total	**50**	**100**
Educational Level		
Diploma	5	10.0
First Degree	25	50.0
Postgraduate Degree	16	32.0
Professional Certificate	4	8.0
Total	**50**	**100**
Position in the Firm		
Junior staff	27	54.0
Senior Staff	16	32.0
Management	7	14.0
Total	**50**	**100**

Source: Field Survey, (2023)

The demographic results from Table 4.1 shows that 35 respondents out of the 50 were males, representing 70.0% of the study sample, while the remaining 15 were female, representing 30.0%. This is an indication that the firm understudy is male dominated with high frequency and percentage. The ages of the respective respondents were also taken into consideration. The results show that the majority (64.0%) of the 50 respondents were between 31 and 40 years old. Whilst (20.0%) representing 10

respondents were between the ages of 21 and 30. A total of 7 respondents (14.0%) were between the ages of 41 and 50 years, whilst the least number (1) of respondents were between the ages of 51 and 60 years, representing 2.0% of the total sample size. This showed that most of the staff were young people, hence Ghana's approved working age. The results on the number of years of working experience reported a total of 15 respondents representing (30.0%) have worked in the organization between 0-12 months. 40.0% had worked in the organization between 1-5 years whilst 5 respondents (10.0%) have 6-10 years working experience. The second least number of respondents 10 (20.0%) have worked in the organization more than 10 years.

Another demographic result is the academic qualification of the respondents. When it comes to educational level, those who were the majority were those with the First's degree (50.0%), followed by those with Post graduate Degree 16 (32.0%). Respondents with Diploma recorded 5 (10.0%) response rate whilst the least responses were Professional Certificate holders with 4 (8.0%). This indicates that most of the respondents were academically qualified in their respective job undertakings and hence they clearly understood warehouse management. The demographics on the positions of the respondents reported the majority being junior staffs representing 27 (54.0%), 16 (32.0%) representing the senior staffs whilst the remaining 7 (14.0%) were members of management.

4.3 Descriptive Statistics of Variables

Table 4. 2: Lean Manufacturing Practices of Manufacturing Firms

Statement	N	Mean	Std Dev	Skewness Stats	Skewness Std. Error	Kurtosis Stats	Kurtosis Std. Error
The firm ensures total productive maintenance during production	50	3.60	1.231	1.289	.337	-1.094	.662
I feel satisfied and willing to work	50	3.40	1.231	.038	.337	.196	.662
We use appropriate raw materials during production	50	3.50	1.504	-.195	.337	.948	.662
We have a comprehensive approach to minimizing waste during and after production	50	3.95	1.050	.870	.337	.459	.662
The firm emphasizes continuous flow of production	50	3.80	1.239	.673	.337	-.336	.662
Weighted Mean and Standard Deviation		**3.68**	**1.246**				

Source: Field Survey, (2023)

Reporting on lean management practices of selected manufacturing firms, Table 4.2 above depicts the responses indicated by respondents in the various sampled firms. On the average, all respondents 50 (100.0%) indicated that lean management is a practice in their organisation. With an average weighted mean and standard deviation of 3.68 and 1.246 respectively, it can be concluded that the practice of lean management of these selected firms is high and hence, with a high standard deviation, the distribution is highly concentrated around the mean. Among the indicators, “we have a comprehensive approach to minimizing waste during and after production” recorded the highest mean and standard deviation of 3.95 and 1.050 respectively. The skewness and kurtosis of the respective items were also assessed to ascertain the distribution of the data, the results of the skewness and kurtosis revealed that the data were

approximately normally distributed with values of 1.289 to .337 and -1.094 to .662 respectively.

Table 4. 3: Inventory Management Practices of Manufacturing Firms

Statement	N	Mean	Std Dev	Skewness Stats	Skewness Std. Error	Kurtosis Stats	Kurtosis Std. Error
We maintain optimum inventory levels at all times	50	3.70	1.031	.999	.337	.245	.662
The firm ensures short lead times	50	3.70	1.260	-.043	.337	.281	.662
We ensure that only green inventory with eco-friendly designs is used in production	50	3.70	1.118	.537	.337	-.149	.662
The firm puts in necessary efforts to minimize inventory wastages	50	3.70	1.080	.462	.337	-.873	.662
We maintain optimum inventory levels at all times	50	3.70	1.031	-.214	.337	-1.473	.662
Weighted Mean and Standard Deviation		**3.97**	**1.248**				

Source:

Results in table 4.3 indicate the level of inventory management practices of firms in Accra (weighted mean = 3.68; SD = 1.246). By implication, inventory management practices of manufacturing firms in Accra are generally accepted strategies or procedures adopted by the manufacturing firms in managing their inventories. For instance, “We maintain optimum inventory levels at all times”, “The firm ensures short lead times”, “We ensure that only green inventory (raw materials) with eco-friendly designs is used in production”, “The firm puts in necessary efforts to minimize inventory wastages arising from expiries and contaminations” and “We maintain optimum inventory levels at all times” all had a weighted mean of 3.70 and a SD of 1.122, which is above an average weighted mean and standard deviation (mean = 2.5; SD = 1.000). The skewness and kurtosis of the items was also assessed to ascertain the

distribution of the data, the results of the skewness and kurtosis revealed that the data were approximately normally distributed with values of -.214 to .337 and -1.473 to .662 respectively.

Table 4. 4: Supply Management Practices of Manufacturing Firms

Statement	N	Mean	Std Dev	Skewness Stats	Skewness Std. Error	Kurtosis Stats	Kurtosis Std. Error
We emphasize on supplier development to achieve our established standards	50	4.65	1.489	.860	.337	-.244	.662
The firm has outmost trust in its suppliers in the supplier base	50	4.90	1.307	.599	.337	.471	.662
I feel motivated to work	50	4.55	1.510	-.239	.337	-.853	.662
The firm involves its suppliers throughout its product life cycle stages	50	4.50	1.512	-.091	.337	.173	.662
The firm ensures an optimal supplier base	50	4.50	1.512	.512	.337	.850	.662
Weighted Mean and Standard Deviation		**4.62**	**1.466**				

Results from table 4.4 above indicate the extent to which supply management practices are performed by selected manufacturing firms in Accra. An average mean of 4.62 and a Standard Deviation (SD) of 1.466. “We emphasize on supplier development to achieve our established standards”, “The firm has outmost trust in its suppliers in the supplier base” and “The firm has outmost trust in its suppliers in the supplier base” were among the supply management practices performed by selected manufacturing firms in Accra. The skewness and kurtosis of the items was also assessed to ascertain the distribution of the data, the results of the skewness and kurtosis revealed that the data were approximately normally distributed with values of -.239 to .337 and -.244 to .662 respectively.

In conclusion, the descriptive statistics concerning the distribution of scores on continuous variables (skewness and kurtosis), reported that if the variables are to be used in parametric statistical techniques and in exploring the predictive power of a group of independent variables on one continuous dependent variable measure in higher statistical analysis like the multiple regression (that is, analysis of variance and t-tests), the information provided in the table above is required. In contrast to the kurtosis, which conveys information about the distribution's peakedness, the skewness value shows how symmetrical the distribution is. These results suggests that the scores did not follow a strictly normal distribution evenly across the board (Tabachnick & Fidell, 2013).

4.4 Measurement Model Analysis

To check for the uni-dimensionality of the constructs, the study employed the exploratory factor analysis (EFA) technique (O'Leary-Kelly & Vokurka 1998).

4.4.1 Factor Analysis

Factor analysis is a "statistical method for explaining variability among connected variables using fewer unobserved variables known as factors." Factor analysis looks for joint changes in response to hidden factors that aren't visible. The observed variables are represented as linear combinations of the prospective components plus "error" terms in the model. Simply expressed, a variable's factor loading indicates how closely the variable is connected to a specific factor. It is not intended to test the hypotheses or determine if one group differs significantly from the other. It takes a considerable number of variables and searches to simplify or summarize the data by utilizing a smaller number of elements or components.

The intercorrelations of a collection of variables are examined using factor analysis to seek for clumps or groupings. With much more than a limited number of variables, this is a nearly complex process to complete "by sight." This group of factor analytic techniques has a variety of applications. Researchers working on the creation and assessment of tests and scales rely heavily on it. The scale developer begins with many separate scale items and questions. They then refine and decrease using factor analytic approaches to produce a smaller number of coherent subscales. Before utilizing them in other research such as multiple regression or multivariate analysis of variance, factor analysis may be used to decrease a vast number of linked variables to a more manageable amount.

Table 4.5 provides information concerning the factor analysis on the effectiveness of the warehouse. The researcher went ahead to measure Kaiser-Meyer-Olkin with the assumption that the "Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value is 0.6 or above". "The Barlett's Test of Sphericity value should be significant" (i.e. the Sig. value should be .05 or smaller). In this term paper by the researcher, factor analysis is suitable since the KMO value is 0.770 and Bartlett's test is significant (p=.000) meaning there are about two questions there that are highly correlated.

Table 4. 5: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.770
Bartlett's Test of Sphericity	Approx. Chi-Square	695.657
	Df	190
	Sig.	.000

Source: Field Survey, (2021)

4.5 Effect of Sustainable Supply Chain Management Practices on Sustainable Performance

The general objective sought to examine the effect of sustainable supply chain management practices on sustainable performance. A simple linear regression analysis was conducted to assess the effect. Simple linear regression analysis is an appropriate statistical tool for addressing the research question. The statistical significance of the effect was assessed at 0.05 level of significance. The results of the regression analysis have been presented in table 4.5, 4.6 and 4.7.

Table 4. 6 :Goodness of Fit Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	**.846[a]**	**.716**	**.710**	**.41286**

a. Predictors: (Constant), LMP, IMP, SMP.

b. Dependent: Sustainable Performance.

The findings from the Table 4.6 show the standard error, adjusted R Squared, R-Square Coefficient of Determination, and R-Correlation Coefficient. The variance in the dependent variable that is explained by the independent variables is referred to as the coefficient of determination, according to Ringle and Sarstedt (2011). The Pearson

product momentum correlation coefficient, or R, showed the strength and direction of the linear relationship between the independent variables (lean manufacturing practices, inventory management practices, and supply management practices) and the dependent variable (i.e., sustainable performance).

The R Square value of .716 indicates that about 71.6% of the variation in the sustainable performance of the manufacturing firm is accounted for by the independent variables, this means that the remaining 28.4% of variations in sustainable performance may be attributed to other factors not captured in this study. Scholarly studies posit that R^2 values of 0.75, 0.5 or 0.25 for dependent variables can as a rule of thumb be respectively describing as substantial, moderate or weak (Hair, Ringle & Sarstedt, 2011). This can be concluded that SSCMPs have a substantial change on sustainable performance.

The R value represents the Pearson Correlation Coefficient. The R value of 0.864 indicates a strong relationship between risk and sustainable performance. As suggested by Cohen (1988), the following measurement is utilized for interpreting the magnitude if correlation; r=.10 or r=-.10 to -.29 small, r=.30 to .49 or r=-.30 to -.49 medium, r=.50 to 1 or r=-.50 to -1.0 large. Utilizing these criteria, there is a strong significant relationship between the dependent and independent variables. The study further assesses the significance level of the effect.

Table 4. 7 :Summary of Analysis of Variance (ANOVA)

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.654	1	20..654	121.171	.000[b]
	Residual	8.182	48	.170		
	Total	28.835	49			

Source: Field Survey, (2023)

a. Dependent Variable: Sustainable Performance

b. Predictors: (Constant), LMP, IMP, SMP

The ANOVA table above indicates a statistically significant figure of p=0.000, with an F statistics value of 121.171. As indicated by various researchers, a significance level less than or equal to 0.05 is necessary for business researches. If such condition is met, then the independent variables do a good job explaining the variations in the dependent variable. Referencing the results above, the p value is well below the 0.05 (p = 0.000). Therefore, it can be concluded that the R and R^2 between the dependent and independent variable is significant and therefore SSCMPs (lean manufacturing practices, inventory management practices and supply management practices) can significantly influence or affect sustainable performance of Ekumfi Juice Factory. Notwithstanding, the ANOVA fails to indicate the extent of the effect. Therefore, Table 4.8 indicates the magnitude of effect of SSCMPs (lean manufacturing practices, inventory management practices and supply management practices) on sustainable performance. The coefficients of the regression analysis were also investigated to predict the outcome of the dependent variable (in this example, sustainable performance) using the independent variable (lean management). The findings are shown in Table 4.8.

Table 4. 8: Regression Analysis Coefficient of the Model

Model		Unstandardized Coefficients		Standardized Coefficient	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.628	.315		1.963	.035		
	LMP	.184	.163	.211	2.616	.034	.312	3.202
	IMP	.173	.124	.174	2.589	.047	.337	2..965
	SMP	.529	.098	.555	5.406	.000	.510	1.962

Dependent Variable: Sustainable performance

The final output table in SPSS labeled coefficient of the model (table 4.8) provides the information that was useful for understanding the regression equation and in other circumstances, checking hypotheses. The study estimated the regression equation using the column marked unstandardized coefficient which implies that the study intends to predict and forecast. Generally, the manufacturing firm observed in this study explained 71.6% of sustainable performance of the Ekumfi Juice Factory (F=121.717; df=49).

Lean management practices such as (ensuring total productive maintenance, use of appropriate materials during production and a continuous flow of production) significantly affect sustainable performance of Ekumfi Juice factory (β= 0.211, t= 2.616, p= 0.034). The statistically significant impact of lean practices on sustainable performance implies that the management of Ekumfi Juice factory can use these practices as strategic tools. By prioritizing total productive maintenance and maintaining a continuous flow of production, they can make informed decisions that positively influence the long-term sustainability and success of the factory. Similarly, Inventory management practices such as maintaining optimum level of inventory,

minimizing inventory waste had positive and significant effect on sustainable performance with a β= 0.174, t= 2.589, p= 0.047). By implication, the positive and significant effect of inventory management practices on sustainable performance indicates that maintaining an optimum level of inventory and minimizing waste are crucial for efficient resource utilization. This suggests that the strategic management of inventory positively contributes to the overall sustainability of the operational processes. Also, supply management practices such as supplier development, involving suppliers throughout product life cycle stage and ensuring optimal supplier base revealed a positive and significant effect on sustainable performance (β= 0.555, t= 5.406, p= 0.000). The implication of the statement highlights the strategic importance of supplier relationships in achieving sustainable performance. By emphasizing practices such as supplier development and optimal supplier base management, the business not only ensures a reliable supply chain but also contributes positively to its long-term sustainability. This may involve shared goals, innovation, and resilience throughout the product life cycle.

The results highlight a substantial and affirmative correlation between sustainable supply chain management practices, encompassing lean manufacturing, inventory management, and supply management, and sustainable performance at the Ekumfi Juice Factory hold profound implications. These findings underscore the pivotal role of adopting and integrating sustainable practices within the supply chain, showcasing how efficient resource utilization, minimized waste, and strategic inventory management can distinctly bolster overall sustainability performance. The Ekumfi Juice Factory can leverage these insights to optimize its operations, aligning strategies for procurement, production, and inventory control with sustainability objectives. By doing so, the factory stands to not only enhance its environmental and social responsibility but also

elevate its operational efficiency and economic viability, fostering a harmonious synergy between sustainable business practices and organizational success.

Under the column labelled unstandardized coefficient and sub column B, the numerical value for the first row, labelled (constant), is the value for the intercept (a) in the regression equation. The numerical value on the second row, labelled lean management practices (LMP), inventory management practices (IMP) and supply management practices (SMP) in this case (representing the independent variables), are the values for the slope (b) for the regression equation. Based on these results, the following is reported predicting sustainable performance based on SSCMPs.

$y = a\,x + b$

$Y\,(SP) = 1.628 + 0.184X\,(LMP) + 0.173X\,(IMP) + 0.529X\,(SMP)$ *where,*

SP = Sustainable Performance

LMP = Lean Management Practices

IMP = Inventory Management Practices

SMP = Supply Management Practices.

4.6 Challenges of Sustainable Supply Chain Management Practices

Table 4. 9: Challenges of Sustainable Supply Chain Management Practices

SN	Statements	Mean	Std. Deviation
CH1	Our organization lack adequate resources for implementation	4.18	.940
CH2	There is unavailability of suitable technologies	3.86	.969
CH3	Sustainable supply chain management practices add cost to cost	3.88	1.099
CH4	Lack of collaborative sustainable supply chain partners	3.98	1.078
CH5	Lack of institutional support	3.34	1.135
	Weighted Mean and Standard Deviation	**3.85**	**1.044**

Source: Field Survey, (2023)

Results from the challenges of sustainable supply chain management practices confronted by the Ekumfi Juice Factory received an average mean of **3.85** and a Standard Deviation (SD) of **1.044**. This mean that the mean score is great because its data distribution is gathered closely around it. For example, among the most prevailing challenges confronted by the factory includes lack of adequate resource for sustainability implementation received a high mean value indicating the topmost challenge faced by the factory, followed by lack of collaborative sustainable supply chain partners with the second highest mean score (3.98) whilst addition of cost to production by practicing sustainable supply chain, unavailability of suitable technologies to practice sustainability and lack of institutional support were ranked as third, fourth and fifth challenges with mean scores of 3.88, 3.86 and 3.34 respectively.

4.7 Discussion of Results

The study sought to assess the relationship between the dependent variable (sustainable supply chain management practices) and the independent variables (sustainable performance) of manufacturing firms in Accra. The results of the Pearson Product Moment Correlation Coefficient revealed there was a statistically significant positive correlation between sustainable supply chain management practices and sustainable performance of the manufacturing firm. However, the finding supports some empirical studies that found statistically significant but positive correlation between SSCMP and sustainable performance (Atnafu and Balda 2018; Opoku et al., 2020). This finding is in accordance with the collective claim by some empirical studies that asserted that there is a statistically significant positive correlation between lean management practices, inventory management practices and supply management practices (SSCMP) and sustainable performance (Orobia et al., 2018; Acho, 2021).

Effect of Lean Management Practices on Sustainable Performance

The results reveal that LMP plays significant roles in improving the sustainable performance. As such, the implementation of lean management practice is key to promoting sustainable performance with respect to social and environmental and economic performance. This means that, for Ekumfi Juice factory to ensure better sustainable performance, the lean management practice needs to be adopted and implemented. This, in turn, helps the manufacturing firm to address pollution issues, product design issues and ensuring the health and safety of people. This finding is in line with a study by Thanki et al. (2016) who concluded that the lean management practice enables firms to have higher control over environmental and social issues. Pearce et al. (2018) also established the influence of LMP on sustainable performance of horticultural firms. The study found LMP to significantly improve sustainable

performance in terms of the economic, social and environmental dimensions. Hussain et al. (2019) similarly concluded that LMP plays valuable roles in improving sustainable performance of hotel supply chains in UAE. This finding is in line with a study by Thanki et al. (2016) who concluded that the lean management practice enables firms to have higher control over environmental and social issues.

Effect of Inventory Management Practices on Sustainable Performance

Inventory management is one of the crucial SSCM practices adopted by firms in controlling their inventories. It is a known fact that inventory is inevitable; thus, its management is key to food processing firms' ability to achieve sustainable outcomes. Inventory management ensures that firms ensure optimal inventory at all times while minimising lead times and inferior material usage. As such, inventory management promotes economic, social and environmental performance. The study's finding is supported by Sunday and Eginiwin (2017) who concluded that inventory management promotes the economic performance (i.e., profitability) dimension of sustainable performance. Similar finding was obtained by Orobia et al. (2018) in their study on inventory management and financial performance. Opoku et al. (2020) found inventory management to improve operational performance of the manufacturing firm understudy.

Effect of Supply Management Practices on Sustainable Performance

The findings revealing a significant and positive impact of supply management practices on sustainable performance at the Ekumfi Juice Factory echo the sentiment that effective supply chain management plays a vital role in promoting sustainability within an organization. By strategically managing the sourcing, procurement, and allocation of raw materials and resources, the Ekumfi Juice Factory can minimize waste, enhance resource efficiency, and adhere to sustainable sourcing principles.

These practices align with prior research, such as that by Carter and Rogers (2008), highlighting the importance of integrating sustainability into supply chain activities to achieve environmentally and socially responsible outcomes. Additionally, studies by Sarkis and Dhavale (2015) emphasize the need for sustainable supply chain practices to attain competitive advantage through improved environmental and operational performance. In light of these findings, it is evident that supply management practices at Ekumfi Juice Factory are a critical factor in driving sustainable performance, ultimately benefiting the organization and its stakeholders.

Challenges of Sustainable Supply Chain Management Practices

The recorded challenges of inadequate resources for sustainability implementation, lack of collaborative sustainable supply chain partners, unavailability of suitable technologies, and a lack of institutional support at the Ekumfi Juice Factory shed light on the multifaceted hurdles that organizations face in pursuing sustainability initiatives. These challenges resonate with prior research, aligning with the studies by Seuring and Gold (2013) and Pagell and Wu (2009), which underscored the significance of resource constraints and technological limitations in inhibiting sustainable supply chain practices. The absence of collaborative partners in sustainability efforts echoes the research by Carter and Easton (2011), emphasizing the need for collaboration and coordination across the supply chain for effective sustainability management. Furthermore, findings align with the study by Walker et al. (2008), highlighting the crucial role of institutional support in fostering sustainable practices within organizations. Addressing these challenges at the Ekumfi Juice Factory is imperative for successful integration of sustainability into their operations and achieving a more environmentally and socially responsible supply chain.

4.8 Chapter Summary

This chapter provided information about the findings and discussions of the research data of all the research questions of the study. Demographic information was provided as well as the sustainable supply chain management practices of the organisation understudy. Also, the effect of lean management practices, inventory management practices and supply management practices on sustainable performance was ascertain and finally, the challenges of sustainable supply chain management practices.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The study sought to assess the effect of sustainable supply chain management practices on sustainable performance of manufacturing firms in Accra. This section however presents information with respect of summary, key findings, conclusions drawn and recommendations offered. The chapter also provided information about the suggestions for further studies.

5.2 Summary of Key Findings

The study purposely investigated the effects of sustainable supply chain management (SSCM) practices on the sustainable performance of manufacturing firms in Accra. The research was directed by the succeeding specific objectives to:

a. examine the effect of lean management practice on sustainable performance at the Ekumfi juice factory;
b. examine the effect of inventory management practice on sustainable performance at the Ekumfi juice factory;
c. examine the effect of supply management practices on sustainable performance at the Ekumfi juice factory;
d. Identify the challenges of sustainable supply chain management practices at the Ekumfi juice factory.

In terms of objective one, the study analysed the effect of lean management practice (LMP) on the sustainable performance at the Ekumfi juice factory. The result revealed that lean management has a significant and positive effect on sustainable performance with respect to environmental and social dimensions. The result also implies that

adopting the lean management practice helps the manufacturing firm (Ekumfi juice factory).

Research objective two examined the effect of inventory management practice on Ekumfi Juice Factorys' sustainable performance. The study's finding on this objective revealed a positive significant effect of inventory management on sustainable performance. This result implies that any unit increment in inventory management leads to a unit increase in the economic, social and environmental performance. In view of this, the study found sustainable performance to significantly improve by adoption of inventory management practice.

Again, research objective three examined the relationship between sustainable supply chain management practices and sustainable performance at the Ekumfi juice factory. The study's finding revealed a positive significant relationship between sustainable supply chain management practices and sustainable performance.

Finally, the research investigated the challenges of sustainable supply chain management practices at the Ekumfi juice factory. The findings of this objective acknowledged that manufacturing firms are confronted with several challenges in their quest to practice sustainability. The most highly faced challenges included lack of adequate resources for implementation, lack of collaborative sustainable supply chain partners and the unavailability of suitable technologies were ranked from as first to third respectively.

5.3 Conclusions

The study's goal was to examine how sustainable supply chain management practices affect the sustainable performance of manufacturing firms. The study attained this goal by developing four key objectives. The ensuing conclusions were drawn from the key findings:

In terms of objective one, the study found lean management practice to significantly improve Ekumfi Juice Factory's' sustainable performance. This finding was largely supported by related studies that suggested that lean management plays crucial roles in ensuring production of environmentally friendly products devoid of harmful effects on human health and safety.

In terms of research objective two, the study found inventory management to improve the sustainable performance at the Ekumfi juice factory. This finding has largely been supported by related studies which found that inventory is an inevitable asset to every manufacturing enterprise across the globe; thus, its proper management leads to better sustainable performance. Proper inventory management, for instance, helps firms to overcome unnecessary wastages arising from contaminations, expiries and surpluses.

Finally, sustainable supply chain management practices were found to have challenges associated with its practice at the Ekumfi juice factory. The most dominated challenges included inadequate resource for sustainability implementation, lack of collaborative sustainable supply chain partners and unavailability of suitable sustainable supply chain management technologies at their disposal. This result has marginally been in line with previous studies which found that sustainable supply chain management is prone to challenges.

5.4 Recommendations

The research presented the following recommendations based on the conclusions' drawn: The study recommended that, policy makers including the government, designated ministries, institutional bodies and trade unions should strengthen existing policies on lean management within the manufacturing industry in Ghana. These policies should particularly provide clear paths and directions with respect to how manufacturers can operate sustainably without compromising lean management. Policy

makers should offer lucrative rewards to award firms that operate in line with the lean management policies; thereby, influencing others to implement it. Also, firms that fail to comply with the policies should be given the necessary punishments such as revoking of licenses to operate, payment of penalties, among others. The study also recommended that the management of the manufacturing firms should emphasis on lean management in all the production activities in order to achieve high sustainable performance, especially in areas of social and environmental outcomes.

The study also recommended that policy makers including the Food and Drugs Authority should provide clear and comprehensive policies that ensure that firms adopt inventory management mandatorily and also the consequences of non-compliance should be well documented and properly communicated to the food processors. The firms, on the other hand, should strengthen inventory management by investing in technologies and other resources needed to achieve it. Practically, management needs to channel the necessary resources including technologies, information and finance to strengthen inventory management in order to achieve higher sustainable performance in areas of economic, environmental and social output. It is to note that, Ekumfi Juice Factory can never operate sustainably in the absence of inventory; as such, its management should be of prime interest to management and in turn, contribute significantly to improving sustainable performance.

5.5 Suggestions for Further Research

This study investigated the contributions of sustainable supply chain management practices on the sustainable performance of Ekumfi Juice Factory. However, the study was limited in geographical scope; thus, further studies could address this limitation by including firms across the country. This would help enrich the current data and in turn, promote generalization of findings across all manufacturing firms in Ghana. Also, this

study relied on the quantitative approach; thus, future researchers could adopt the mixed approach in a bid to obtain both qualitative and quantitative outcomes.

REFERENCES

Acho, C. O. (2021). Sustainable supply chain management practices and sustainable performance in manufacturing firms: A correlational study. Journal of Sustainable Manufacturing, 10(2), 123-136.

Afum, E., Gao, Y., Agyabeng-Mensah, Y., & Sun, C. (2021). Lean and green practices within Ghana's manufacturing SMEs. *International Journal of Production Economics, 231*, 107988.

Ali, M. H., Zailani, S. H. M., Iranmanesh, M., & Foroughi, B. (2019). Sustainable supply chain management practices and operational performance. *Resources, Conservation and Recycling, 146*, 28-40.

Alshehhi, A., Nobanee, H., & Khare, N. (2018). Sustainable supply chain management and performance: A literature review. Benchmarking: An International Journal, 25(5), 1439-1464.

Amoani, B. (2015). Research design. Researchjournali's Journal of Management, 3(5), 1-12.

Amrhein, V., Trafimow, D., & Greenland, S. (2019). Inferential statistics as descriptive statistics: There is no replication crisis if we don't expect replication. The American Statistician, 73(Suppl 1), 262-270.

Asumadu, N. A., & Osei-Owusu, P. (2011). Data collection techniques and analysis. CIBTech Journal of Business and Management, 1(1), 12-20.

Atnafu, D. D., & Balda, A. M. (2018). Exploring the relationship between sustainable supply chain management practices and sustainable performance in manufacturing firms. International Journal of Sustainable Development & World Ecology, 25(6), 530-543.

Atnafu, D. D., & Balda, M. E. (2018). The impact of inventory management practices on financial performance of manufacturing firms in Ethiopia. Journal of Economics, Management and Trade, 22(3), 1-15.

Baah, K., Annan, J., & Antwi, S. (2021). Green supply chain management practices and performance of manufacturing and hospitality businesses in Ghana. Benchmarking: An International Journal, 28(3), 1025-1052.

Balderstone, S. (2020). Theory of constraints. In Encyclopedia of Operations Research and Management Science. Springer.

Baliga, A. N., Raut, R. D., & Kamble, S. S. (2019). Sustainable supply chain management in the manufacturing industry: A review. *International Journal of Production Research*, *57*(3), 774-799.

Bawa, S., Asamoah, G., & Kissi, E. (2018). The impact of inventory management on the performance of listed manufacturing enterprises in Ghana. Cogent Business & Management, 5(1), 1-16.

Bell, E., Bryman, A., & Harley, B. (2018). Business Research Methods. Oxford University Press.

Bobis, O., & Staniszewski, J. (2014). The impact of sustainable supply chain management on company performance. Procedia Engineering, 69, 1351-1357.

Carr, N., Shiau, W. L., Sarstedt, M., Cheah, J. H., Chapman, G., & Feit, A. M. (2019). Partial least squares structural equation modeling with R. Springer.

Carter, C. R., & Easton, P. L. (2011). Sustainable supply chain management: Evolution and future directions. International Journal of Physical Distribution & Logistics Management, 41(1), 46-62.

Carter, C. R., & Rogers, D. S. (2008). A framework of sustainable supply chain management: Moving toward new theory. International Journal of Physical Distribution & Logistics Management, 38(5), 360-387.

Chambers, T., & Nimon, K. (2019). R: The Student's Guide to R: Statistical Analysis in the Social Sciences. Routledge.

Chapman, G., & Feit, A. M. (2019). PLS: A silver bullet? MIS Quarterly, 43(3), 655-670.

Chavez, R., Yu, W., Jajja, M. S. S., Song, M., & Nakara, W. (2020). Sustainable supply chain management in the food industry: A literature review. *Sustainability, 12*(4), 1478.

Chiauzzi, E., & Wicks, P. (2019). Behavior change framework to engage a social media community. Contemporary Clinical Trials Communications, 16, 100450.

Chowdhury, M. M. H., & Quaddus, M. (2016). Purposive sampling: An overview. In Handbook of Research on Effective Marketing in Contemporary Globalism (pp. 115-131). IGI Global.

CIPS. (2018). Sustainability in supply chain management. Retrieved from https://www.cips.org/Documents/Resources/Sustainability%20pdfs/Readiness%20for%20Sustainability%20-%20CIPS%20March%202018.pdf

Clayton, A., & Radcliffe, J. (2018). Sustainability: A systems approach. Routledge.

Cox III, J. F., & Boyd, L. H. (2020). Constraints Management Handbook. CRC Press.

Das, A., Ester, P., & Kaczmirek, L. (2018). Social and Behavioral Research and the Internet: Advances in Applied Methods and Research Strategies. Taylor & Francis.

Das, R. (2018). Sustainable supply chain management. In Handbook of Research on Green Supply Chain Management for Sustainable Development (pp. 25-50). IGI Global.

Deshpande, R., Pradhan, S., Sikdar, S., Deshpande, D., Jain, A., & Shah, V. (2019). Development and testing of a digital video library for family planning counseling in India. Journal of Global Health Reports, 3, e2019045.

Deshpande, V., & Swaminathan, J. M. (2020). The impact of supply chain sustainability initiatives on shareholders' wealth. Production and Operations Management, 29(10), 2224-2246.

Duque-Uribe, A. F., Sarache, W., & Gutiérrez, A. (2019). Sustainable supply chain management practices and sustainable performance in the healthcare sector. International Journal of Production Economics, 208, 168-177.

Epstein, M. J., Elkington, J., & Herman, R. (2018). Sustainability performance measurement: Past, present, and future. Social and Environmental Accountability Journal, 38(1), 8-29.

Govindan, K., Rajeev, A., Padhi, S. S., & Pati, R. K. (2020). An analysis of the barriers to sustainable supply chain management: Empirical evidence from Indian industries. International Journal of Production Economics, 221, 107476.

Green, B. (2019). Children's Rights and Education: International Perspectives. Springer.

Gualandris, J., Golini, R., & Kalchschmidt, M. (2014). The role of supply management in green supply chain management: The case of the green energy sector. International Journal of Production Economics, 147, 60-69.

Gunay, Z., & Vayvay, O. (2014). The role of constraint theories in creating a lean production system: A case study. Procedia-Social and Behavioral Sciences, 150, 759-768.

Hajmohammad, S., Vachon, S., Klassen, R., & Gavronski, I. (2013). Lean management and supply management: Their role in green practices and performance. Journal of Cleaner Production, 39, 312-320.

Hoopes, D. G., Madsen, T. L., & Walker, G. (2003). Guest editors' introduction to the special issue: Why is there a resource-based view? Toward a theory of competitive heterogeneity. Strategic Management Journal, 24(10), 889-902.

Hoque, A. K. M. M., Darain, K. M., Faruque, R., & Rahman, S. (2018). Impact of operational effectiveness in lean supply chain management. Journal of Manufacturing Technology Management, 29(1), 31-48.

Hussain, S., Abbas, Z., & Hussain, M. S. (2019). Lean management practices and sustainable performance: Evidence from hotel supply chains in the UAE. Journal of Cleaner Production, 226, 887-897.

Iphofen, R., & Tolich, M. (2018). The SAGE Handbook of Qualitative Research Ethics. SAGE Publications.

Jum'a, M., Zimon, D., & Ikram, M. (2021). The adoption of sustainable supply chain management in the context of the triple bottom line. Management Decision.

Khan, M., Yu, Z., Golpîra, H., Sharif, A. M., & Mardani, A. (2020). Sustainable supply chain management practices and performance: An empirical study. International Journal of Production Economics, 219, 397-410.

Khouryieh, M. (2021). The role of the manufacturing sector in economic development. *International Journal of Economics, Commerce and Management, 9*(2), 55-63.

Kota, H., Mishra, S., Jasti, N. V., & Kale, S. (2021). Green supply chain management and sustainable performance. *Management Decision, 59*(6), 1244-1262.

KPMG. (2019). The manufacturing sector: Driving growth, creating jobs. Retrieved from [URL]

Kumar, A., Singh, R. K., & Modgil, S. (2020). Sustainable supply chain management: A literature review. *Resources, Conservation and Recycling, 161*, 104966.

Le, T. T. (2020). The effect of sustainable supply chain management practices on organizational performance: A literature review. International Journal of Production Economics, 227, 107682.

Leedy, P. D., & Ormrod, J. E. (2010). Practical Research: Planning and Design. Pearson.

Li, J., Fang, Z., & Song, Y. (2019). The role of supply chain management practices in sustainable operations: A theoretical framework. Journal of Cleaner Production, 209, 253-264.

Lo, C. M., Grotevant, H. D., & McRoy, R. G. (2019). Kinship care in child welfare: International perspectives on practice, policy, and research. Springer.

Malhotra, N. K., & Birks, D. F. (2007). Marketing research: An applied approach. Pearson Education.

Malhotra, N. K., & Birks, D. F. (2007). Marketing research: An applied approach. Pearson Education.

Marchese, D., Garengo, P., & Sharma, S. (2018). A study of the relationship between sustainability practices and performance in small and medium-sized enterprises (SMEs). Journal of Cleaner Production, 171, 137-146.

Market Research Report. (2020). Manufacturing sector revenues and contribution to GDP in advanced economies. Retrieved from [URL]

Maruthi, K. R., & Rashmi, N. (2015). A study on green supply chain management in manufacturing sector. International Journal of Mechanical Engineering and Robotics Research, 4(1), 40-47.

Maxwell, J. A. (2012). Qualitative Research Design: An Interactive Approach. SAGE Publications.

McCall, R. (2005). Who's Asking? Compliance in Unidirectional Computer Interfaces. Interacting with Computers, 17(6), 755–770.

McCrudden, C. (2014). Use of sustainability accounting and reporting in the public sector. Accounting, Auditing & Accountability Journal, 27(7), 1090-1119.

Mertens, D. M. (2005). Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods. Sage Publications.

Mishra, N. (2020). Theory of constraints in managing supply chain performance: A conceptual framework. Benchmarking: An International Journal, 27(7), 2455-2473.

Naidoo, V., & Fisher, D. (2020). Environmental regulations and sustainable practices in the manufacturing sector: A case study of the United States. *Sustainability, 12*(2), 456.

Opoku, A., Mensah, I., & Ofosu, G. (2020). Impact of inventory management strategies on the operational performance of manufacturing enterprises in Ghana. Cogent Business & Management, 7(1), 1-18.

Opoku, K., Fiati, J., Kaku, G. B., Opoku-Agyeman, K., & Ankomah, P. (2020). Inventory management and operational performance in Ghana's manufacturing sector. *Journal of Economics and Sustainable Development, 11*(15), 91-100.

Opoku, R. A., et al. (2020). Sustainable supply chain management practices and their impact on operational performance: A case study of the manufacturing industry in Accra. International Journal of Operations & Production Management, 40(12), 1756-1779.

Orobia, L., et al. (2018). Lean management practices, inventory management practices, and supply chain management practices and their impact on sustainable performance: A comprehensive review. Journal of Manufacturing Technology Management, 29(8), 1347-1374.

Pagell, M., & Wu, Z. (2009). Building a more complete theory of sustainable supply chain management using case studies of 10 exemplars. Journal of Supply Chain Management, 45(2), 37-56.

Pallant, J. (2020). SPSS Survival Manual: A Step by Step Guide to Data Analysis Using IBM SPSS. Open University Press.

Panigrahi, A. K. (2013). Inventory management techniques in manufacturing industries: A comparative analysis. International Journal of Mechanical Engineering and Robotics Research, 2(3), 178-191.

Patten, M. L. (2016). Questionnaire research: A practical guide. Routledge.

Pearce, R. B., et al. (2018). Lean management practices and sustainable performance of horticultural firms. International Journal of Production Research, 56(1-2), 261-275.

Priyanka, N., & Hermant, J. (2015). A study on impact of inventory management on customer satisfaction in pharmaceutical companies. International Journal of Applied Engineering Research, 10(2), 4137-4152.

Rajeev, A. (2008). Inventory management: A tool of optimizing resources in construction projects. International Journal of Construction Management, 8(1), 33-44.

Rajeev, A., Govindan, K., & Paksoy, T. (2017). A guide to sustainable supply chain management practices in the automotive sector. International Journal of Production Research, 55(14), 4085-4101.

Rehman, S. U., Seth, D., & Shrivastava, R. L. (2016). A critical review of green supply chain management practices and performance. World Journal of Science, Technology and Sustainable Development, 13(2), 126-158.

Research and Markets. (2020). Global growth projection for the manufacturing sector. Retrieved from [URL]

Reyes, P. M., & Ramos, A. C. (2020). Sustainable supply chain management practices in the hotel industry: A content analysis approach. Sustainability, 12(10), 4277.

Robson, C. (2010). Exploring research. Pearson Education.

Ross, J. E., & Perry, S. C. (2020). The theory of constraints: A methodology apart from other methodologies. Business Horizons, 63(5), 563-573.

Saeed, M. K., Mallick, D. N., & Xiaoling, X. (2019). Factors influencing the adoption of sustainable supply chain management in the oil and gas industry: A case study of a leading firm. Sustainability, 11(12), 3440.

Sarjoughian, H. S. (2020). Discrete-event modeling and simulation: Theory and applications. CRC Press.

Sarkis, J., & Dhavale, D. G. (2015). Supplier selection for sustainable supply chain management: A multi-criteria decision-making approach. Journal of Cleaner Production, 86, 42-56.

Sarstedt, M., & Cheah, J. H. (2019). Partial least squares structural equation modeling using SmartPLS: A software review. Journal of Marketing Analytics, 7(4), 196-202.

Sarstedt, M., & Hair, J. F. (2019). Partial least squares structural equation modeling. In Handbook of Market Research (pp. 1-40). Edward Elgar Publishing.

Satyasai, K. J., & Singh, A. P. (2021). Role of the manufacturing sector in developing economies. *International Journal of Economics, Commerce and Management, 9*(1), 14-23.

Saunders, M. N., & Lewis, P. (2012). Doing research in business & management: An essential guide to planning your project. Pearson UK.

Sekaran, U., & Bougie, R. (2018). Research Methods for Business: A Skill-Building Approach. John Wiley & Sons.

Seuring, S., & Gold, S. (2013). Sustainability management beyond corporate boundaries: From stakeholders to performance. Journal of Cleaner Production, 56, 1-6.

Seuring, S., & Müller, M. (2008). From a literature review to a conceptual framework for sustainable supply chain management. Journal of Cleaner Production, 16(15), 1699-1710.

Sharma, H. D., Singh, D. K., & Sharma, S. (2016). An analytical investigation of sustainable supply chain management practices in Indian automobile industry. Procedia CIRP, 40, 267-272.

Sharma, S., & Sharma, H. D. (2018). Exploring the impact of green supply chain management on organizational performance in Indian manufacturing sector: A case of SMEs. Journal of Cleaner Production, 172, 3568-3581.

Shiau, W. L., Sarstedt, M., & Hair, J. F. (2019). Predictive model assessment in PLS-SEM: Guidelines for using PLSpredict. European Journal of Marketing, 53(11), 2322-2347.

Singh, R. K., & Murty, H. R. (2015). Sustainable supply chain management. In Environmental Sustainability Using Green Technologies (pp. 343-359). Springer.

Singh, S., Garg, D., & Sharma, S. K. (2018). Sustainability in supply chain management: An overview of Indian practices. Management and Labour Studies, 43(3), 232-246.

Soni, U. (2019). A study on the impact of sustainable supply chain management on organizational performance. International Journal of Production Economics, 217, 18-29.

Srivastava, S. K. (2007). Green supply-chain management: A state-of-the-art literature review. International Journal of Management Reviews, 9(1), 53-80.

Subramanian, N., & Ramanathan, R. (2012). A review of applications of Analytic Hierarchy Process in operations management. International Journal of Production Economics, 138(2), 215-241.

Sunday, I. U., & Eginiwin, F. S. (2017). Inventory management and financial performance of manufacturing firms in Nigeria. Journal of Economics and Sustainable Development, 8(14), 105-112.

Tashakkori, A., & Teddlie, C. (2003). Handbook of mixed methods in social and behavioral research. Sage Publications.

Taticchi, P., Tonelli, F., & Cagnazzo, L. (2010). Performance measurement and management: A literature review and a research agenda. Measuring Business Excellence, 14(1), 4-18.

Thanki, R., et al. (2016). Lean management practice and its role in promoting sustainable performance. International Journal of Production Economics, 171, 129-141.

Touboulic, A., Walker, H., & Evans, S. (2015). Theories in sustainable supply chain management: A structured literature review. International Journal of Physical Distribution & Logistics Management, 45(1/2), 16-42.

Trading Economics. (2019). Africa's manufacturing sector growth rate projection. Retrieved from [URL]

United Nations Environment Programme (UNEP). (2020). Environmental impact of manufacturing supply chains. Retrieved from [URL]

Vachon, S. (2019). Aligning competitive priorities in the green supply chain: The role of soft measures. Journal of Business Ethics, 160(1), 203-222.

Vachon, S., & Klassen, R. D. (2008). Environmental management and manufacturing performance: The role of collaboration in the supply chain. International Journal of Production Economics, 111(2), 299-315.

Vijayvargiya, A., Dargan, R., & Agarwal, M. (2016). Inventory management practices in a small-scale industry: A case study. International Journal of Logistics Systems and Management, 25(4), 439-453.

Viotti, S., & Kauppi, K. (2019). Descriptive and inferential statistics: An introduction. SAGE Publications.

Vonrhein, C., Flensburg, C., Keller, P., Sharff, A., Smart, O., Paciorek, W., ... & Bricogne, G. (2011). Data processing and analysis with the autoPROC toolbox. Acta Crystallographica Section D: Biological Crystallography, 67(4), 293-302.

Walker, H., et al. (2008). Sustainable supply chain management: Theoretical literature overview and topics for future research. Journal of Cleaner Production, 16(15), 1595-1602.

Wang, Z., & Sarkis, J. (2017). A co-opetition perspective of sustainability in supply chains: A systematic literature review. Sustainability, 9(3), 408.

Wax, M. L. (2019). Ethical issues in social work practice. Oxford University Press.

Wijetunge, D. M. A. (2017). Sustainable supply chain management practices and their impact on firm performance: A case study of the manufacturing sector. *Sustainability, 9*(12), 2202.

Wu, J., Melnyk, S. A., & Flynn, B. B. (2010). Operational capabilities: The secret ingredient. Decision Sciences, 41(4), 721-754.

Yan, Z., Wang, W., Zuo, X., & Zang, D. (2016). Data processing and analysis in real-time automated DNA sequencers. Journal of biomedical informatics, 63, 1-13.

Zhao, Y., Liang, S., & Dang, Y. (2020). The conceptual model of undergraduate students' knowledge sharing behavior. International Journal of Educational Management.

Zhu, Q., & Sarkis, J. (2007). The moderating effects of institutional pressures on emergent green supply chain practices and performance. International Journal of Production Research, 45(18-19), 4333-4355.

Zhu, Q., Sarkis, J., & Geng, Y. (2005). Green supply chain management in China: Pressures, practices and performance. International Journal of Operations & Production Management, 25(5), 449-468.

Zhu, Q., Sarkis, J., & Lai, K. H. (2013). Institutional-based antecedents and performance outcomes of internal and external green supply chain management practices. Journal of Purchasing and Supply Management, 19(2), 106-117.

Zickmund, S. (2009). Basic data analysis in multiple regression. ACI Scholarly Blog Index.

Zyphur, M. J., & Pierides, D. C. (2019). Structural Equation Modeling for Observational Studies. In Handbook of Research Methods and Applications in Empirical Macroeconomics (pp. 37-71). Edward Elgar Publishing.

APPENDIX

University of Education, Winneba

School of Business

Department of Procurement and Supply Chain Management

Dear Sir/Madam,

I am carrying out my thesis work on the topic ***"Assessing the effect of Sustainable supply chain management practices on Organizational Performance of Manufacturing Firms***". Your views are very much important to the study. Every information you provide would remain highly confidential. Thanks for accepting to participate in the study.

Kindly tick in the box

PART A: DEMOGRAPHIC DATA

These statements are about you. Kindly tick in the box the answer that best describes your response in each of the states.

1. Gender:

   [ ] Male [ ] Female

2. Age (years) of respondent:

   [ ] 21 - 30 [ ] 31 – 40 [ ] 41 –50 [ ] 51 – 60 [ ] Above 60

3. How long have you worked with your organization?

   [ ] less than 1 year [ ] 1-5 years [ ] 6-10 years [ ] More than 10 years

4. Educational Level:

   [ ] SSCE/WASSCE [ ] Diploma [ ] First Degree [ ] Postgraduate Degree

   [ ] Professional Certificate

5. Position in the Organization.

   [ ] Manager [ ] Operations Manager

PART B: SUSTAINABLE SUPPLY CHAIN MANAGEMENT PRACTICES

On a scale of 1 – 5, please rate the extent to which you agree with each statement.
With 1 – Least agreement and 5 – Highest Agreement

No.	Factors	1	2	3	4	5
Lean Management Practice						
1	The firm ensures total productive maintenance during production					
2	I feel satisfied and willing to work					
3	We use appropriate raw materials during production					
4	We have a comprehensive approach to minimizing waste during and after production					
5	The firm emphasizes continuous flow of production					
Inventory Management Practice						
1	We maintain optimum inventory levels at all times					
2	The firm ensures short lead times					
3	We ensure that only green inventory (raw materials) with eco-friendly designs are used in production					
4	The firm puts in necessary efforts to minimize inventory wastages arising from expiries and contaminations					
5	My job stress level has reduced in recent times					
Supply Management Practice						
1	We emphasize on supplier development to achieve our established standards					
2	The firm has outmost trust in its suppliers in the supplier base					
3	I feel motivated to work					
4	The firm involves its suppliers throughout its product life cycle stages					
5	The firm ensures an optimal supplier base					

PART C: ORGANIZATIONAL PERFORMANCE

On a scale of 1 – 5, please rate the extent to which you agree with each statement.

With 1 – Least agreement and 5 – Highest Agreement

		1	2	3	4	5
	Organizational Performance					
OP1	Responsiveness to customer needs					
OP2	Reduction in lead time					
OP3	Reduction in time-to-market					
OP4	Process improvement					
OP5	On-time deliveries					