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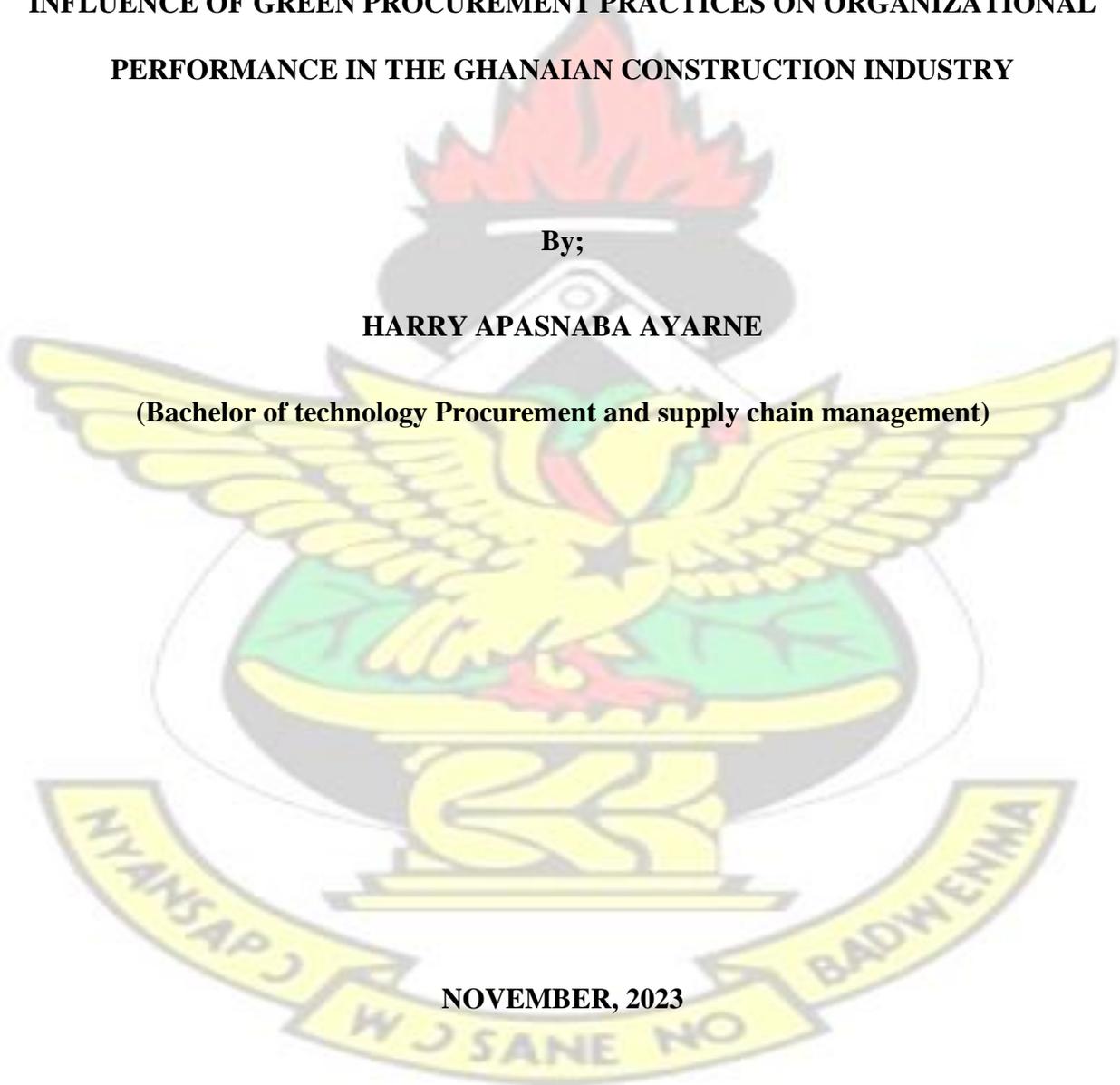
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**INFLUENCE OF GREEN PROCUREMENT PRACTICES ON ORGANIZATIONAL
PERFORMANCE IN THE GHANAIAN CONSTRUCTION INDUSTRY**

By;

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DECLARATION

I hereby declare that this submission is my work towards the Masters of Science in Procurement and Supply Chain Management and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgment has been made in the text.

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Signature Date

DEDICATION

I dedicate this work to my late uncle, Bobby and my mother for their unwavering love and support all these years. Thank you for everything.

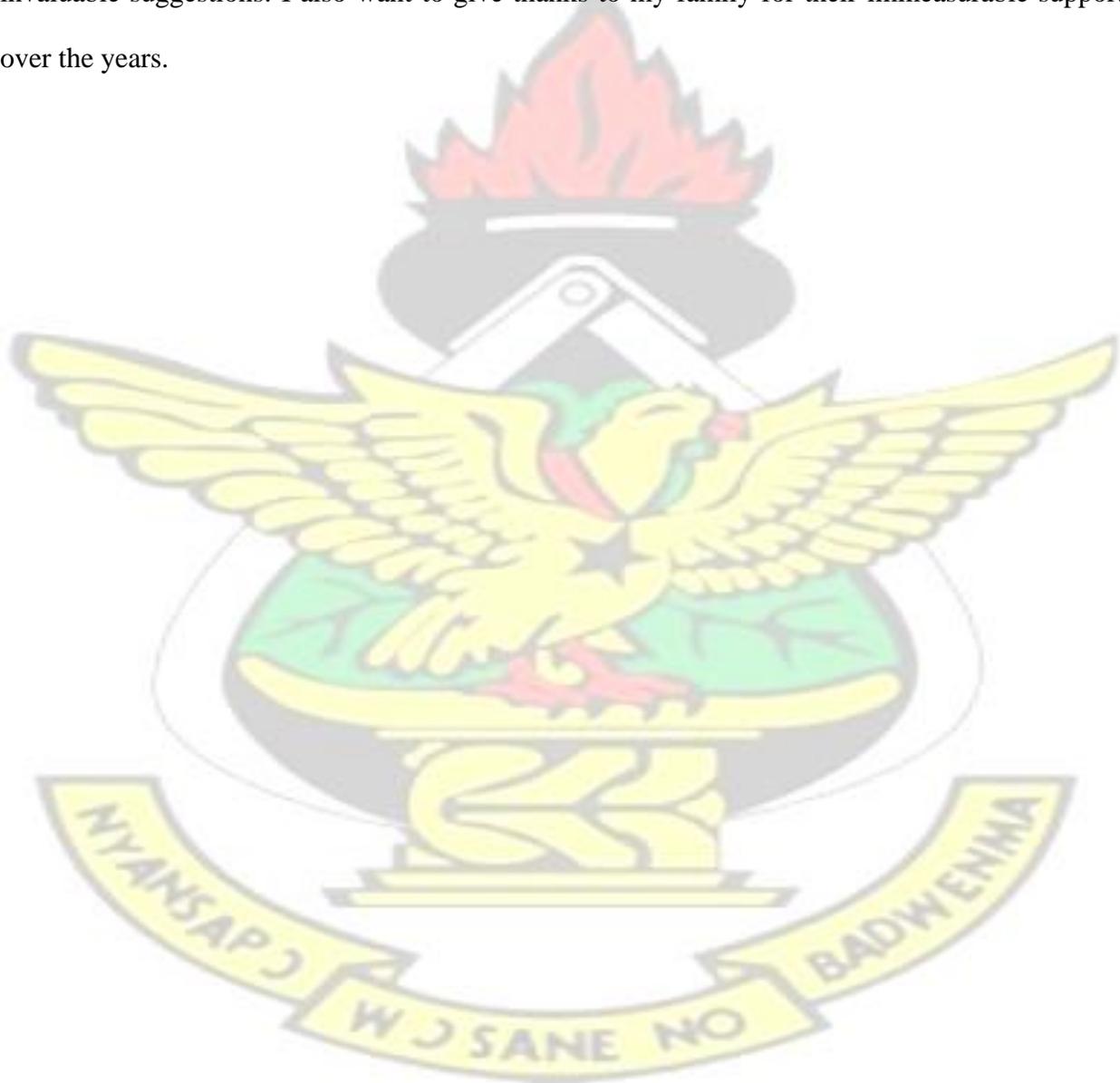
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I give the greatest appreciation to the Almighty God for His mercies and inspiration for a successful completion of the research work. A work like this could only be achieved through the support of many people and I am most grateful for their constructive contributions.

I owe lots of thanks to my supervisor, Dr Emmanuel Anin for his useful ideas, criticism and invaluable suggestions. I also want to give thanks to my family for their immeasurable support over the years.



ABSTRACT

The study aimed at assessing the impact of green procurement practices on organizational performance in the Ghanaian construction industry by focusing on cases of selected construction firms across various sectors in southern sector of Ghana. Specifically, the study examine the extent of green procurement adoption, identified the drivers to green procurement adoption among selected construction firm in the southern part of Ghana, assessed the barriers to green procurement adoption among selected construction firm in the southern part of Ghana and establish the effect of green procurement practices on the organizational performance among the selected construction firms. The study adopted the quantitative research method and employed the cross-sectional research designed. A survey questionnaire was used to collect data from a sample of 200 respondents who were put into strata using the purposive stratified sampling technique. The results showed that majority of construction firms across various sectors have adopted green procurement practices. Furthermore, the results identified 11 drivers and barriers to green procurement adoption. Finally, the results shows that there is a significant and positive relationship between green procurement practices adoption and organizational performance. It was therefore recommended that management should regularly collaborate with procurement, sustainability, and finance teams to ensure that environmental considerations are fully integrated into procurement decisions.

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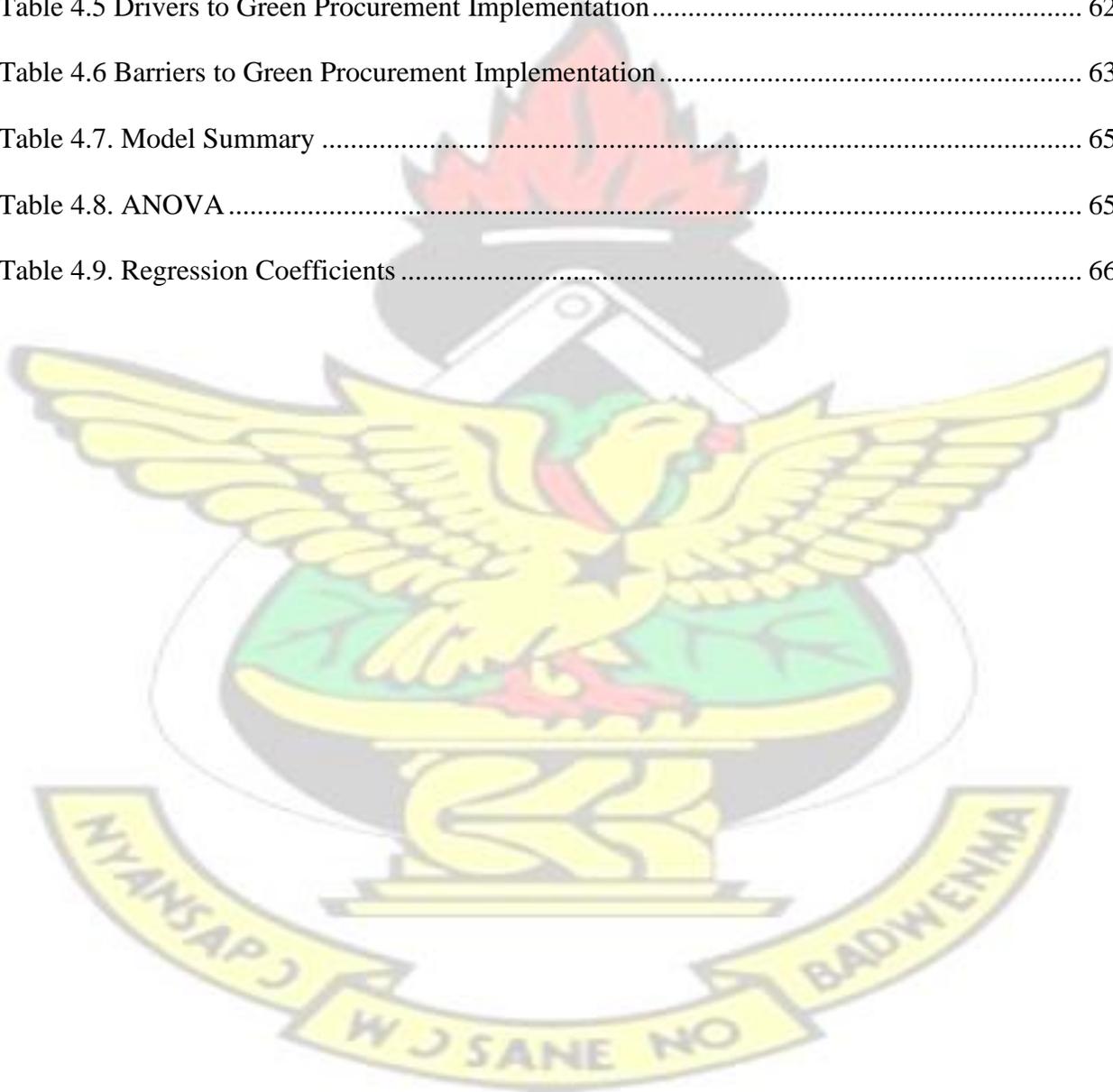
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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

More and more businesses are acknowledging the importance of corporate responsibility, specifically the need for environmental awareness, as a crucial aspect of their operations. Environmental measures are no longer perceived as costly and vexatious, but instead as a strategy for attaining competitive equivalence, as suggested by Reuter et al. (2010) and Hollos, Blome, and Foerstl (2012). Thus, the significance of these green goals has led to an increased emphasis on eco-friendly procurement (Meehan and Bryde 2011). Increasingly businesses are integrating eco-friendly purchasing practices into their regular operations across various sectors. The aforementioned Samsung example highlights the growing complexity of these initiatives (Wati & Koo, 2010). Rather than just basic efforts to procure environmentally-friendly goods, these programs now encompass more advanced strategies aimed at enhancing supplier proficiency in green practices. Diverse companies differ in their pursuit of green supplier development initiatives due to the demand for greater proficiency to implement such initiatives.

Among all sectors, the construction industry has the highest capacity to address climate change and reduce resource depletion (Pinkse and Dommissie, 2009; Hosseini et al., 2013). This means that the construction industry is the biggest cause of carbon emissions, uses a lot of resources, uses a large amount of energy, creates a lot of waste, and uses a significant amount of water (UNEP-SBCI, 2016). As more and more people move to cities (about 70% by 2050), there will be more construction happening (UNDESA, 2014). The environment will be significantly affected by this. This is a bigger problem in countries that are still developing, like Ghana. This situation arises due to the fact that these nations possess a larger population and a growing middle class, both of

which have an increased want and requirement for various goods (UNEP-SBCI, 2014). It is imperative that a conscious effort is made to halt and minimize the detrimental impacts on the environment caused by the construction sector. This is extremely important to make sure that our future generations can survive.

The construction industry can gain a lot from using green procurement, just like other industries. This means that the impact on the environment caused by a construction or building project, as well as the industry as a whole, can be seen throughout the various stages of its production and distribution (Ng et al., 2015). For example, in practices that involve buying environmentally friendly goods and services, the main goal of managing a green supply chain is to reduce the negative effects on the environment. This can be done in many stages of the construction supply chain, from getting raw materials for building products to making and delivering them. Additionally, it applies to planning buildings, buying materials, constructing on-site, maintaining, renovating, and demolishing buildings when they are no longer being used (Wibowo et al., 2018). Given the intricate and complex nature of the construction supply chain, which involves multiple stakeholders at various stages of the project, such as developers, architects/consultants, contractors, and suppliers, there are inherent reputational issues (Upstill-Goddard et al., 2017). Studies have shown that these stakeholders have low trust levels and often have adversarial relationships with each other (Geach, 2016; Hofmann et al., 2014). Thus, Green procurement holds great promise in effectively addressing the varying concerns and difficulties voiced by the numerous stakeholders involved, and inspiring them to adopt environmentally sound strategies in a coordinated approach that complements the efforts of other players in the construction supply chain.

Given this context, the study utilize both institutional and strategic perspectives on legitimacy to investigate how financial and market performance, as well as top management dedication among other factors, can foster proactive initiatives across various boundaries. To put it differently, the focus lies in identifying the motivating factors behind companies' adoption of both fundamental environmentally conscious purchasing practices and advanced methods of promoting green supplier growth. The author has expanded on previous research by distinguishing between green supplier development efforts and regular procurement practices, which have often been treated as one concept in prior studies (Williams, 2006).

As green procurement and green supplier development become increasingly significant, researchers have endeavored to stay abreast of industry trends by pinpointing primary factors that promote these practices (Pagell, Wu, and Wasserman 2010; Curkovic and Sroufe, 2011). Most of the studies conducted have associated the implementation of eco-friendly measures to the rising pressure from various stakeholders as per the perspective of Paulraj (2009). Conversely, exploring the significance of unique factors within a company that can promote environmentally-friendly purchasing is equally imperative.

Additionally, construction companies, which have traditionally struggled to perform well (according to Agapiou et al., 1998, Yeo and Ning, 2002, Cox and Ireland, 2012), can benefit from adopting green procurement practices. This can help them gain a competitive edge by improving their financial performance and also by having a positive impact on the environment. In order to assess how eco-friendly procurement practices affect performance, the study utilize the (natural) resource-based view. These initiatives involve acquiring abilities that are developed through social means and affected by past decisions, and can eventually lead to the achievement of a competitive advantage that is sustainable. While organizations may feel compelled to implement

environmentally friendly procedures due to external pressures, it is crucial for them to acquire the necessary skills and resources to adequately address these factors and achieve exceptional outcomes. (Sarkis, Gonzalez-Torre, and Adenso-Diaz, 2010). Therefore, the researcher understands the significance of incorporating institutional theories with the natural resource-based viewpoint in order to enhance the understanding of the proposed associations. Rather than focusing solely on the performance effects on buying firms, our research explores how green procurement can affect the performance of suppliers. This inquiry holds significant intrigue as the focal company's success may not be solely determined by its own actions, as suppliers play an increasingly pivotal role in its performance. This is especially true in construction firms where outsourcing has become more prevalent. Therefore, the focal firm's performance may not be a reliable indicator of its overall success. In view of the forgoing assertion, the study examines the impact of green procurement on organizational performance among construction firms situated in the southern part of Ghana.

1.2 Problem Statement

Despite its value, the implementation of environmentally-friendly procurement methods in the construction industry is a developing concept. Hence, there is a lack of knowledge about its adoption in the context of Ghana, according to recent research by Amoako et al. (2021). This is a novel concept in the construction industry of most developing countries, as per Kahlenborn et al. (2013). This research was prompted by the observation that although there are current green practices in construction, they only focus on individual firms and not on a collaborative effort in greening the entire project during its life cycle. This fragmentation highlights the necessity for a more comprehensive approach. Due to the pressing need for the industry to prioritize environmental protection and sustainability, this research aims to investigate the feasibility of

implementing green procurement practices in Ghanaian construction industry. This study is aimed at unearthing the factors that affect green adoption, purchasing materials and services that align with the project's goal of meeting green performance standards.

In order to elaborate on the importance of this research, it was pointed out by Perera, Chowdhury, and Anandajit (2017) that the extent to which green procurement is implemented can differ greatly across various international practices. Therefore, studying specific cases can improve comprehension in particular contexts. According to Roy and Koehn (2022), findings from previous studies in advanced nations may not be relevant to less developed nations due to variations in construction practices.

Furthermore, those individuals and institutions engaged in green procurement are not prioritizing the reduction of this pollution. The individuals responsible for a project avoid requesting environmentally-friendly construction methods due to concerns about potential higher costs (Varnas et al. 2009). Contractors are averse to performing the task without external pressure, as it would incur substantial extra costs for them (Ahn et al. 2013). Antecedents for specific green practices or barriers to green purchasing have also been explored, but there has been little comprehensive research green procurement chain adoption in the construction sector (Koirala, 2019; Qi et al., 2010). The investigations being conducted are short-sighted and fail to fully encompass and comprehend green procurement practices, resulting in the possibility of practitioners and policymakers addressing irrelevant issues and disregarding those that hold greater importance. Only a few studies have examined how firm characteristics affect green procurement factors, as noted by Yu et al. (2020). In view of this the study addressed this underlying issues by assessing the impact of green procurement practices on organizational performance in the Ghanaian construction industry by focusing on the southern regions of Ghana.

1.3 Objectives of the Study

The aim of the study is to assess the impact of procurement practices on organizational performance in the Ghanaian construction industry by using some selected construction firms in southern sector of Ghana as case studies. However, the specific objectives of the study are to:

- a) Examine the extent of green procurement adoption among selected construction firms in the Greater Accra region of Ghana;
- b) Identify the drivers to green procurement adoption among selected construction firm in the southern part of Ghana;
- c) Assess the barriers to green procurement adoption among selected construction firm in the southern part of Ghana;
- d) To establish the effect of green procurement practices on the organizational performance among the selected construction firms.

1.4 Research Questions

- a) To what extent has green procurement practices been adopted among selected construction firms in the Greater Accra region of Ghana?
- b) What are the drivers to green procurement adoption among selected construction firm in the southern part of Ghana?
- c) What are the barriers to green procurement adoption among selected construction firm in the southern part of Ghana?
- d) What is the effect of green procurement practices on the organizational performance among the selected construction firms?

1.5 Significance of the Study

According to Baptista et al. (2015) research studies are expected to make significant theoretical and innovative practical contributions to the study area. In view of this, the findings of the study will help construction firms and governments to evaluate their contribution to environmental sustainability. This assessment helps in reducing the ecological footprint of construction activities, conserving natural resources, mitigating climate change, and promoting a cleaner and greener environment.

Green procurement often involves selecting energy-efficient, low-waste, and long-lasting products. Assessing the impact allows construction firms to identify cost-saving opportunities through reduced energy consumption, waste management, and operational efficiencies. Governments can also benefit from cost savings in public infrastructure projects and operations, leading to more efficient allocation of public funds.

Also, the results of the study can enable the governments to enact environmental regulations and standards to promote sustainable practices. Assessing the impact of green procurement helps construction firms and governments determine their compliance with environmental laws, regulations, and certifications. This assessment ensures that construction projects meet the required environmental standards and avoid potential legal liabilities.

Green procurement initiatives contribute to building a positive reputation for construction firms and governments. The outcome of the study will help organizations to demonstrate their commitment to sustainability, attracting environmentally conscious stakeholders such as customers, investors, and communities. It also enhances engagement with stakeholders who prioritize sustainability, leading to improved relationships and potential business opportunities.

With growing awareness of environmental issues, there is an increasing demand for sustainable construction practices. Assessing the impact of green procurement allows construction firms to position themselves as leaders in the industry, differentiating themselves from competitors. Governments can also encourage green procurement practices through procurement policies and regulations, driving market competitiveness and supporting sustainable economic growth.

The assessment of green procurement impact provides valuable data and insights that can guide decision-making and strategic planning for construction firms and governments. It helps identify trends, evaluate the effectiveness of sustainability initiatives, and set future goals for continuous improvement. This long-term perspective enables organizations to anticipate and adapt to changing environmental priorities and market expectations.

The study provides literature that fills the identified literature gaps in the current research study. As examples it presents the level of knowledge on green procurement practices, drivers to adopting green procurement, and the possible barriers that needs to be addressed in order to implement green procurement successfully.

1.6 Overview of Research Methodology

The study employed a cross-sectional approach that enables the researcher to measure the extent to which green procurement had been adopted by construction firms, the barriers and how it impacts the performance of the organization (Setia, 2016). The sample include a 200 respondents from construction firms from the southern sector of Ghana. Purposive sampling technique was used. Structured questionnaire was used to collect the primary data. This is to aid in the descriptive analysis. The descriptive and inferential statistics were run using the SPSS toolkit.

1.7 Scope of the Study

The geographical scope of the study is scoped to the firms situated in the southern part of Ghana, specifically, firms situated in and headquartered in the Greater Accra Region. Also, the researcher focuses only on key management staffs whose engagement on the project is considered crucial to the green procurement.

1.8 Limitations of the Study

The study relies on a single research method which is the quantitative research. This tends to prioritize breadth and generalizability over depth. Large-scale surveys or experiments may gather a vast amount of data but may miss nuanced information or individual experiences. Also, quantitative research relies on accurate measurement of variables. However, a possible measurement errors can occur due to response bias, or inaccurate data recording. These errors can impact the validity and reliability of the findings.

Some phenomena, such as emotions, cultural dynamics, or subjective experiences, are challenging to quantify accurately and this is what will enrich the research findings. But due to time and resource limitations, sticking to quantitative methods may lead to a struggle of capturing the intricacies and subjective nature of these phenomena.

1.9 Organization of the Study

The research is organized under five major chapters. The first chapter discussed the background to the study, statement of the problem, research objectives, research question, and significance of the study, overview of research methodology scope and limitations of the work. Chapter two was made up of review of relevant literature on the subject understudy. The third chapter dealt with the methodology of the study. It includes the research design, population, sample and sampling

procedure, data collection procedure, research instrument and data analysis. Chapter four showed the results of the study from the data collected and the discussions of the findings from the analyses. The fifth chapter captured the summary, findings, conclusions and recommendations of the study.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter is devoted to discussing the green procurement and organizational performance in relation to green procurement. Extensively, the study review the literature of previous studies in relation to the topic of research, the theories underlying the study and the conceptual framework. Also, the empirical findings of the study are discussed under this chapter as well.

2.2 Conceptual Review

2.2.1 Scope and Definition of Green Procurement Practices

In 2002, during the United Nations World Summit on Sustainable Development held in Johannesburg, the notion of sustainable procurement (SP) was initially introduced. However, the idea started in the mid-1990s as green procurement (United Nations, 2016). The first focus of the green procurement movement is to include environmental factors in the criteria for products. The scope of this plan has grown and diversified to include evaluating the societal well-being and establishing fresh economic objectives. The idea of sustainable procurement is about companies being accountable for what they do beyond their own operations (Meehan & Bryde 2011; Association for Project Management 2016). The Chartered Institute of Purchasing and Supply (2011) states that responsible purchasing entails acquiring goods and services in a manner that upholds societal well-being and ethical principles. It also involves reducing the negative effects on the environment when items are produced and delivered, and using methods that make good financial sense within a business. It is commonly believed that sustainable procurement has the potential to reduce expenses and minimize waste. This is done by asking if something really needs to be bought, using less when possible, using less energy and water, encouraging reusing and

recycling, using less packaging, and making transportation more efficient. The UK's approach to sustainable procurement is influenced by the Flexible Framework Model and the BS 8903:2010. These provide principles and a framework for responsible procurement. Additionally, Walker and Brammer (2009) suggest that sustainable procurement aligns with the principles of sustainable development. This means making sure that societies grow in a healthy way while genuinely caring for humans and plants, considering the environment and good management. By implementing sustainable procurement practices, these goals can be effectively accomplished through the purchasing and supply process.

According to Mensah and Ameyaw (2012), traditional procurement focuses on finding the most cost-effective option, whereas sustainable procurement prioritizes achieving the highest value throughout the entire lifespan of a product or service, considering economic, social, and environmental factors. In the context of purchasing, Greener (2008) suggests that sustainable procurement entails the integration of sustainable development principles. This is important because it helps create a livable world where people can have a good life. Based on the research by Berry and McCarthy (2011) and Roos (2012), sustainable procurement has four main goals. These include reducing the negative effects of products on the environment throughout their life cycle by supply chains, using resources efficiently through smart purchasing choices, fair prices and terms in contracts, and promoting equality and diversity in the supply chain while abiding by ethical standards and protecting human rights and employment standards (Berry and McCarthy, 2011; Roos 2012). Experts have found that there are many factors that drive sustainable procurement. These include following the law, using new technology and ideas, having a good structure and way of doing things in the organization, educating and training employees, having support from the government, having a plan that works worldwide, knowing how to do sustainable

procurement, having rules and regulations in place, keeping an eye on progress, responding to what customers want, and having a good reputation. In simpler terms, the important factors for the construction industry are: getting good value for the money, having a good reputation, standing out in the market, being skilled and having a good company culture, managing categories and projects effectively, having good structures and systems in place, and making sure everything is working together well. And these are just a few examples (Walker and Brammer, 2009; Belfitt et al. 2011; United Nations Environmental Programme, 2016; Spiller, Reinecke, Ungerman and Teixeira, 2012).

Few studies have looked at how different countries engage with sustainable procurement. Evaluating the effectiveness of policy initiatives in promoting sustainable public procurement is crucial, as it can yield positive social impacts by influencing private sector organizations through direct measures and altering their practices (McCrudden, 2004; Weiss and Thurbon, 2006).

The construction industry includes organizations and people involved in every step of building and repairing structures like buildings and bridges. It involves strategic planning, implementing alterations, repairing, maintaining, and potentially dismantling. It encompasses a range of businesses and professionals involved in the construction field, such as consultants, manufacturers, distributors, and sellers of construction materials and equipment (Hillebrandt 2000; Construction Industry Development Board 2015). The industry collaborates smoothly with clients, financiers, and other people involved.

Ghana's economy relies heavily on its abundance of natural resources, such as minerals, trees, oil and gas, and farming products. Even though the country's economy has been getting better over the years, this has happened because more greenhouse gases are being released into the environment. In other words, the volume of greenhouse gases being released into the atmosphere

has increased by over two times since the 1990s (Smit & Musango, 2015). The main causes of emissions in Ghana are from the AFOLU sector, which includes agriculture, forestry, and land use (53%). The energy sector is also a significant contributor (25%), with transport being the largest source within this sector (39%). Other sources include burning of different fuels (29%) and electricity generation (19%) (USAID, 2017). This has caused big problems for the country's climate, which in turn has affected important parts of the economy like farming and electricity production. This is because rainfall has become unpredictable and there have been long periods of little to no rain. As a result of climate change, nations in developing areas like Africa are aiming to shift their reliance on high carbon consumption to a more sustainable and environmentally friendly approach. These efforts to reduce carbon emissions include things like using less energy and using renewable energy sources, planting trees, improving public transportation, and better managing waste (Ministry of Environment, Science, Technology and Innovation (MIST), 2016; Würtenberger, Bunzeck & van Tilburg, 2011).

The majority of these initiatives are carried out through a joint effort involving the Ghana government and funding organizations. Ghana didn't really begin to focus on finding ways to grow their economy without causing harm to the environment until the mid-1990s. Nevertheless, the detrimental impacts of climate change on the economy were evident well before that time. Some recent reports and programs in Ghana include the country's communications to the UNFCCC, an environmental and governance program, efforts to decrease deforestation and forest degradation, an investment program for forests, and a project for energy development and access. The main aim was to include environmental factors in development plans, to begin the shift towards sustainable development while considering specific priorities, plans, and strategies for different areas, and with the help of resources from regional and global groups. This means that it is now required to

assess the environmental impact before building public facilities. Steps will be taken to lessen the impact of construction, and audits will be done after construction is finished (NESREA 2017).

2.2.2 Adoption process of sustainable supply chain management

Making sure performance is sustainable means being clearer about supply chain management and business processes while opening up chances to be more competitive (Zimon et al., 2019). Green Procurement means buying items that are good for the environment. It can benefit a company by making them more competitive and saving them money. But there are also risks like losing customers and damaging its reputation (Faisal, 2010). These ways of doing things are likely to work when both people that happen inside and outside of an organization help it carry out plans to be sustainable. The way a company is set up and how well it performs, as well as how much the company wants to improve, the rules it follows, and the way people think within the company, all affect how sustainability plans are carried out. When a company wants to be good for the environment, society, and finances, they look at a few things outside their business (Law and Gunasekaran, 2012). These things include the country's laws, what people think is right, how many other companies are doing it, and what's popular to buy. All of these things can make a company decide to use sustainable strategies.

Several authors have mentioned different stages of Green Procurement Adoption process. However, in common, they have mentioned that each stage of Green Procurement Adoption process involves management decision making which helps organisations to make their supply chains more sustainable (Chaudhary et al., 2019; Reefke, Ahmed and Sundaram, 2014). Discovering the unsustainable areas within a supply chain (Reefke et al., 2014), prioritising the negative impact created on society, environment and economy of the organisation (Federal Ministry for the Environment, Natural Conservation, Building and Nuclear Safety, 2017) and

identifying the need of sustainability integration in to supply chain (Chaudhary et al., 2019) are some of the examples for management decision involves in Green Procurement Adoption process.

2.2.2.1 Seven step Green Procurement Adoption process

In Germany, the Federal Ministry for the Environment, Natural Conservation, Building and Nuclear Safety (2017), introduces seven steps for the Adoption of Green Procurement in a firm with specific emphasis on the green practices. Each of these steps help managers to decide which areas are more important for their organisations in order to make their supply chains more sustainable. The construction firm who have already introduced an Environmental Management System (EMS) also can practice this process in order to implement the management of indirect environmental activities that impacts on the environment.

The first step of the Green Procurement Adoption (figure 2.1), 'mapping the supply chain' helps organisations to gain an understanding about their suppliers and sub-suppliers who create value for the supply chains and the suppliers' and sub-suppliers' activities that lead to creating positive or negative impacts on people, environment and organisations. As an example suppliers' and sub-suppliers' supply chain activities might lead to natural disasters that create negative impacts on environment, people and organisations themselves by damaging their reputation. Therefore it is necessary to illustrate the supply chains of organisations (Federal Ministry for the Environment, Natural Conservation, Building and Nuclear Safety, 2017). Moreover, the analysis of the whole supply chain is crucial to evident the sustainability issues (Silvestre, 2015).



Figure 2.1. Seven process steps of sustainability Adoption

Source: (FMENCBNS, 2017)

The second step of Green Procurement Adoption (figure 2.1) has three aims namely identifying sustainability aspects and impacts of organisation activities, assessing and prioritising sustainability risks of negative impacts and finally determining sustainability topics and action areas in order to implement Green Procurement by utilising organisations' own financial and human resources. This second process step helps organisations to prepare a materiality analysis, in other words an overview of the connection between sustainability aspects and negative impacts of those aspects or activities on environment, people and on organisations (FMENCBNS, 2017). As an example, Inyim, Rivera and Zhu (2015) mention fuel consumption rate, eutrophication potential etc as the components that assess the impact of construction industry while prioritising the global warming potential as the main focus of environmental impacts. These environmental impacts can affect negatively on organisations such as increased reputation risk (Gatzert, Schmit

and Kolb, 2014). Accordingly, the construction organisations take action to implement Green Procurement in order to avoid these negative effects (Brooks & Rich, 2016).

The third process step in figure 2.1, 'analysing gaps and deriving measures' is an action that Construction Firms take when implementing Green Procurement. It aims at 'gap analyses through comparing existing organisational objectives, measures and processes that is useful in the sustainable supply chain management framework and 'deriving measures' in order to improve sustainability performance in organisations' supply chains. The results gained from the materiality analysis in the previous process step should be used as the foundation for the gap analysis. At this step organisations have to develop mission statements by outlining the importance of sustainability aspects in supply chains. The mission statements indicate an organisation's key objectives while distinguishing themselves from their competitors (Galpin, Whittington & Bell, 2015).

'Adapting internal structures and processes' is the next process step of Green Procurement Adoption. It aims at setting up or adjusting new and existing organisational business processes based on the materiality analysis results. Organisations should gradually integrate Green Procurement requirements into the existing organisational business processes and structures in order to achieve effective Green Procurement Adoption. According to Young et al. (2015), the existing business processes and structures are the organisational factors that guide the performance and activities of an organisation and its employees'. For example, the employees of an organisation might have set environmental behaviours that are influenced with the existing business processes and structures. The environmental behaviours of the organisation and employees can be changed by adjusting the existing business processes and structures although it is complex to change set behaviours. Identifying the members who is willing to adapt makes the changes efficient and effective (Ogunsanya et al., 2022).

Accordingly, the fifth Green Procurement Adoption process step, ‘formulating supplier requirements and making them binding’ is helpful to identify the supply chain members who are willing to change. During this step, organisations discuss the requirements of the direct suppliers and ask for a self-assessment of their Green Procurement Adoption capabilities (Galeazzo et al., 2021; Yang et al., 2019). The results of the self-assessments lead to conventional supplier evaluation and helps organisations to decide on the suppliers that they can establish or continue business relationships. Then ‘a supplier code of conduct’ is integrated into the supplier contract by binding it for the direct suppliers and if applicable for the sub-suppliers as well. The supplier code of conduct is a document that formulates all the requirements for the direct suppliers and where applicable for the sub-suppliers (Yang et al., 2019).

‘Evaluating the sustainability performance of suppliers and building competences’ is the next process step that aims at evaluating the suppliers in order to ensure compliance with the code of conduct, developing suppliers’ capabilities in order to develop the supply chain and finally aims at integrating supplement criteria for new suppliers selection and existing suppliers confirmation. When evaluating the suppliers, the organisations should use the supplier self-assessment results to find out how they deal with risks associated with upstream processes. The supplier evaluation should go beyond the supplier self-assessment if there is any increased risk of contract violation. At this point organisations should conduct audits with the help of qualified auditors. Developing suppliers’ capabilities through forming a concrete action plan with the suppliers is the next step when the results of the supplier self-assessment and audit disclose any suppliers’ potentials for increased risk or violation of the contract. The results of materiality analysis and supplier self-assessment should be used when integrating supplement criteria for new suppliers’ selection

and existing suppliers' confirmation. It helps organisations to assume the existing processes and instruments and supplement them with sustainability criteria.

During the last process step in figure 2.1, Federal Ministry for the Environment, Natural Conservation, Building and Nuclear Safety (2017) mention that the organisations should report information on sustainability supply chain management activities. Disclosure of sustainability impacts, details on risk and materiality analysis processes, details on value chain evaluation, information on the measures Adoption including code of conduct and reference of audits are the important aspects that stakeholders expect from organisational reports in order to maintain an in-depth understanding about the organisational activities.

2.2.2.2 Green Procurement Adoption decision making cycle

According to Reefke et al. (2014), Adoption of green procurement involves decision making at all levels from the strategic decision making to operational decision making. Organising all these decisions in a proper manner helps organisations to develop more sustainable supply chains. Figure 2.2 illustrates cyclically organised decisions that integrate with the Adoption of green procurement.

As a beginning for the Adoption of green procurement, organisations have to discover the unsustainable areas of their supply chains. Thereafter, social, environmental and economic practices within the discovered unsustainable areas are studied in the learning stage. The learning stage helps organisations to identify the sustainable practices that lead them to make win-win decisions relating to green procurement (Reefke et al., 2014). According to Beske and Seuring (2014), dedication to the triple bottom line is a sustainable practice that helps organisations to achieve win-win-win situations. The dedication to the triple bottom line includes decisions that

evaluate strategies of green procurement. Further, Ahmed and Sundaram (2012) mention that the discovery and learning help decision makers to be able to visualise how sustainability can be achieved.

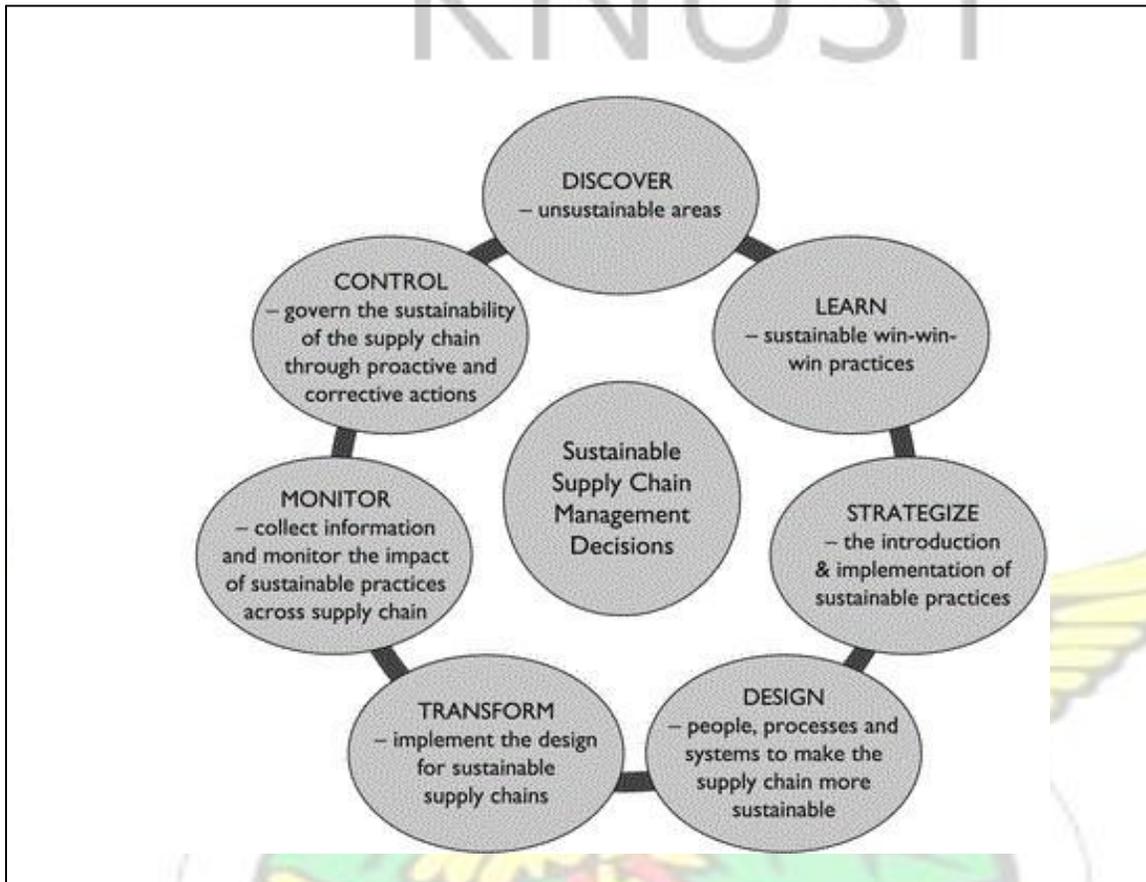


Figure 2.2: Green Procurement decision making cycle 21

Source: Reefke et al. (2014)

The organisations can use the visualisation and the decisions made in the discovery and learning to formulate strategies and decide the most suitable strategy to introduce and implement more sustainable supply chains (Reefke et al., 2014; Ahmed and Sundaram, 2012). When formulating a strategy, an organisation should pay attention on necessary social capital and human capital in order to maintain a good communication between the executives, employees and suppliers (Xie, Lu & Guo, 2017). According to Beske and Seuring (2014), enhanced communication between all

the members of the supply chain helps to increase the performance of overall chain and to improve collaborative business relationships in order to achieve sustainability performance.

Then, the organisations can make decisions regarding the design of systems, processes and people that are helpful to implement the formulated strategies (Reefke et al., 2014). The Adoption of the design is called transformation. The impact of this transformation on green procurement needs to be monitored in terms of key and cross performance indicators. Examining an organisation's social performance through health risk indicators, environmental performance through consumption of natural resources and examining economic performance through profits (Xie et al., 2017) are some examples of the performance indicators that help an organisation to monitor the impact of formulated strategy Adoption on green procurement. This transformation is a continuous process that helps organisations to implement green procurement (Ahmed & Sundaram, 2012).

The decisions made in the monitoring, lead organisations to control or in other words manage the sustainable supply chains through proactive actions and corrective actions for under-performing or non-performing areas (Reefke et al., 2014). This monitoring and controlling helps decision makers to reformulate the strategies, redesign and continue the transformation process (Ahmed and Sundaram, 2012).

2.2.2.3 Environmental management system (EMS)

According to Nicolson (2016), the activities of any organisation with a supply chain require raw materials as inputs that produce services as outputs. The actions involved in the process of producing services have impacts on the environment which needs to be managed. The organisations practice the EMS as a model to minimise the impacts such as air pollution, reduction of natural resources, water contamination etc. Environmental legislations, supply chain pressure

and investor pressure leads the organisations to implement EMS. The EMS facilitates the Adoption of environmental sustainability practices (Kim and Chai, 2017; Darnall, Jolley and Handfield, 2008). The EMS is therefore needed to be implemented by Construction Firms on ‘plan, do, check, act’ model in order to identify, control and monitor the environmental concerns systematically (Stapleton, Glover and Davis, 2001).

As the first step, the top management of a Construction Firm needs to establish an environmental policy (Stapleton et al., 2001). The established environmental policy needs to present the organisation’s commitment and vision towards the environment protection, needs to establish a framework for setting and reviewing environmental objectives, needs to be understood by the staff and needs to be signed by the top management (The Business Environment Council and Environmental Protection Department, 2005). The second step is the planning stage which helps Construction Firms to establish objectives and processes that are necessary to achieve the established environmental policy. It includes the identification of environmental attributes of activities of an organisation, identification and conformation of laws and regulations, establishment of environmental objectives for the organisation and planning the actions to achieve these environmental objectives.

The third step is the Adoption of the actions and processes that are already planned. This step includes resource allocation, responsibility allocation, providing training and awareness about the environmental responsibilities, internal and external environmental issues communication, and documentation of EMS and identification of emergencies and responses for them.

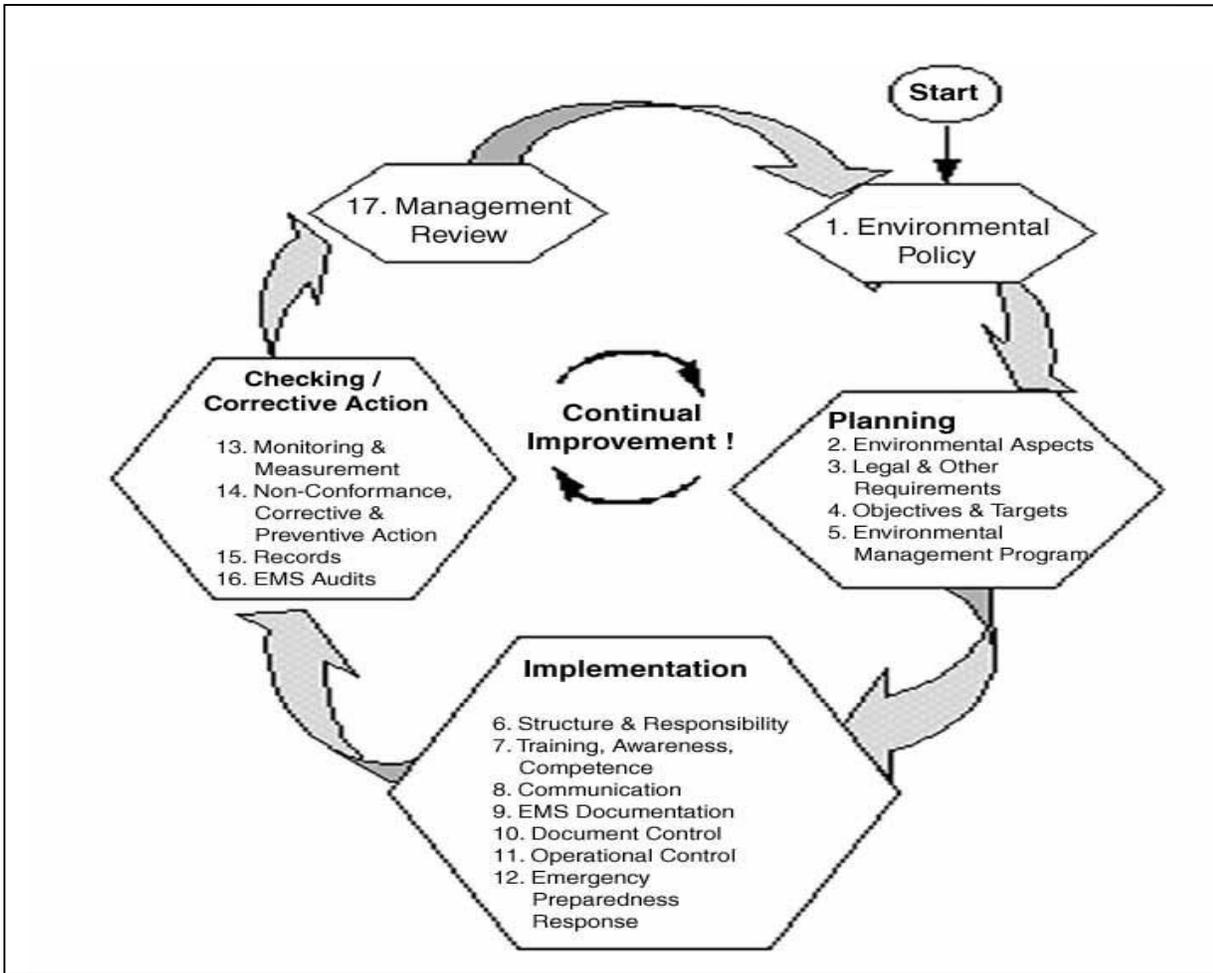


Figure 2.3: Environmental management system model

Source: (Stapleton et al., 2001)

The next step is checking the effectiveness of the environmental policy, objectives and legal requirements (The Business Environment Council and Environmental Protection Department, 2005). Conducting audits on EMS helps to verify whether it is operating as planned (Stapleton et al., 2011). As the final stage, conducting management reviews also helps to improve the EMS continuously.

2.2.3 Drivers and Barrier to Green Procurement Adoption

According to Narimissa et al. (2020), identification of external and internal drivers and barriers is important to measure organisations' potential threats and opportunities in implementing green procurement. It develops predictions about potential green procurement adoption issues and to avoid adoption failures. The subsequent subsections will be devoted to discussing these drivers and barriers.

2.2.3.1 Drivers to Green Procurement Practices

Green drivers, or motives behind eco-friendly behaviors, can stem from external sources or internal sources. Previous research has shown that this grouping is significant because it helps companies use eco-friendly tactics more effectively (Walker et al., 2008; Walker and Jones, 2012; Brik et al., 2013). Environmental sustainability practices are driven by government regulations, pressure from supply chain stakeholders, competition, and customer demand, according to findings from previous research. The reasons mentioned here align with the general sustainability/green ideas found in literature.

Rules set by the government to protect the environment have been found to play a big role in encouraging environmentally-friendly practices in the construction industry. Earlier studies in construction and other industries have found that government regulation is a significant factor in promoting environmentally friendly practices (Adetunji et al., 2008; Qi et al., 2010). This was not unexpected because when the government makes rules, companies have to follow them or they can't stay in business (Zhu and Sarkis, 2006; Brik et al., 2013). Tam et al. (2006) likewise Qi et al. (2010) showed that when contractors were fined for harming the environment, they started to have more respect for it. Their level of awareness regarding the significance of adopting eco-friendly

practices increased after being responsible for accidents like the release of harmful substances or the destruction of underground pipes, which affected the local flora and fauna.

In the construction industry in China, developers and clients were pressured by stakeholders to implement environmentally friendly practices, as discovered by Qi et al. (2010). Robin and Poon (2019) pointed out that in the construction industry in Hong Kong, there are similar pressures from higher-ranked developers on the suppliers. Stakeholder pressure means when one stakeholder in a supply chain is forced or influenced by another stakeholder (Drohomeretski et al., 2014). Developers were found to be the primary cause of this pressure because they are typically in charge of coming up with ideas and starting new construction projects. Yu et al. (2014) found that when stakeholders put pressure on a company, it strongly encouraged them to adopt environmentally friendly practices. Certain individuals, particularly those in positions of authority within the supply chain, exert influence on others in order to encourage the adoption of eco-friendly practices (Zhu et al., 2017).

Moreover, the pressure from competitors was also discovered to motivate everyone involved to adopt environmentally friendly practices (Balasubramanian & Shukla, 2017). Not much has been said regarding this factor in the construction industry. Developers, Architects/Consultant, and Contractors all agree that they must adopt green practices to remain competitive in the market. If they don't, they could lose customers to their competitors (Balasubramanian & Shukla, 2017; Saeed & Kersten, 2019; Silvestre, 2016).

The only people who have direct contact with the buyer or end-customer are the Developers. This means that only construction companies feel pressure from buyers or consumers to use environmentally friendly practices, not other people involved in the supply chain (Oelze, 2017). However, this pressure did not significantly affect the implementation of green practices compared

to other pressures (Balasubramanian & Shukla, 2017). Researchers have found that many investors and buyers are not aware of the importance of environmentally-friendly buildings. They don't fully understand the cost-saving and health benefits of going green (Saeed and Kersten, 2019; Brandenburg and Rebs, 2015; Schrettle et al., 2014). Evaluating the degree of adherence to accepted norms provides insight into the pressure imposed by consumers on companies. According to this idea, businesses have to deal with pressure from people outside of the company who care about it, like customers and non-governmental organizations (Hsu et al., 2013). Nonetheless, the findings of this study contrast significantly with those discovered in a different area of research. In that field, they discovered that the pressure to follow certain guidelines was a big influence on how environmentally-friendly manufacturers were (Zhu et al., 2013; Hsu et al., 2013).

From the point of view of the people who work for the company, they found that firms who are committed to helping the environment, as well as companies who want to improve their reputation and save money, are some of the reasons why companies do certain things. This is mostly in line with the GSCM literature, which says that companies use green practices because they care about the environment and want to get business advantages (Seuring and Muller, 2008; Walker and Jones, 2012).

In the construction industry, some studies have found that being committed to the environment is important. However, not many studies have looked at how wanting to benefit a business can also drive green practices. So, if we understand the reasons why companies want to be environmentally friendly (to make their brand look good and save money, and to expand into other countries), it will help us learn more about how construction companies manage their supply chains.

The reason why companies choose to use green procurement, which was learned from previous studies by Saeed and Kersten (2017), Ahmed (2019), Oelze (2017), and Sajjad et al (2015), is

because it aligns with their overall business strategy. Corporate strategies are plans that businesses use to achieve their goals. These strategies can also influence organizations to adopt green procurement, which means buying products or services that are environmentally friendly. This is because the organization's goals and objectives lead them to make more sustainable purchasing choices (Hsu, Tan and Zailani, 2016). The corporate strategy is a decision made by managers that has a big impact on choosing environmentally friendly ways of getting supplies, with the goal of being better than competitors. The top bosses in a company make important decisions about what actions to take (Kausar, Garg and Luthra, 2017). Therefore, the use of environmentally friendly purchasing depends on the dedication of the highest level of management. Due to the wishes of the people using the service and the expectations of those involved in the company, the leaders of the company have to promise to use environmentally-friendly methods of purchasing (Walker and Jones, 2012). It becomes more convenient to adopt eco-friendly purchasing practices when an organization has sufficient resources and personnel (Saeed and Kersten, 2019; Schrettle et al., 2014).

Some research has found that companies that care a lot about the environment are more likely to take action to be more environmentally friendly in the construction industry and other industries (Ofori, 2000; Qi et al., 2010; Zhang et al., 2011) and other sectors (Zhu and Sarkis, 2006). Being committed to protecting the environment is really important and it motivates everyone involved to adopt sustainable practices (Hsu et al., 2013). It was clear that companies wanted to show their dedication to the environment by going beyond the required green building rules. They did this by trying to get certified. Companies have a choice to make a promise to society to protect the environment. This is seen as a logical desire to adopt environmentally friendly practices that align with the values and responsibilities of the society they operate in (Hsu et al., 2013).

Companies may not only implement environmentally friendly practices because they care about the environment, but also because they want to gain business advantages. One of the reasons why businesses want to use green practices is because they want to improve their reputation and how people see their brand (Meqdadi, et al. 2019). For construction companies, improving their reputation and brand image by using environmentally friendly practices was seen as a way to attract investors from other countries, attract buyers from other countries, and get higher prices for their products (Alzawawi, 2014).

Investing in green buildings can be seen as a transaction for developers, where they can benefit from lower utility bills and maintenance costs (Thouin et al., 2010). For Contractors and Suppliers, buying green equipment or technology for construction or manufacturing can be seen as a transaction within their own companies. This investment can lead to cost savings by reducing the time spent on labor, minimizing waste, recycling materials, and using less water and energy. These savings are considered benefits of the transaction (Besanko et al., 2013).

Moreover, globalization is found to be one of the main reasons why green procurement is being widely implemented. According to Balasubramanian and Shukla (2017), construction companies, especially big ones, are trying to sell their products in other countries like the US and UK. To meet the rules of those countries, they are using eco-friendly practices. The rules about being environmentally friendly in countries like the US and Europe are stricter than in countries that are still growing, like India and China (Balasubramanian & Shukla, 2017).

2.2.3.2 Barrier to Green Procurement Practices

Brammer and Walker (2011) found that there are different obstacles to sustainable procurement. These include problems related to finances, lack of information, legal issues, management and

structure, and politics or culture. Another barrier is when product quality is given more importance than sustainability. These encompass issues concerning monetary matters, a dearth of knowledge, legal disputes, organizational and hierarchical aspects, and socio-political dynamics. The primary concern lies in the resistance exhibited towards change within the company. Inertia happens when a regular routine becomes a normal part of an organization. Firms want to be dependable, so they make their processes normal and predictable. So, making changes becomes harder because it will disrupt the normal way of doing things. Another problem is the conflict of incentives. The people responsible for purchasing items might feel pressured to make choices that don't match with the plan for buying things in a sustainable way. This might suggest that the staff feels torn between the pressure they are facing and the desire to stick to the traditional way of doing things. The third hindrance concerns something that holds little importance or necessity. Many companies write about using sustainable buying plans in their yearly reports. It would be cool to know how much these plans actually affect the company's buying choices. Another obstacle is that the people who will gain from using sustainable procurement in construction projects are not the ones paying for it. When the cost of taking care of something is thought about, it might seem a little crazy to the person who builds it, unless they use certain models where they get to operate it themselves or transfer it to someone else. There are individuals who argue that it is unjust to expect the initial residents of a building to bear the financial burden of future expenses that will only arise after they have vacated the premises (Belfitt et al., 2011).

The Sustainable Development Commission in 2004 said there are several reasons why sustainable procurement is difficult. A notion exists among certain people that it entails a higher expense. A considerable number of people are unaware of the importance of sustainable procurement or the proper approach to undertaking it. Some people are afraid of taking risks. There are also rules and

problems with leadership that make it hard. Similarly, Meehan and Bryde (2011) suggest that a big obstacle to using sustainable practices in procurement is not communicating effectively with suppliers. Another challenge is that some supply chains operate in multiple countries, while the laws concerning sustainability or sustainable procurement are created at the national or local level. This division is difficult.

Mensah and Ameyaw (2012) say that in order to achieve sustainable procurement in a developing country like Ghana, certain obstacles must be overcome. The absence of adequate internal management systems undermines the widespread adoption of sustainable procurement practices. Major stakeholders not prioritizing social and environmental factors. Limited knowledge and skills in sustainable procurement among staff. Ineffective communication and engagement with stakeholders. Green products being too expensive initially. There is lack of awareness and education among stakeholders and Government not showing interest in promoting sustainable procurement. Also, no strong commitment from political leaders; hence, there is corruption among procurement professionals. Lastly, Small-scale suppliers and contractors not being equipped to meet sustainable requirements (Mensah and Ameyaw, 2012, p. 874). A lack of comprehension and the higher initial expense are identified as the primary challenges hindering sustainable procurements in Ghana, according to the study. Roos (2012) discovered several problems in another developing country's situation. These problems include laws that don't support sustainable public procurement (SPP), donor guidelines that don't support SPP, insufficient knowledge and resources, lack of helpful materials and tools, complicated processes, the expectation of higher costs, and inflexible budgeting methods. In Malaysia, a study by McMurray, Islam, Siwar, and Fien (2013) discovered that religion has a big impact on the choices made by people in charge of buying things for companies and government organizations. These are the main reasons why

sustainable procurement practices differ between public and private organizations: many people don't know about them, there aren't enough resources or money to support them, organizations don't plan for the future when making procurement decisions, there isn't enough guidance on how to do it, and there isn't enough support from politicians. But Ruparathna and Hewage (2015) found in a study conducted in Canada that the main issue with sustainable procurement was that sustainability criteria were not taken into account when evaluating bids. Some reasons include not having established ways to buy things and not knowing about the local environment. The United Nations (2016) says that there are different obstacles to sustainable purchases. These obstacles include people's habits and the challenge of changing their purchasing behavior. There is also a lack of suppliers who offer sustainable products, services, or assets. It is also difficult to compare costs and determine value for money. Additionally, it is challenging to consider factors other than the environment. Finally, some people think that the process of sustainable purchases is more expensive or takes too much time. Even though it is beneficial for a company to use sustainable procurement practices, they have not been widely implemented.

2.2.3 Green Procurement Practices and performance

Green procurement means working together with suppliers to make products and services that are good for the environment (Zhu, Sarkis, & Lai, 2008). Suppliers play a big role in determining how much products and services cost, how good they are, and how much profit the buyer can make from selling them to customers. Although it is widely believed that green procurement is important for supporting companies' sustainable programs, this belief is mainly based on stories and data collected at one point in time (Sigala, 2008; Xu & Gursoy, 2015). Green procurement is when the procurement department takes steps to help the environment. The procurement department helps connect different parts of the company with outside suppliers. More specifically, it helps other

departments like marketing and sales to meet the needs and desires of customers by providing the necessary services and products. In addition, it helps the company to build trust and rely on other organizations in order to have more resources and skills that will enhance the relationship with suppliers (Shi & Liao, 2013). When companies make suppliers follow environmental rules, it can save them money and help them sell more, which can have a positive impact on their finances. Green procurement is expected to save money in the supply chain. Hotels that care about the environment are more likely to use less materials, energy, and resources (Rodríguez & Cruz, 2007; Kularatne, Wilson, Månsson, Hoang, & Lee, 2019). Moreover, green procurement enhances dependability (Pagell, Krumwiede, & Sheu, 2007) and efficiency (Perramon, Alonso-Almeida, Llach, & Bagur-Femenías, 2014). For instance, Pagell and colleagues (2007) discovered that companies that use environmentally-friendly methods in their purchasing department help create more connected supply chains. The improved connection between suppliers and the buying firm helps suppliers meet the firm's expectations, which then improves dependability and financial performance (Carter & Jennings, 2002; Vachon & Klassen, 2008). However, green procurement is expected to have a positive impact on sales. It can help businesses by giving them new abilities and improving their resources, which can then make them more competitive (Dyer & Hatch, 2006). According to studies, the procurement department holds significant importance in fostering teamwork throughout the supply chain (Gold, Seuring, & Beske, 2010; Vachon & Klassen, 2008). It encourages suppliers and customers to share knowledge with each other, which helps the organization learn and grow. This helps the company grow and become better (Argote, McEvily, & Reagans, 2003).

For instance, when customers push their suppliers to follow new environmental buying rules, it makes the suppliers improve their abilities to create new and better products and services. This leads to higher quality and makes the customers happier. This is important in the construction industry because they usually get new ideas from outside suppliers instead of creating them themselves (Orfila-Sintes, Crespí-Cladera, & Martínez-Ros, 2005). In the study conducted by Hu, Horng, & Sun (2009), it was found that implementing environmentally-friendly practices in construction companies can result in cost savings and improved customer satisfaction, ultimately leading to financial success for the business. (Hu, Horng, & Sun, 2009). So basically, when construction companies take actions to help the environment, it can save them money and make their customers happier, which can help their business do well financially. It is commonly believed that companies incur higher production expenses and experience decreased profitability when participating in green supply chain programs. However, experts have disagreed with this idea. (Carter et al., 2000; Chouinard et al., 2011). Many writers have tried to figure out types of how well a company does as a result of buying green products. Experts say that when companies take care of the environment, it helps them make more money. Carter et al. (2000) examined how buying environmentally friendly products affects how well a company does. The study found that there is a strong connection between buying environmentally friendly products and how well a company does. Melnyk et al. (2003) research showed that companies with official environmental management systems (specifically, ISO 14000 certified) have a positive connection with various aspects of how well they operate. Zhu and Sarkis (2004) discovered that using GP practices helps with both protecting the environment and making more money. Zhu and the other authors. In 2010, performance was divided into three types: environmental, financial, and operational. They found that buying "green" can help companies make more money. Hojmosse and Adrien-Kirby (2012)

examined research articles from 2000 to 2010 about socially and environmentally responsible procurement (SERP). They found four main topics: external factors, internal factors, SERP, and how it affects a company's success. It was observed that the order in which things occur carries significance. For example, drivers affect the way search engine results show up, which then affects how well a company does. The study by Chan et al (2012) supported the idea that engaging in green supply chain management activities, particularly making green purchases, has a positive and significant impact on a company's performance. Another research looked at how buying environmentally friendly products affects four different things; thus, how well a company operates, how much money they make, the environment, and how society benefits (Zailani et al., 2012). In Malaysia, 105 manufacturing companies took part in the study (Zailani et al., 2012). The authors discovered that buying environmentally friendly products had good and important connections with how well the companies worked, made money, and treated people (Yook et al., 2017). However, there was no connection with how well they took care of the environment. Yook et al. (2017), researchers studied 239 Japanese companies and discovered that their ability to make environmentally-friendly purchases, both in a flexible and efficient manner, had a positive impact on their environmental and economic performance. Research conducted by Vijayvargy et al. (2017) discovered that when Indian companies make environmentally friendly purchases, it enhances their operational performance. The latest study by Al-Ghwayeen and Abdallah (2018) found that buying environmentally-friendly products has a positive and significant impact on the environment and the ability to sell products overseas for 221 companies. Another recent study found that using environmental management practices improves how well a company operates and how it affects the environment (Famiyeh et al., 2018).

2.3 Theoretical Review

2.3.1 Resource Based View (RBV)

RBV views companies as a group of tools and abilities that help them compete and carry out particular plans (Hart, 1997; Assumpção, et al., 2019). When resources are valuable, rare, cannot be copied, and have no substitutes, they can help companies stand out and maintain a competitive advantage for a long time. Hart (1997) argues that taking care of the environment in a company is important and can help the company perform better. This is supported by other researchers (Vachon & Klassen, 2006; Hart, 1997). To achieve this, the company should use new environmental technologies, keep learning about how to be environmentally friendly, and involve the people who are affected by their actions (Sarkis et al., 2011).

Touboulic and Walker (2015) mention an organization's green procurement originates with its rare, valuable, non-substitutable and unique resources. Moreover, the organization's inimitable way of utilizing those resources leads the organization to adopt green procurement practices. The theory suggests how an organization gain competitive advantage focusing on sustainability based actions in supply chain. Shubin et al. (2017) agrees this idea and mentions that the resource based theory provides an explanation of organizational resources and their capability to gain competitive advantage. It also explains the economic and resource capability building of an organization. Comprehensive literature review on theories relating to green procurement was conducted in order to achieve the objective of the current research study. The problem with RBV is its focus on competition and in companies building and defending their own resources, while green procurement is characterized by cooperation and strategic sharing of resources.

When considering the influence of green procurement practices on organizational performance in the Ghanaian construction industry, the resource-based view can provide insights into how certain

resources related to green procurement practices may contribute to competitive advantage and improved organizational performance (Yunus & Michalisin, 2016). Companies adopting green procurement practices are likely to gain access to unique and environmentally friendly construction materials (Khanra et al., 2022). These could be tangible resources that enhance the quality and sustainability of their construction projects. Utilizing energy-efficient machinery and equipment in construction can be considered a tangible resource. This may contribute to cost savings and environmental sustainability, impacting organizational performance (Alexy et al., 2018).

Organizations engaging in green procurement practices may develop intangible resources such as a positive reputation for environmental responsibility (Assumpção, et al., 2019). This reputation can be a source of competitive advantage, influencing clients' decisions and attracting environmentally conscious stakeholders (Boyd et al., 2010). If employees are trained in sustainable construction practices, this human capital becomes an intangible resource (Malik et al., 2020). Skilled and knowledgeable employees can contribute to the effective implementation of green procurement practices, positively impacting organizational performance (El-Kassar & Singh, 2019; Renwick, Redman & Maguire, 2013). Developing the capability to manage a green supply chain efficiently can be a source of competitive advantage. This capability may involve identifying environmentally friendly suppliers, ensuring compliance with green standards, and managing relationships with stakeholders in the green procurement process (Blome, Hollos & Paulraj, 2014). The capability to continually innovate in terms of environmentally friendly construction methods or materials can be a critical resource (Kuo, Fang, & LePage, 2022). This aligns with the RBV principle of the need for resources that are difficult to imitate. The RBV suggests that organizations should leverage their unique resources and capabilities to gain a competitive advantage. In the

context of green procurement practices, companies in the Ghanaian construction industry may need to strategically position themselves as leaders in sustainable construction, emphasizing the value of their environmentally friendly resources.

In summary, the resource-based view provides a theoretical framework for understanding how specific resources and capabilities related to green procurement practices can influence organizational performance in the Ghanaian construction industry. It encourages organizations to identify, develop, and leverage resources that are valuable, rare, difficult to imitate, and non-substitutable in the context of sustainable and green practices.

2.4 Empirical Review

Several studies have examined green procurement and effect on financial performance (e.g. Zhu, Sarkis, and Lai 2012). Few of such studies are reviewed below;

2.4.1 Drivers and Barriers to Green Procurement Practices

Ghosh (2019) conducted a study to find out why companies choose to use environmentally friendly practices when purchasing goods and how it affects their success. The study used information from previous research on eco-friendly supply chains and created an online survey for Indian manufacturing companies to answer. The collected responses were examined using a method called multivariate analysis. The findings show that when a company cares about the environment inside its organization, works closely with its suppliers, responds to customer and competitive demands, and receives support from managers, it has a positive impact on its overall performance.

Ogunsanya et al. (2022), did a study to find out the things that make it difficult for the Nigerian construction industry to buy materials in a sustainable way. Ogunsanya et al. (2022) found that there is not much research on how sustainable procurement is used in construction projects. The

few studies that have been done are mostly in developed countries. We are curious about how developing countries are improving and making smart decisions with their purchases. The construction industry helps with sustainable development by the way it buys things. Previous research indicates that Nigeria is adopting sustainable procurement practices, but the progress is happening slowly. So, this study aims to understand the reasons that stop sustainable purchasing for construction projects in Nigeria, which are paid for with public funds. We conducted a survey to understand what professionals in the construction industry in Nigeria think about the obstacles to sustainable procurement. 320 questionnaires were given back and used for studying. Out of the nineteen things studied, factor analysis shows that there are four groups of factors that are important: how much people know about sustainability, how transparent and well-governed something is, when a strategy for buying things doesn't match up with government policies, and factors related to the construction industry.

Kannan (2021) also studied sustainable procurement factors in Danish supply chains. This study aims to analyze the reasons why sustainable procurement is important in a global context. The focus is on how it can contribute to sustainable development goals. The study specifically looks at the drivers of sustainable procurement in Denmark, considering the various levels of the supply chain. After that, the study creates a plan to examine the things that cause SP in a complex supply chain system. This includes looking at both the suppliers that come directly before and after the company, as well as the customers. The study will use different theories like extended multi-tier, triple bottom line, dynamic capability, institutional theory, and decision theory. To start with, the important SP drivers are divided into categories based on the TBL, dynamic capability, and institutional theory. There are 7 main driver categories and 24 sub-driver categories. Then, we used the Best Worst Method (BWM) to prioritize SP drivers and compared them across the

extended multi-tier context. The findings reveal that the main concerns of the sub-drivers are "personal values," "support from top management," and "government laws and regulations," in that order, for the company in focus. Comparing the data shows that the sub-category "government regulation and legislation" is seen as important for all the SC entities. However, there is no required government regulation at present to put SP into action in the private sector. However, the focal company and its 2nd tier suppliers have not given much importance to the pressure or demand from customers for sustainable products. This has not been seen as relevant by the 1st tier supplier and direct customers.

Lam et al. in 2010, conducted a study to learn about the things that affect how green specifications are used in construction. Based on a lot of research about construction management, they found 20 different things about sustainable construction. Their study found that five things can affect green specification: green technology and techniques, reliability and quality of the specification, leadership and responsibility, stakeholder involvement, and guide and benchmarking systems.

In Ghana, there is a growing need for public clients to focus on sustainability when it comes to construction projects. Sourani and Sohail (2011) conducted a study to identify the challenges that exist in the construction procurement strategies used by the government. The study discovered that there are several reasons why people do not buy green products. Some of these reasons include not having enough money to buy them, the initial cost being too expensive, not knowing enough about green products, not having sufficient information, not having reliable suppliers or partners, and not receiving any support or benefits from the government.

2.4.2 Impact of Green Procurement Practices on Performance

The Ghosh (2019) study looked at why companies use green procurement and how it affects their performance. They wanted to see what factors influence companies to use green procurement and how it affects different aspects of their performance. The researchers made a survey based on previous information about green supply chain practices. They used an online questionnaire for the survey. The survey was sent to many Indian manufacturing companies. The answers that could be used were studied using a method called multivariate analysis. The second discovery was that when general practitioners (GPs) start using a certain thing, it has a positive impact on various aspects of how well a business is doing.

Galeazzo, Ortiz-de-Mandojana, and Delgado-Ceballos (2021) looked at how buying eco-friendly products and services affects the financial success of the tourism industry. They also considered how tourists' choices to buy green things can influence this relationship. This article looks at how using environmentally-friendly purchasing policies in the supply chain can affect a company's financial performance. Furthermore, the researchers studied how tourists' choices to buy environmentally friendly products are influenced by their long-term goals, concerns about the environmental impact, and judgments about the quality of these products. This research looks at the tourism industry and has information from 122 companies over seven years. There are 479 different observations, but they are not evenly spread out. Galeazzo et al (2021) used a statistical method called random-effects generalized least squares regressions to examine the suggested relationships. The purchase of green products was not found to be associated with increased financial gains. However, they discovered that the positive connection is true only when they take into account how tourists' green buying choices influence the relationship.

Acquah et al. (2021), studied how pressures to "go green" affect a business's decision to adopt environmentally friendly practices. They also looked at how this adoption impacted the legitimacy and financial performance of the organization. The analysis of the results showed that the combination of different pressures (coercion, imitation, and social norms) strongly affected the choice to use environmentally friendly procurement methods and create green products and processes. At the same time, when organizations focus on buying environmentally friendly products and making their operations more sustainable, it greatly improves their reputation. Green procurement and green product innovation had a big effect on making money, while green process innovation had a small but positive effect on making money.

2.5 Conceptual Framework

This section reviews the underlying relationship between green procurement practices among construction firms in the southern part of Ghana and its resultant effect on organizational performance. The conceptual framework includes a diagram (see Figure 2.4 below), prior study findings establishing the effect of green procurement on performance and the theoretical framework establishing the latent relationship.

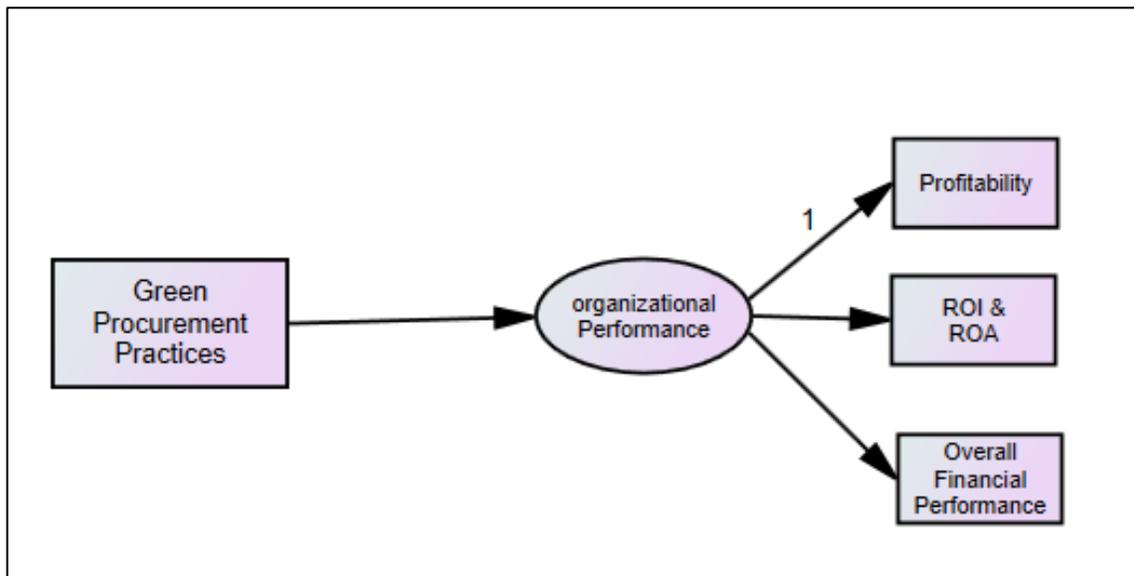


Figure 2.4. Conceptual Framework Diagram (Author’s own Construct)

The Resource-Based View (RBV) provides a comprehensive framework for understanding the relationship between green procurement practices and the financial performance of construction firms. Within this theoretical perspective, the focus is on how a firm's unique resources and capabilities, particularly those associated with green procurement, can contribute to a competitive advantage and, consequently, improved financial outcomes. One key aspect of the RBV is the identification of valuable resources that contribute to a firm's competitive advantage (Sarkis et al., 2011). In the context of green procurement practices in the construction industry, tangible resources such as access to environmentally friendly construction materials and energy-efficient equipment can play a crucial role. These resources, when effectively utilized, have the potential to enhance the quality and sustainability of construction projects, leading to cost savings and improved financial performance (Shibin et al., 2017).

Moreover, the RBV emphasizes the rarity and uniqueness of resources. Firms engaging in green procurement practices may obtain a competitive advantage by acquiring resources that are not readily available to their competitors (Yunus & Michalisin, 2016). For instance, having employees with specialized expertise in sustainable construction practices or establishing a robust green supply chain management system can be considered rare resources. These unique capabilities

contribute to differentiation and may positively impact the financial performance of construction firms. The difficulty of imitation is another key aspect of the RBV (Khanra et al., 2022). Sustainable competitive advantage is more likely to be sustained when a firm possesses resources that are challenging for competitors to replicate. In the context of green procurement, this could involve innovative processes or technologies that support eco-friendly construction (El-Kassar & Singh, 2019). Construction firms that continually invest in and develop such capabilities create barriers for competitors, further solidifying their position and potentially leading to enhanced financial performance. Furthermore, the non-substitutability principle of the RBV underscores the idea that certain resources cannot be easily replaced by alternatives. In the case of green procurement practices, a positive environmental reputation and certification may be non-substitutable resources (Renwick, Redman & Maguire, 2013). If a construction firm is recognized for its commitment to sustainability, it may enjoy a unique position in the market, attracting environmentally conscious clients and stakeholders, thereby positively influencing its financial performance.

Ghosh (2019) results indicate that internal environmental concern, supplier collaboration, customer pressure, competitive pressure and management support had positive influence on GP. Also, Ghosh (2019) revealed that GP adoption had positive relationships with all selected parameters of firm performance. In similar view, Kipuyo, (2020) established that economic and ecological procurement practices has a positive and significant relationship with organizational performance and they influences organizational performance. Social procurement practices were found to have no influence on the organizational performance of the county governments in Kenya. Since ecological, social and economic procurement practices have been found to influence cost, timeliness and service delivery, it is recommended that the county governments adopt the said

practices to a very large extent to enhance organizational performance. On the contrary, the studies of Galeazzo et al. (2020) did not find a positive relationship between green procurement and financial performance. Islam et al., (2017) showed that there was no evidence of a significant direct impact of the summary measures of Sustainable Procurement practices on financial performance, while the indirect impact of SP practices via organizational nonfinancial performance on financial performance was found to be statistically significant. Nonetheless, the researcher proposed that:

H1: Green procurement practices in a firm will positively and significantly influence the financial performance of construction firms.



CHAPTER THREE

METHODOLOGY

3.1 Introduction

This section explains how the experiments are carried out including the study design, sampling and sampling methods, instrumentation and methods used in the data collection and analysis.

3.2 Research Approach and Design

Method and procedure preference should be suitable for evaluating purposes and priorities. The qualitative and quantitative methodologies are the two increasing methods of study. It is also possible to merge these two techniques, known often as the mixed method. In this study, a clear philosophical position was considered essential which is commensurate with the researcher's personal style and the potential for effective learning on the subject matter of this study (Johnson & Duberly, 2015). As indicated by Ogunbiyi (2014), selecting a proper research design and research approach are two unique things; in this way, are basic for the objectives of this research. Research approach indicates the understanding of the exploration and the technique selected to address the research question (Greener, 2008). With the end goal of this study, the research adopted the quantitative research approach.

The decision of this methodology depends on the assertion of Creswell (2013) who expressed that the researcher basically uses post-positivist case for creating knowledge when the quantitative methodology is received and uses processes of request, for example, examination and surveys, and gathering of information on predetermined instruments that yield factual information. Bryman and Cramer (2012) further noticed that the use of experiments, data, content investigation, social review and organized perception has been recognized as quantitative strategy. It is worth noting that the quantitative research method was adopted by the researcher helps to development

knowledge base developed hypothesis and test theories (Creswell, 2013) which have all been discussed thoroughly in Chapter two. Also, the adoption of the quantitative method according to Bryman and Cramer (2012) helps to establish the causes (that's, the drivers and barriers to green supply chain management) and effect (impact of green supply chain management practices on performance). This current study is purely based on statistics and collection of statistical data. This is justified by Bryman and Cramer (2012) as a quantitative technique as they further noted that the quantitative method employs strategies of inquiry such as experiments and surveys, and collects data on predetermined instruments that yield statistical data and uses of experiments, statistics, social survey and structured observation.

This study also adopted a cross-sectional design which allows the investigator to measure the outcome and the exposures in the study participants at the same time (Setia, 2016). Once the participants have been selected for the study, the investigator follows the study to assess the exposure and the outcomes. The cross-sectional research design was selected because it allows the investigator to study the association between the main variables of the study, recruit the study participants and examine the outcomes from the targeted population. Also, it allows the investigator to estimate the prevalence of the outcome in those surveyed (Setia, 2016).

Resources and time has been noted as limitations to the study, hence, the cross-sectional design was adopted base on the assertion of Sedgwick (2013) who noted that cross sectional studies are generally quick, easy, and cheap to perform. More so, Sedgwick (2013) noted that the cross-sectional research design is often based on a questionnaire survey and this is the data collection tool to be employed by the researcher. However, a cross sectional study may be prone to non-response bias if participants who consent to take part in the study differ from those who do not, resulting in a sample that is not representative of the population.

3.3 Population of the Study

Weiss, (2012) defined Population as the collection of all relevant variables or items under consideration in a study. It is the set of all subjects of interest in a particular study. The finite and targeted population for this study was the management personnel of the various construction firms situation in the Greater Accra.

3.4 Sampling Technique and Sample Size

3.4.1 Sampling Techniques

The purposive sampling technique was adopted for the study. Thus, it involves a deliberate selection of dynamic sample and dividing into strata based on defined characteristics and from a predetermined group to address the research question (Showkat & Parveen, 2017).

The researcher actively selects the most productive sample to answer the research question. This approach enables the researcher to generally collect data with focus on the exploration and interpretation of experiences and perceptions (Matthews and Ross, 2010) on the extent of green procurement adoption, the drivers and barriers to green procurement adoption. To this respect, the sample frame is selected on the basis of characteristics/experiences that are directly related to the researcher's area of interest and research questions. This allows for an in-depth study (Matthews and Ross, 2010).

3.4.2 Sample size

The appropriate sample size for a survey is generally not a straightforward decision and can sometimes be very complex. The question is one that usually has no conclusive answer (Bryman, 2011). Nevertheless, there are different methods that can be used to estimate the sample size, based on the statistical power required to report significance or non-significance accurately. For example,

Brewerton and Millward (2001) projected the required participants of a survey for various statistical tests to range from 14 to 50 for a large effect size, and to range from 35 to 133 for a medium effect size. Mbugua (2000) presented a rule-of-thumb dictating a minimum of 30 responses being adequate for research based in the construction industry. On the basis of the foregoing argument, the researcher chose a sample size of 200. The sample size of the study as obtained comprised of General Managers/CEOs, procurement managers, account or finance officers/managers, project management personnel and contractors sampled from 40 construction firms of all sizes located with the Greater Accra Region. Table 3.1 below depicts the sampled strata of the study.

Table 3.1 Sample Structure

Sample Frame	Frequency
General Managers/CEOs	40
Procurement/Purchasing Managers	40
Account/Finance Manager	40
Project Management Personnel	40
Contractors	40
Total	200

3.5 Data Type and Instrument

A primary data was collected. The actual data that is acquired by the investigator is referred to as primary data. It is gathered from primary sources using only one approaches which is survey (Zohrabi, 2013). This data was collected for the study analysis because, Zohrabi (2013) stated that the primary source of data is much more credible because it is gathered specifically for the researcher's purposes. This source of data was collected from Management of the various construction firms selected for the study.

There are several methods to carry out a survey. Questionnaires are widely used, but other techniques such as in-depth interviews, content analysis, and observation can also be used (de Vaus, 2014). Owing to the quantitative nature of the study and the nature of research questionnaires to be addressed, the survey questionnaire was selected for the study. According to Creswell (2013), a survey design provides a quantitative or numeric description of trends, attitudes, or opinions of a population, by studying a sample of that population. A well-designed survey questionnaire was used as the data collection instrument. Saunders and Lewis (2017) asserted that using a survey instrument as a data collection tool is productive, particularly when capturing information from a sizable number of people because participants will be asked to answer the same set of queries, preventing prejudices in the data gathering process.

The questionnaire was created with closed-ended questions that were graded on a Likert scale. According to Batchelor and Miao (2016), attitudinal measures in the form of Likert scale, can generate more valid data than single measures. The five-point scale was seen as the most appropriate to choose options that are far enough apart while at the same time, keeping them close enough to ensure that the researcher does not lose important point. The Likert scale items have an odd number of response choices, which is five. This is based on the idea of including a neutral midpoint where the respondents can 'sit on the fence'.

The questionnaire was divided into five sections. Section 'A' presented the respondents' demographic information such as gender, years of experience with the organization, educational status and position held in the organization. Section 'B' covered the questions on the extent of green supply chain adoption. Section 'D' was on the drivers and barriers to Green procurement adoption. The final section addressed the organizational performance.

3.6 Data Collection Method

The common types of surveys are mailed, telephone, online survey, and interview surveys. Out of these, an online survey questionnaire survey was chosen as the mode for the data collection process. The sample size for the study was quite high, hence to aid easy accessibility, an online Google survey questionnaire was developed and a short link was generated which was sent through email addresses and other internet communication platforms to the various respondents. According to Menon and Muraleedharan (2020), online questionnaire surveys tend to have a lower response rate, which can distort and flaw a sample. However, one of the main reasons for choosing an online questionnaire survey was to ensure anonymity of the respondents. Also, online questionnaire through electronic means facilitate an immediate submission of responses which the researcher can collect, accumulate and use immediately after getting a reasonable or required number. Most of the Google links were mainly sent through the email addresses provided by the respondents of the workers who were sampled for the study. Also, this data was collected and accumulated within 10 working days for collective analysis. In addition to the Google survey questionnaire, a hard copy was administered to other workers who do not have the dexterity to respond through the Google survey questionnaire. This was also completed and taken immediately after it is done.

3.7 Data Analysis

The data obtained from the survey participants underwent analysis and scrutiny utilizing a specialized computer software named SPSS 22. This program helped us look at the data using different methods like percentiles, averages, and correlations, as well as using linear regression analysis to see if there were any hidden connections between the different factors that were studying and to test the study's hypothesis. After entering the data into the SPSS software, we read through it carefully and checked for any mistakes. This was done by looking at the data without

any specific order. Even though it took a lot of time, it was needed to make sure the data entry was done correctly. Based on their method of measurement, data can be categorized into distinct types, and this identification can be achieved through four different approaches (George & Mallery, 2019). There are four ways to identify different types of data based on how they are measured. Nominal means that objects or data are grouped into categories or names without any specific order. Ordinal means that objects or data are arranged in a specific order or ranking (Melhart et al., 2020). Interval refers to data that is measured on a scale with equal intervals or distances between values. Ratio is when data are measured on a scale with equal intervals and a meaningful zero point (Melhart et al., 2020). These types of data can be divided into two groups: categorical data and continuous data. Melhart et al (2020) explained that nominal and ordinal scales are types of categorical data, while internal and ratio scales are types of continuous data. Categorical scale data is analyzed using nonparametric tools like logistic regression models and log linear models. Continuous scale data is data that can be measured and has values that can fall anywhere on a range. Parametric measures, like the t-test, ANOVA, and regression, are statistical methods used to analyze this type of data (George & Mallery, 2019).

The information collected from the survey in this study consisted of different types of data. These included data that can be ranked in order (ordinal data) and data that can be grouped into categories (nominal data). It is important to know what kind of data you have so you can use the right statistics to analyze it. We used descriptive statistics to analyze the data. Chakraborty, Byshkin, and Crestani (2020) said that descriptive statistics are used to describe a group of data by showing it in graphs or explaining its main features and how it is spread out. On the other hand, inferential statistics try to make conclusions based on information collected from a smaller group of data.

3.8 Reliability and Validity

This study relies heavily on previous research for items to measure key constructs examined quantitatively. Specifically, items were adapted from previous studies by making changes to words and sentences to enhance understanding of green supply chain management and its impact on corporate performance in the Ghanaian context.

Validity refers to the representation of factors under study. Content validity involves consistency in the questionnaire administration is the validity focus in this study. In view of this, the researcher ensured that the administered the questionnaires assigned to each of the companies are administered evenly across to avoid administration bias.

To ensure reliability the study used the Cronbach Alpha reliability coefficient to show that the instrument authenticity. Cronbach's alpha is utilized to decide the unwavering quality of the assessment tool. A Cronbach alpha coefficient of 0.7 and above is considered acceptable (Hair, Black, Babin, Anderson, & Tatham, 2010). The questionnaires was therefore be put through SPSS to determine the Cronbach alpha coefficient.

3.9 Ethical Consideration

Singer and Vinson (2012) say that when creating a case study, it is important to think about what is right and wrong. Runeson and Martin Höst (2014) state that there are important things to think about when it comes to ethics. This includes making sure people understand and agree to participate, keeping private information private, handling delicate information carefully, and making sure everyone involved stays safe. This part talks about the ethical things to think about when studying something, and goes into detail about them.

The informed consent form had important parts that were suggested by Ritchie et al (2013). These parts included explaining what the study was about, introducing the researcher, describing how data would be collected, explaining how participants would be involved, and stating how much time it would take. In the beginning of the questionnaire, the consent form stated that keeping information confidential and choosing to participate were important. The data collection wouldn't happen if the people involved didn't agree to participate in the research. The people involved in the study were told that they had the option to leave at any point if they wanted to.

To handle the connections between the data collection, the researcher told the participants these things: they had the choice to join the research or not, they could leave the research at any time, the researcher was an outsider who was separate from the organizations involved, and the information would be kept private and anonymous. These ideas were explained and agreed upon before inviting the participants to take part in the study.

There were two kinds of important findings in this research. The first kind of sensitivity was related to the information that was available. The information collected from participants who are employees might be sensitive when shown to people who make decisions about purchasing things, like managers or leaders. To manage this kind of sensitivity, we made sure that privacy, secrecy, and not revealing identities were guaranteed. The second type of sensitivity was related to what information was in the data. In other words, the results of a study can show the problems a company has in its green supply chain practices (Andrews & Pradhan, 2011). To deal with this kind of sensitivity, we promised to keep everything secret and make sure people's identities remain confidential.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION

4.1 Introduction

This section of the study presents the major findings of the study in relation to the study objectives. Thus the analysis covers the demographic information of the respondents and the organization, the extent of green procurement practices adoption, the drivers and barriers to green procurement adoption and the influence of green procurement on organizational performance. These results were presented on Tables.

4.2 Demographic Information of Respondents and Organization

4.2.1 Socio-Demographic Information of Respondents

This subsection presents the findings on the personal and work related information of the participants of the study. This is presented in Table 4.1 below.

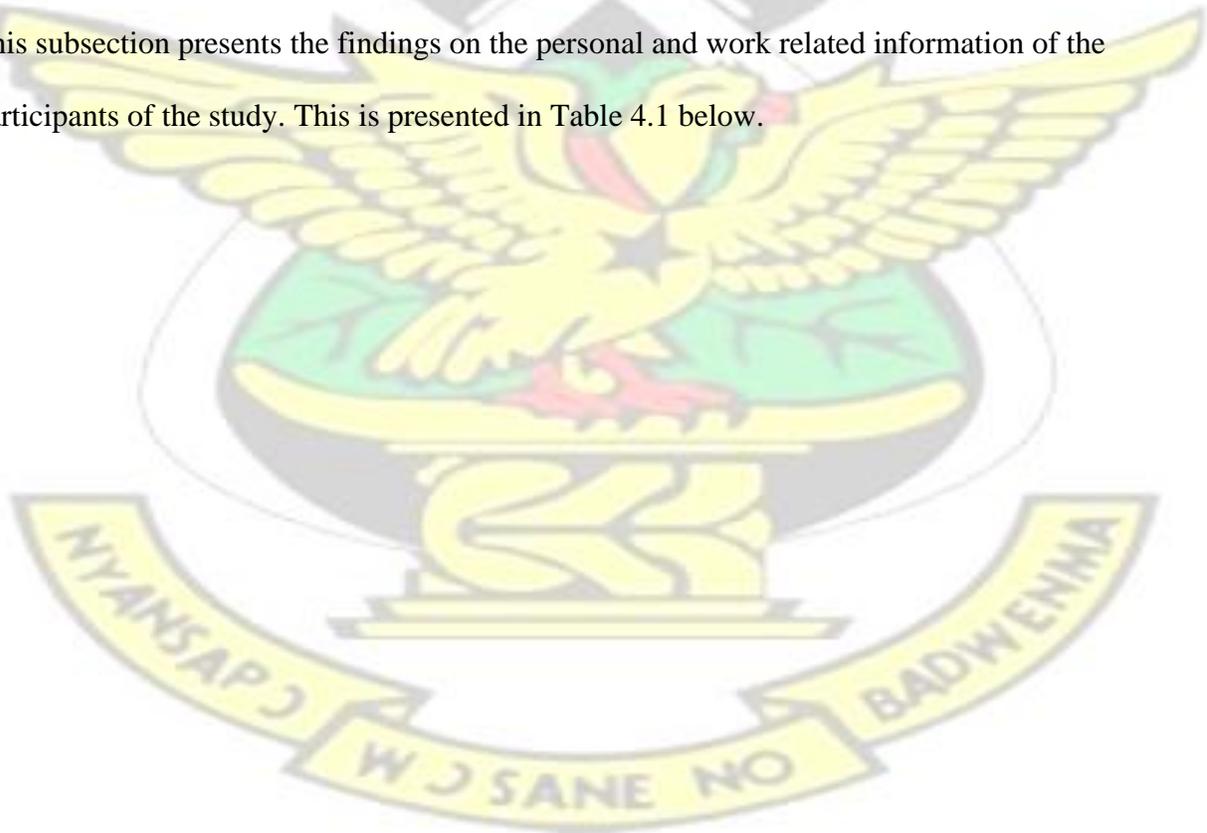


Table 4.1. Respondents Personal Information

Variables		Frequency (N=200)	Percent (100%)
Gender of Respondents	Male	119	59.5
	Female	81	40.5
Age of Respondents	20 to 29 years	50	25.0
	30 to 40 years	100	50.0
	40 to 49 years	30	15.0
	50 years or more	20	10.0
Education level	Secondary school or related Certificate diploma/HND	12	6.0
	1st Degree	27	13.5
	2nd Degree or more	105	52.5
		56	28.0
Managerial Level	Supervisor	77	38.5
	Middle (manager, e.g. head of department)	103	51.5
	Top (e.g. CEO, managing director)	20	10.0
Number of years working in this firm	Less than 5 years	110	55.0
	5-10 years	73	36.5
	above 10 years	17	8.5
Department in the Organization	Accounts/Finance	33	16.5
	Human Resource	42	21.0
	Marketing	18	9.0
	Operations	28	14.0
	Procurement	47	23.5
	IT	10	5.0
	Supply chain/logistics	22	11.0

Source: Field Data, 2023

The results displayed on Table 4.1 regarding the gender distribution showed that, majority of the respondents were male and they were 59.5% (N=119) of the total respondents. Also, the female counterparts who took part of the survey were 40.5% (N=81). This is of the indication that more male were willing to partake in the survey than then the females. Regarding the age distribution, the study results displayed in Table 4.1 revealed that, with the 20 to 29 years age category, they were 25% (N=50) and those within the age category of 30 to 40 years were 50% (N=100) of the total respondents. More so, those within the age category of 40 to 49 years were 15% (N=30) while those 50 years and above were 10% (N=20). A further analysis showed that majority these

participants hold a 1st Degree qualification in their respective field and they were 52.5%. The qualification with the second highest representation was the respondents with 2nd Degree and above and had a percentage of 28% (N=56). The other qualification were Secondary school or related Certificate and diploma/HND with a representation of 6% (N=12) and 13.5% (N=27) respectively.

A further analysis showed that 38.5% (N=77) of the respondents were supervisors, 51.5% (N=103) were middle managers (e.g. head of department) whilst 10% of the respondents were top managers (e.g. CEO, managing director). This indicates that there were representation from the various level; of the organization and these are people considered to have first-hand information on green practices and performance of their various firms. The analysis revealed that the respondents who have worked less than five years with their various firms were 55% (N=110) and those who have worked between 5 and 10 years were 36.5% (N=77). The respondents who have worked for more than 10 years in their various firms were 8.5% (N=17). Lastly, the respondents demographic information analysis showed that 16.5% (N=33) of the respondents worked in the Account/Finance department, 21% (N=42) in Human Resource department, 9% (N=18) in the marketing department and 14% (N=28) in operations department. Also, 23.5% (N=47) of the respondents worked in the procurement department, 5% (N=10) in the IT department and 11% (N=22) of the respondents worked in the supply/logistics department.

4.2.2 Organizational Background Information

This subsection addresses the findings on the organizations selected for the study. It addresses the information on the various industry these firms belong, the number of employees and their years of operations.

4.2 Organizational Information

		Frequency (N=-200)	Percent (100%)
Which of the following best describe your firm- industry?	Service	108	54.0
	Mining/Extraction	46	23.0
	Agricultural/Agribusiness	21	10.5
	Manufacturing	20	10.0
	Construction	4	2.0
	Export and Import	1	.5
On average, how many employees does your firm have?	Less than 50	164	82.0
	50-100	23	11.5
	more than 100	13	6.5
On average, how long has your firm existed?	1-9 years	88	44.0
	10-20 years	74	37.0
	More than 20 years	38	19.0

Source: Field Data, 2023

The results displayed in Table 4.2 showed that 54% (N=108) of the firms sampled for the study were in the service industry, 23% (N=46) of the firms belongs to the Mining/Extraction industry, 10.5% (N=21) were in the agriculture/agribusiness sector, and 10% (N=20) were in the manufacturing sector. The results further indicate that 2% (N=4) were from the construction industry while 0.5% (N=1) were from the import/export sector. On the average, the number of firm with employees less than 50 were 82% (N=164) while those with workers between 50 and 100 were 11.5% (N=23). The results also, indicated that three firms with workers exceeding 100 were 6.5% (N=13) of the total participating firms. This indicates that firms of all sizes participated in the study. Furthermore, the analysis showed that 44% (N=88) of the firms have been in operation for less than 10 years. Also, on average, 37% (N=74) of the firms have been in existence for a maximum of 20 years and those firm which had operated for more than 20 years were 19% (N=38).

4.3 Reliability Test

This section of the analysis presents analysis on the cronbach alpha which test the instrument reliability of two or more similar items.

Table 4.3 Conbrach Alpha Test

Variable	No. of Items	Cronbach's Alpha
Green Procurement Practices (GP1-GP&)	7	.929
Organizational Performance (P1-P5)	5	.874
Drivers to Green Procurement (D1-D11)	11	.916
Barrier to Green Procurement (B1-B11)	11	.904
Overall Instrument Reliability	34	.926

Source: Field Data, 2023

The Cronbach alpha for each variable was within the acceptable score. The green procurement practice variable which has 7 items scored a Cronbach alpha coefficient of 0.929, while organizational performance variable which has 5 items showed a Cronbach alpha coefficient of 0.874. Also, the drivers o green procurement variable with 11 items and barriers to green procurement adoption variable also with 11 items showed a cronbach coefficients of 0.916 and 0.904 respectively when the Cronbach Alpha was measured. Additionally, the overall reliability test for the 34 items showed a coefficients of 0.926. George and Mallery (2003), provided the following thumb rule for a cronbach alpha results: $\alpha > 0.9$ (Excellent), > 0.8 (Good), > 0.7 (Acceptable), > 0.6 (Questionable), > 0.5 (Poor), and < 0.5 (Unacceptable). This therefore implied that the thumb rule affirms that most of the variables are with the excellent and acceptable range. Also, according to Shuttleworth (2015), a results of a Cronbach alpha ranges are from 0 to 1, of which reliability score is acceptable when it is 0.7 and above.

4.4 Descriptive Analyses

This section of the analysis displays the findings on the main constructs for the study. It displays the results of these findings. It covers descriptive statistics on green procurement adoption, drivers and barriers to procurement adoption and organizational performance of the firms.

4.4.1 Extent of green procurement adoption

Table 4.4 below shows that descriptive statistics on the key measures regarding green procurement practices. The minimum response was to no extent and it was weighted 1 while the maximum response was to a very large extent and it was weighted 7. Therefore a mean response of ≥ 3 indicate poor adoption of green procurement practices. Furthermore an average response between ≤ 3 and ≥ 4 indicate to some extent while responses above 4 indicate large extent to the adoption green procurement practices.

Table 4.4 Green Procurement

	N	Minimum	Maximum	Mean	Std. Deviation
Life-cycle analysis to evaluate the environmental friendliness of products and packaging	200	1.00	7.00	5.1350	1.95856
Buying products designed for disassembly	200	1.00	7.00	5.3600	1.75665
Asking suppliers to commit to waste reduction goals	200	1.00	7.00	5.3400	1.51522
Buying products designed for recycling or reuse	200	1.00	7.00	5.3400	1.59282
Ensuring effective disposal of materials/products	200	1.00	7.00	5.4050	1.58224
Purchasing environmentally friendly products	200	1.00	7.00	5.5200	1.44570
dealing with environment-friendly suppliers	200	1.00	7.00	5.3700	1.51810

Source: Field Data, 2023

The analysis displayed on Table 4.4 shows that to a large extent, the majority of the firms have adopted green procurement practices. Thus, to a great extent, majority of the respondents noted

that their firm have adopted a life-cycle analysis that evaluate the environmental friendliness of products and packaging (Mean=5.135, STD=1.958). Also, majority of the respondents noted that to a large extent their firms have adopted the green strategy of buying products designed for disassembly (Mean=5.360, STD=1.756), asking suppliers to commit to waste reduction goals (Mean=5.340, STD=1.515), buying products designed for recycling or reuse (Mean=5.340, STD=1.592) and ensuring effective disposal of materials/products (Mean=5.405, STD=1.582). More so, to large extents most of the respondents revealed that their respective firms have adopted the green practice of purchasing environmentally friendly products (Mean=5.520, STD=1.445) and dealing with environment-friendly suppliers (Mean=5.370, STD=1.518).

4.4.2 Drivers to Green Procurement Adoption

Table 4.5 below shows that descriptive statistics on the key measures regarding drivers to green procurement. The minimum response was strong disagree and it was weighted 1 while the maximum response was strongly agree and it was weighted 7. Therefore a mean response of ≥ 3 indicate disagreement on the drivers to green procurement practices adoption. Furthermore an average response between ≤ 3 and ≥ 4 indicate neutrality while responses above 4 indicate agreement on the drivers to green procurement practices adoption.

Table 4.5 Drivers to Green Procurement Implementation

	N	Minimum	Maximum	Mean	Std. Deviation
Top management commitment	200	1.00	7.00	5.3450	1.85558
Cost Reduction/Cost Savings	200	1.00	7.00	5.6850	1.48553
Organizational reputation/brand Image	200	1.00	7.00	5.5650	1.23018
Socio-cultural responsibilities (protect the environment)	200	1.00	7.00	5.7050	1.31400
Position in Supply Chain	200	1.00	7.00	5.7600	1.17871
Degree of globalization of operations	200	1.00	7.00	5.6900	1.27752
Stakeholder pressure	200	1.00	7.00	5.5950	1.15657
Government legislation	200	1.00	7.00	5.6850	1.23832
Competitive advantage & Pressure	200	1.00	7.00	5.5850	1.33480
Buyer or consumer pressure	200	1.00	7.00	5.7250	1.31836
Certification	200	1.00	7.00	5.5950	1.26052

Source: Field Data, 2023

The results as displayed in Table 4.5 above, majority of the respondents responded in the affirmative that top management commitment (Mean=5.345, STD=1.855), cost reduction/cost savings (Mean=5.685, STD=1.485) and organizational reputation/brand Image (Mean=5.565, STD=1.230) are some of the key drivers that influence them to adopt green procurement practices. More so, majority of the respondents agreed that socio-cultural responsibilities (protect the environment) (Mean=5.705, STD=1.314), their position in supply Chain (Mean=5.760; STD=1.178), degree of globalization of operations (Mean=5.690; STD=1.277) and the pressure stakeholders give to the various firms (Mean=5.595; STD=1.156) were also another set of drivers that influence their respective firms to adopt green procurement practices. Lastly, the other drivers agreed on by the respondents were the need to meet government legislation (Mean=5.685; STD=1.238), achieve competitive advantage & pressure (Mean=5.585; STD=1.334), buyer or consumer pressure (Mean=5.725; STD=1.318) and the need to acquire certification (Mean=5.725; STD=1.318).

4.4.3 Barriers to green procurement adoption

Table 4.6 below shows that descriptive statistics on the key measures regarding barriers to green procurement. The minimum response was strong disagree and it was weighted 1 while the maximum response was strongly agree and it was weighted 7. Therefore a mean response of ≥ 3 indicate disagreement on the barrier to green procurement practices adoption. Furthermore an average response between ≤ 3 and ≥ 4 indicate neutrality while responses above 4 indicate agreement on the barriers to green procurement practices adoption.

Table 4.6 Barriers to Green Procurement Implementation

	N	Minimum	Maximum	Mean	Std. Deviation
The size of the organization	200	1.00	7.00	4.9100	2.11762
Lack of sustainability education and training related to sustainability	200	1.00	7.00	5.3950	1.59741
lack of stakeholder collaboration	200	1.00	7.00	5.3550	1.56564
Organizational resources (manpower, financial, etc.)	200	1.00	7.00	5.5200	1.39259
Cost of implementation sustainability in the supply chain	200	1.00	7.00	5.5700	1.44761
Lack of knowledge and awareness	200	1.00	7.00	5.4600	1.45222
Shortage of local green suppliers	200	1.00	7.00	5.4500	1.42395
Lack of government leadership in the perspective of sustainability	200	1.00	7.00	5.4700	1.40677
Limitation and lack of integrity among supply chain partners	200	1.00	7.00	5.4750	1.39611
Shortage of green professionals	200	1.00	7.00	5.4500	1.49286
Tight and inflexible stakeholder deadline	200	1.00	7.00	5.3350	1.47092

Source: Field Data, 2023

The results displayed in Table 4.6 s of the indication that there are several barriers that inhibit the adoption of green procurement practices across the various firms. The results shows that majority of the respondents agreed that the size of the organization (Mean=4.910; STD=2.117), lack of sustainability education and training related to sustainability (Mean=5.395, STD=1.597) and lack of stakeholder collaboration (Mean=5.355, STD=1.565) to implement the green procurement practices impedes their various institutions to adopt the green practices as part of its procurement strategies. More so, it was agreed by the majority of the respondents that the lack of availability of organizational resources such manpower, financial, etc. (Mean=5.520, STD=1.392), cost of implementation sustainability in the supply chain (Mean=5.570, STD=1.447), lack of knowledge and awareness (Mean=5.460, STD=1.452), the difficulty of finding available green suppliers locally (Mean=5.450, STD=1.423) and the disincentive from government due its non-failure to adopt and practice green procurement (Mean=5.470, STD=1.406) inhibit the ability of these firms to also adopt it. In addition to the aforementioned barrier were limitation and lack of integrity among supply chain partners (Mean=5.475, STD=1.396), shortage of green professionals (Mean=5.450, STD=1.492) and tight and inflexible stakeholder deadline (Mean=5.335, STD=1.47092) which were also agreed by most of the respondents to inhibit them from successfully adopting green procurement practices.

4.4.4 Effect of green procurement practices on the organizational performance

This section examine the relationship between the green procurement practices and organizational performance. From the regression result, the R^2 and its adjusted values, P-values, F-values, and the β values are of importance. The R^2 indicates the overall fitness of the regression model. The adjusted R^2 values ranging between 0 and 1 also explain the variances in the dependent variable as a result of the independent variables (Akossou and Palm, 2013). The closer the adjusted R^2

values are to 1, the higher the level of variations explained by the independent variables. Also, the closer the values are to 0, the lesser the variations that are explained in the dependent variable (Karch, 2020).

Table 4.7. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.839 ^a	.591	.587	1.08650

a. Predictors: (Constant), GP

From the regression model summary displayed in Table 4.7 above, the R^2 value was inspected. The R^2 value is 0.591, implying that the regression is a good fit to the data, and the model is effectively capturing the underlying relationship between the variables (see Table 4.7). That of the adjusted R^2 value is 0.587 and this implies that the full regression model can explain the variances in organization performance as far as green procurement are concerned by 58.7% (see table 4.7).

Table 4.8. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	95.720	1	95.720	81.085	.000 ^b
	Residual	233.736	198	1.180		
	Total	329.456	199			

a. Dependent Variable: Performance

b. Predictors: (Constant), Green_Procurement

The F-value is used to assess if the independent variables significantly explain the dependent variable (Zulfikar and STp, 2018). To assess the overall fitness of the model, ANOVA F-values of the full regression model were also inspected. The F-value is 81.085 which is significant at a 5% level ($p < 0.000$). The level of significance is determined by the p-values of the F-statistic (see table 4.8). This suggests that the null hypothesis is likely true. In this case, one would fail to reject

the proposed hypothesis, indicating that there is strong evidence to support that the independent variable have a positive and significant effect on the dependent variable.

Table 4.9. Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	2.696	.311		8.664	.000
Green_Procurement	.507	.056	.539	9.005	.000

Dependent Variable: Performance

Table 4.9 shows that the adoption of green procurement among the various organizations have a positive relationship with organizational performance ($\beta = -0.507$, $p < 0.05$) at a significance level of 5%. Thus, the coefficient for Green Procurement practices indicate that an adoption of the practices as a strategy among the various sectors and organizations leads to an increase organizational performance by 50.7%. This analysis implies that green procurement practices have a positive and significant effect on organization performance.

4.5 Discussion of Findings

This section of the study discussion the results of the study in light of the research objectives and previous literature.

4.5.1 Extent of green procurement adoption among selected Firms

The first objective was to examine the extent of green procurement adoption among selected construction firms. This was addressed, and it was noted that to a large extent majority of firms have adopted green procurement practices. According to the study findings green procurement practices adopted include conducting of Life-cycle analysis to evaluate the environmental friendliness of products and packaging, buying products designed for disassembly, asking suppliers to commit to waste reduction goals, buying products designed for recycling or reuse,

ensuring effective disposal of materials/products, purchasing environmentally friendly products and dealing with environment-friendly suppliers. This result was partially supported by Shi and Liao (2013) discovered in their studies that firms' adoption of specific procurement policies require suppliers to apply environmental standards and adopt it.

4.5.2 Drivers and Barriers to green procurement adoption among selected firm

To address the factors that influence and inhibit the adoption of green procurement, the second and third objective was set out to identify and assess the drivers and barriers to green procurement practice adoption among selected firms respectively. The findings of this study discovered 11 items each as drivers and barriers to green procurement practices adoption. The drivers discovered in this study includes top management commitment to green procurement implementation, the ability for green procurement to reduce cost, the contributions of green procurement practices to organizational reputation or its brand Image, and contributing to the protection of the environment in the form of socio-cultural responsibilities. Also, the position held by the organization in their supply chain network, the ability to go global with the business operations, the pressure from stakeholders as well as customers to the organizations to practice green procurement, the legislative instrument from government compelling businesses to report their green practices, the ability to gain competitive edge, and the need for green or environmental certification were also shown to be drivers to green procurement adoption among firms in Ghana. Previous studies supported this findings in parts. For example, the results of Ghosh (2019) indicated that internal environmental concern, supplier collaboration, customer pressure, competitive pressure and management support had positive influence on GP. Also, Kannan (2021) result shows that the top three priorities of the sub-drivers are “personal values,” “active top management support,” and “government regulation and legislation,” respectively for the focal company. From a theoretical

perspective, RBV noted that the need to gain competitive advantage and performance better leads to a strategy that will help achieve that. This theoretical assertion on the basis of competitive edge been a driver supports the theory. The TCT also support this findings as the cost management is central to the theory. And the cost reduction was revealed to be a key driver to green procurement reduction.

In spite of all these drivers compelling firms to adopt green procurement practices, there were factors discovered to inhibit the firms from successfully implementing green procurement practices and strategies. The size of the organization of the firm, their level of education and training on green procurement practices and sustainability which also reflect their level of awareness and knowledge, the unwilling ness of stakeholders to collaborate with the firms to implement green procurement, unavailability of resources such as finances and manpower to implement green procurement, the cost involve in the implementation sustainability in the supply chain were discovered to be some of the barriers to green procurement adoption. Furthermore, the findings indicated that, shortage of local green suppliers, lack of government leadership in the perspective of sustainability, limitation and lack of integrity among supply chain partners, unavailability of green professionals to be contracted to spearhead the implementation and adopted of green procurement and rigidity in stakeholder deadline were also considered barriers to adopting green procurement. Ogunsanya, et al. (2022) supported this study when he discovered out of the nineteen variables tested, factor analysis reveals four clusters named in other of significance as sustainability knowledge level, transparency and governance, mismatch of procurement strategy and national policy challenges, and construction industry related factors. In a similar manner Lam et al. (2010) results showed that five factors identified to affect green specification and these

factors include green technology and techniques, reliability and quality of specification, leadership and responsibility, stakeholder involvement, guide and benchmarking systems.

4.5.3 Effect of green procurement practices on the organizational performance

The results finding on the fourth research objective which sought to examine the effect of green procurement practices on the organizational performance in selected firms showed that green procurement have a significant and positive effect on organizational performance. Thus, when green procurement practice is adopted by a firm as a part of the businesses strategies and practices, the firm is likely to enjoy returns on the investment into the green procurement implementation and when the firm capitalize it. More so, the results is of the indication that the overall business performance and profitability significantly go up and this is likely to lead to satisfaction among management since such decision will meet or to a greater extent exceed their expectations. Consequently, an adoption of green procurement practices have a positive effect on the financial and the overall performance of the organization.

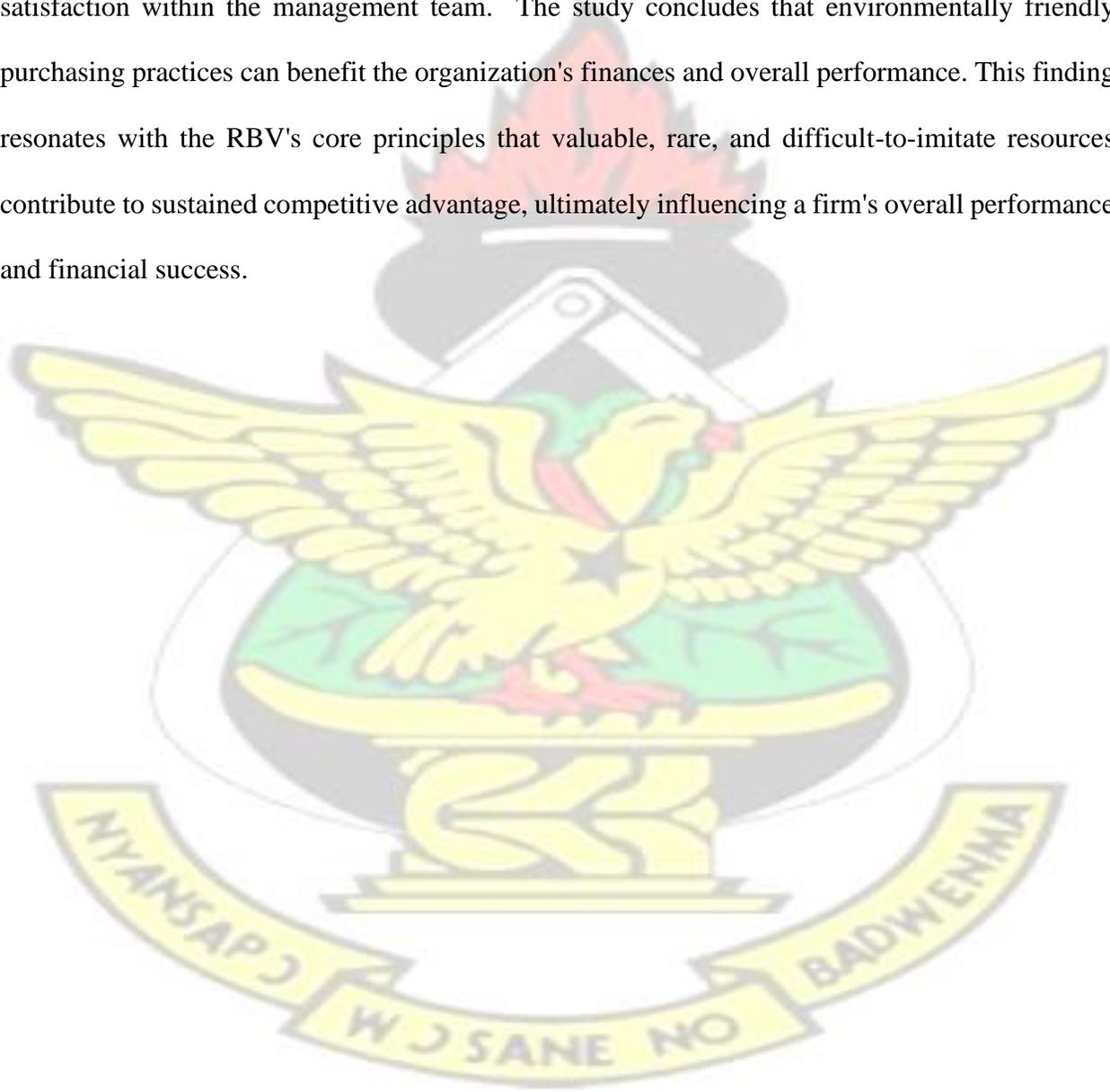
Several studies including Ghosh (2019), Acquah, et al. (2021) and Carter et al. (2000) supported this study finding. Hu, et al. (2009) results noted that environmental actions undertaken by firms in the construction sector contribute to reduce costs, by improving supplier-buyer relationships and cost efficiency, as well as increase sales, by positively influencing customers' overall positive perceptions and satisfaction; hence, it is likely that firms implementing green procurement improve their financial performance. Carter et al. (2000) results also showed that environmental purchasing is significantly related to firm performance. Ghosh (2019) finding was that GP adoption had positive relationships with all selected parameters of firm performance. Acquah, et al. (2021) also confirmed this findings as his study results showed that green procurement and green product

innovation also significantly influenced financial performance unlike green process innovation that had an insignificant yet positive impact on financial performance.

However, a contrary view is held by some individuals in the practitioner community believe that a firm participating in green supply chain initiatives increases its production cost, and thereby erodes its profit. This contrary results was revealed in Galeazzo, et al. (2021) study finding which did not find a positive relationship between green procurement and financial performance. Instead they found that the positive relationship only holds when the moderating effects of tourists' green purchasing behaviour are added.

The study finding aligns well with the key principles of the Resource-Based View (RBV), providing a theoretical basis for understanding how green procurement practices positively influence organizational performance, particularly from the perspective of resource uniqueness, value, and sustainability. The study suggests that green procurement practices positively affect organizational performance at a significant level. According to the RBV, for a firm to achieve a sustained competitive advantage, it must possess resources that are valuable. In this context, the adoption of green procurement practices is considered valuable, as it contributes to positive impacts on the company's performance, which could include financial gains and other organizational achievements (Ghosh, 2019). The study indicates that companies incorporating green procurement into their business strategies experience benefits in terms of returns on investment. From an RBV perspective, this aligns with the concept of resource uniqueness. By integrating eco-friendly procurement practices into their strategies, companies may gain a competitive advantage that is unique and not easily replicated by competitors, leading to superior performance outcomes (Kipuyo, 2020).

The research indicates that embracing eco-friendly procurement practices can lead to exceeding management expectations and generate contentment among the management team. This aspect aligns with the RBV's focus on non-substitutability and the idea that certain resources cannot be easily replaced. If green procurement practices create a unique and positive organizational culture or reputation, it becomes a non-substitutable resource, contributing to overall contentment and satisfaction within the management team. The study concludes that environmentally friendly purchasing practices can benefit the organization's finances and overall performance. This finding resonates with the RBV's core principles that valuable, rare, and difficult-to-imitate resources contribute to sustained competitive advantage, ultimately influencing a firm's overall performance and financial success.



CHAPTER FIVE

SUMMARY CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter of the study gives a snapshot of the major findings of the study whilst concluding on the major findings and giving recommendation. It also addresses the implication of these findings to theory and practices whilst recommending areas for further research.

5.2 Summary of Findings

5.2.1 Adoption of Green Procurement Practices

It has been observed that many companies have started using environmentally-friendly buying practices. The study found that companies are using green practices when buying products. This includes analyzing products to see if they are environmentally friendly, buying products that can be taken apart easily, asking suppliers to reduce waste, buying products that can be recycled or used again, properly getting rid of materials, buying eco-friendly products, and working with suppliers that care about the environment.

5.2.2 Drivers of Green Procurement Practices

The study found that there are 11 things that drive the adoption of green procurement practices. In this study, the researchers found that there are a few important factors that drive the implementation of green procurement. These include the commitment of top managers to using environmentally friendly purchasing practices, the potential to save money by using green procurement, the positive impact of green procurement on an organization's reputation or brand image, and the responsibility to protect the environment. Additionally, the organization's role in the supply chain network, the ability to do business internationally, the pressure from stakeholders

and customers to practice environmentally friendly purchasing, government requirements to report on green practices, the opportunity for a competitive advantage, and the desire for green or environmental certification were all reasons why Ghanaian firms adopted green procurement.

5.2.3 Barriers to Green Procurement Practices

There were several factors preventing companies from effectively implementing green procurement practices and strategies, which we identified. The size of the company, how much education and training they have on eco-friendly purchasing practices, and how much they know about sustainability can affect how well they adopt green procurement. If stakeholders don't want to work with the company on implementing eco-friendly purchasing, that can also be a barrier. Not having enough money or people to implement eco-friendly purchasing, and the cost of making the supply chain more sustainable, are also barriers to green procurement adoption. In addition, the study showed that not having enough local companies that provide eco-friendly products, the government not taking enough action to promote sustainability, issues with trust and honesty among supply chain partners, a lack of available professionals to help with eco-friendly purchasing, and inflexible deadlines from stakeholders were all seen as obstacles to using eco-friendly purchasing practices.

5.2.4 Impact of Green Procurement Practices on Organizational Performance

The fourth research objective was to look at how green procurement practices can affect a company's performance. The study found that green procurement practices affect organizational performance positively and at a significant level. Thus, when companies include green procurement as part of their business strategies, they can see benefits in terms of returns on their investment. Furthermore, the research indicates that embracing eco-friendly procurement practices

will enhance businesses' overall achievements and generate contentment among the management team by exceeding their expectations. As a result, using environmentally-friendly purchasing practices can benefit the organization's finances and overall performance.

(Kipuyo, 2020) and Ghosh's (2019) research on the Resource-Based View (RBV) provides a theoretical foundation for understanding the positive impact of green procurement practices on organizational performance. The study emphasizes the importance of resource uniqueness, value, and sustainability in achieving sustained competitive advantage. Green procurement practices not only yield tangible benefits but also yield returns on investment, demonstrating the uniqueness of these practices. The RBV's focus on non-substitutability suggests that green procurement practices create a unique organizational culture, making them irreplaceable resources. This, in turn, contributes to a sense of contentment and satisfaction within the management team. The findings of the RBV highlight the value of resources characterized by value, rarity, and difficulty of imitation, contributing to a firm's comprehensive performance and financial success.

5.3 Conclusion

In conclusion, the findings of this research provide substantial evidence of the widespread and impactful adoption of green procurement practices across various sectors and industries. The analysis conducted indicates that organizations are increasingly recognizing the importance of integrating environmental considerations into their procurement processes. This trend is driven by a combination of factors, including top management commitment, cost reduction/cost savings, organizational reputation/brand image, socio-cultural responsibilities (protect the environment), position in supply chain, degree of globalization of operations, stakeholder pressure, government legislation, competitive advantage & pressure, buyer or consumer pressure and the need for green and ISO certification. The research revealed a remarkable extent of green procurement adoption,

with a significant proportion of surveyed organizations indicating that they have incorporated environmentally sustainable criteria into their procurement decisions. This indicates a shift towards more responsible and sustainable business practices, as organizations aim to mitigate their ecological footprint and contribute positively to the global environmental challenges. The benefits of embracing green procurement were evident throughout the study. Not only does it contribute to profitability, but also to net profit margin, return on investment return on asset and overall financial performance.

However, it's important to acknowledge that while the adoption of green procurement is widespread, challenges and barriers still exist. These may include issues related to the size of the organization, sustainability education and training related to sustainability, stakeholder collaboration, organizational resources (manpower, financial, etc.), cost of implementation sustainability in the supply chain, level of knowledge and awareness on green procurement practices, shortage of local green suppliers, lack of government leadership in the perspective of sustainability, limitation and lack of integrity among supply chain partners, shortage of green professionals and tight and inflexible stakeholder deadline. In summary, the findings from this research highlight the remarkable extent to which green procurement practices have been embraced across industries. This trend not only signifies a positive shift towards more environmentally responsible business practices but also lays the foundation for a more sustainable and resilient global economy.

5.4 Recommendations

In light of the findings, it is recommended that organizations continue to prioritize and expand their green procurement initiatives. This can be achieved through employee training and awareness programs, partnerships with environmentally conscious suppliers, and the integration of

sustainable criteria into supplier evaluation and selection processes. Furthermore, policymakers should consider incentivizing and rewarding organizations that actively engage in green procurement practices while also fostering an enabling environment for the adoption of sustainable business practices.

5.4.1 Recommendations to Management

Strengthen the alignment of green procurement practices with our overall business strategy. Regular communication and collaboration between procurement, sustainability, and finance teams are essential to ensure that environmental considerations are fully integrated into procurement decisions. Also, establish clear and measurable targets for green procurement adoption. This could include increasing the percentage of sustainable products in our procurement portfolio, reducing carbon footprint, and minimizing waste generation through supplier collaborations.

5.4.2. Recommendations to Regulators

The various organizations should collaborate with regulatory bodies to develop and implement policies that incentivize green procurement. These could include tax incentives, preferential treatment for sustainable suppliers, and reporting requirements that highlight environmental impact. Furthermore, encourage the development of industry-wide standards for sustainable procurement. Standardized reporting and certification mechanisms will provide clarity to suppliers and help in assessing the overall environmental impact of procurement activities.

5.4.3. Recommendations to Suppliers

The various organizations should foster close partnerships with suppliers to co-create sustainable solutions. Engage suppliers in our sustainability goals, share best practices, and encourage innovation in product design and manufacturing processes. Also, firms should invest in supplier

capacity building programs to assist them in adopting sustainable practices. This could involve offering training, sharing resources, and facilitating knowledge exchange on environmentally friendly production methods.

5.4.4 Recommendation towards Overall Corporate Strategy

The firms in spite of their industrial sector should emphasize the long-term benefits of green procurement in terms of risk mitigation. They need to highlight how reduced dependency on non-renewable resources and more resilient supply chains contribute to stable operations even in the face of environmental disruptions. Lastly, the firms need to leverage the demonstrated link between green procurement and improved financial performance to communicate the cost savings which can be achieved through reduced resource consumption, energy efficiency, and optimized waste management practices.

5.5 Implication to Theory and Practice

5.5.1 Implication to Management and Practice

The findings demonstrating the extensive adoption of green procurement practices, along with identified drivers, barriers, and a positive impact on organizational financial performance, offer valuable implications for management strategies. These implications provide actionable insights for organizations aiming to optimize their procurement processes while aligning with sustainability goals. In view of the forgoing assertion, Management should recognize that green procurement is not just a tactical practice but a strategic enabler. The research implies that organizations should purposefully integrate sustainability considerations into their procurement strategies to achieve both environmental and financial objectives. Also, understanding the drivers and barriers to green procurement can guide management in fostering collaborative relationships with suppliers. By

working closely with suppliers to overcome barriers and capitalize on mutual benefits, organizations can enhance their procurement efficiency and achieve positive financial outcomes.

Management should acknowledge the role of green procurement in enhancing long-term financial resilience. By reducing dependency on resource-intensive practices and suppliers, organizations can minimize exposure to supply chain disruptions and regulatory changes, ultimately safeguarding financial stability. Organizations should be open to learning from challenges and adapting their strategies over time to overcome barriers, leveraging lessons learned to optimize financial performance. They can further consider aligning employee performance metrics and incentives with the adoption of green procurement practices. This alignment can encourage employees to prioritize sustainability in their procurement decisions, thereby driving positive financial outcomes. To address barriers effectively, management can initiate pilot projects that demonstrate the feasibility and benefits of green procurement. Once successful strategies are identified, scaling them across the organization can drive widespread adoption and financial gains.

5.5.2 Implication to Theory

The research findings that reveal a significant extent of green procurement adoption and its impact on organizational financial performance hold valuable implications for theory. These implications can shape future research endeavours and guide organizations in making informed decisions regarding sustainability-focused procurement strategies.

The findings challenge traditional procurement theories such as the transactional cost economics and the resource base view that primarily focused on cost reduction and supplier relationship management. The adoption of green procurement practices introduces a new dimension by highlighting the potential positive link between sustainability initiatives and financial

performance. This implies a need to expand existing theoretical frameworks to incorporate environmental and social considerations as integral factors in procurement decision-making. Future theoretical models could incorporate this holistic perspective, elucidating how sustainable procurement practices contribute not only to financial success but also to enhanced environmental and social benefits. The implications of the findings extend to stakeholder engagement and reporting practices. Organizations could communicate their green procurement initiatives to stakeholders transparently, reinforcing their commitment to sustainability and responsible business practices. This can be seen as a strategic move that not only influences consumer perception but also attracts socially responsible investors. The research highlights the need for cross-functional collaboration within organizations, particularly between procurement, sustainability, and finance departments. The integration of green procurement practices requires alignment among these departments to effectively balance sustainability goals with financial objectives.

Also, the identified drivers and barriers underscore the complexity of green procurement adoption. A comprehensive theoretical model should synthesize internal and external factors, such as organizational culture, stakeholder pressures, regulatory environment, and supplier collaboration, to explain how these factors collectively influence the adoption process and subsequent financial performance outcomes. Theory could delve into the mediating mechanisms through which green procurement affects financial performance. For instance, investigating how improved resource efficiency, reduced waste generation, and enhanced supplier relationships translate into direct financial benefits can provide a nuanced understanding of the causal pathway. The integration of green procurement within organizational strategies can be explored within the theoretical context. Understanding how sustainable procurement aligns with broader corporate objectives and contributes to competitive positioning can offer insights into how firms can leverage this alignment

for financial gains. Green procurement involves a learning curve for organizations. A theoretical framework could address how organizations adapt and learn from their experiences, evolving their procurement strategies over time to maximize financial benefits while overcoming barriers.

The findings showcasing the significant adoption of green procurement and its impact on organizational financial performance offer valuable directions for advancing procurement theories. These implications underscore the interconnectedness of environmental sustainability and financial success, urging organizations to adopt a more holistic and forward-thinking approach to procurement strategies. Further research guided by these implications can provide a comprehensive understanding of the dynamics between green procurement and financial performance, leading to more effective and sustainable business practices.



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KNUST



APPENDIX

QUESTIONNAIRE



KNUST School of Business
Department of Supply Chain and Information Systems
A Survey on Green Procurement in Ghana

Section A: Green Procurement Practices

>> Based on the respective scales provided, kindly circle a number that best represents your opinion on each statement							
SCALE: 1= "to no extent" to 7= "to a great extent" In relation to your company's sustainability goals, to what extent does your company practice the following? (Green Procurement)	To no extent						To an extreme extent
Life-cycle analysis to evaluate the environmental friendliness of products and packaging	1	2	3	4	5	6	7
Buying products designed for disassembly	1	2	3	4	5	6	7
Asking suppliers to commit to waste reduction goals	1	2	3	4	5	6	7
Buying products designed for recycling or reuse	1	2	3	4	5	6	7
Ensuring effective disposal of materials/products	1	2	3	4	5	6	7
Purchasing environmentally friendly products	1	2	3	4	5	6	7
Dealing with environment-friendly suppliers	1	2	3	4	5	6	7

Section B: Organizational Performance

SCALE: 1= "below expectation" to 7= "exceeded expectation" (Organisational Performance) How will you rate your performance regarding the following in the last 3 years?	below expectation						exceeded expectation
Profitability	1	2	3	4	5	6	7
Net profit margin	1	2	3	4	5	6	7
Return on investment	1	2	3	4	5	6	7
Return on asset	1	2	3	4	5	6	7
Overall financial performance	1	2	3	4	5	6	7

Section C: Drivers and Barriers of Green Procurement Practices

>> Based on the respective scales provided, kindly circle a number that best represents your opinion on each statement

<i>SCALE: 1= “Strongly disagree” to 7= “Strongly agree” Kindly indicate your agreement or disagreement on the following key drivers that influence adoption of in the organization. (Drivers to Green Procurement)</i>	<i>Strongly Disagree</i>	<i>Strongly Agree</i>
Top management commitment	1 2 3 4 5 6 7	
Cost Reduction/Cost Savings	1 2 3 4 5 6 7	
Organizational reputation/brand Image	1 2 3 4 5 6 7	
Socio-cultural responsibilities (protect the environment)	1 2 3 4 5 6 7	
Position in Supply Chain	1 2 3 4 5 6 7	
Degree of globalization of operations	1 2 3 4 5 6 7	
Stakeholder pressure	1 2 3 4 5 6 7	
Government legislation	1 2 3 4 5 6 7	
Competitive advantage & Pressure	1 2 3 4 5 6 7	
Buyer or consumer pressure	1 2 3 4 5 6 7	
Certification	1 2 3 4 5 6 7	

>> Based on the respective scales provided, kindly circle a number that best represents your opinion on each statement

<i>SCALE: 1= “Strongly disagree” to 7= “Strongly agree” Kindly indicate your agreement or disagreement on the following key drivers that influence adoption of in the organization. (Barriers to Green Procurement)</i>	<i>Strongly Disagree</i>	<i>Strongly Agree</i>
The size of the organization	1 2 3 4 5 6 7	
Lack of sustainability education and training related to sustainability	1 2 3 4 5 6 7	
lack of stakeholder collaboration	1 2 3 4 5 6 7	
Organizational resources (manpower, financial, etc.)	1 2 3 4 5 6 7	
Cost of implementation sustainability in the supply chain	1 2 3 4 5 6 7	
Lack of knowledge and awareness	1 2 3 4 5 6 7	
Shortage of local green suppliers	1 2 3 4 5 6 7	

>> Based on the respective scales provided, kindly circle a number that best represents your opinion on each statement

SCALE: 1= "Strongly disagree" to 7= "Strongly agree" Kindly indicate your agreement or disagreement on the following key drivers that influence adoption of in the organization. (Barriers to Green Procurement)	Strongly Disagree	Strongly Agree
Lack of government leadership in the perspective of sustainability	1 2 3 4 5 6 7	
Limitation and lack of integrity among supply chain partners	1 2 3 4 5 6 7	
Shortage of green professionals	1 2 3 4 5 6 7	
Tight and inflexible stakeholder deadline	1 2 3 4 5 6 7	

Section D: Firm Background

- Which of the following best describe your firm-industry?
 Service Mining/Extraction Agricultural/Agribusiness Manufacturing
 Other.....
- On average, how long has your firm existed? Years
- On average, how many employees does your firm have? Employees
- What is the gender of head of the procurement unit in your organisation? Male
 Female

Section E: Respondent's Background

Kindly tell me about yourself in terms of

- Gender Male Female
- Age (years) 20 to 29 30 to 40 40 to 49 50 or more
- Education level: Secondary School or related Certificate diploma/HND 1st Degree
 2nd Degree or more
- Number of years working in this firm..... Years
- Managerial level Supervisor Middle (manager, e.g. head of department) Top (e.g. CEO, managing director)
- Department Accounts/Finance Human Resource Marketing Operations
 Procurement
 IT Supply chain/logistics others