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Green Procurement Practices, Operational Capabilities and Organizational Sustainability. The Moderating Effect of Top Management's Environmental Orientation.

BY

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DECLARATION

I hereby declare that this thesis is the result of my original work towards the MSc. in Procurement and Supply Chain Management, and that to the best of my knowledge, it does not contain material published by another person or materials which have been accepted for the award of any other degree of the University, except where due acknowledgments have been made in the text.

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DEDICATION

I dedicate this work to my mentor Dr. Divine Tuinese Novieto (the Late) and my entire family for being my cheerleader and support system throughout the program and my entire educational journey.

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ABSTRACT

Green procurement is one of the significant pillars of sustainable supply chain management (SCM) being adopted by organizations worldwide to address environmental concerns, remain competitive, and comply with regulatory requirements. The main purpose of this study is to examine the impact of green procurement and operational capabilities, on organizational sustainability with the moderating effect of top management's environmental orientation in the Ministry of Lands and Natural Resources. Based on the research objectives and questions of the study, the study made use of the quantitative research approach through Descriptive survey research design. Population for the study included members of the procurement board and selected workers from other department of the Ministry of Lands and Natural Resources. Purposive sampling method was used to purposively select the sample size. Data was collected using both primary and secondary sources. The main data used was Questionnaire. The researcher edited, tabulated and analyzed the quantitative data using the Statistical package for Social Science (SPSS) version 23.0, and transferred these statistical data into Microsoft Word for analysis. The study revealed a positive relationship between Green Procurement Practice and Organizational Sustainability. This suggests that organizations that adopt green procurement practices, such as selecting suppliers with sustainable practices, using environmentally friendly materials, and promoting energy-efficient technologies, are more likely to achieve higher levels of sustainability. Again, the study found a positive relationship between Operational Capabilities and Organizational Sustainability. It was similarly found that the impact of green procurement practices and operational capabilities on organizational sustainability is strengthened when top management demonstrates a high level of environmental awareness and commitment. The study concluded that there is a positive relationship between Green Procurement Practice and Operational Capabilities with Organizational Sustainability. This indicate that organizations that adopt green procurement practices, develop operational capabilities and align with sustainability goals are more likely to achieve higher levels of sustainability. The study therefore recommends that training and education programs be provided to enhance top management's environmental awareness and knowledge. Again, the study recommends that collaboration and partnership with suppliers be fostered to collectively work towards achieving sustainability goals.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Although the motivation of businesses is to maximize profit, the core values and interests of emerging and existing businesses are taking a different course to pay attention to the effect the business activities are having on the environment (Heizer, Render, Munson & Sachan, 2017). This is termed as the triple bottom line known as the three Ps (People, Planet and Profit). “People” as in the triple bottom line ensure that businesses adapt to measures that sustain and seek the welfare of people and their life as a whole (employee & public). “Planet” focuses on the impact of the company’s operations on the environment through the use of raw material selection, process innovation, alternative product delivery methods and how the end products are disposed of. “Profit” then looks at the economic returns that a company gets from its investment (Heizer, et al., 2017).

Procurement is the process of finding, acquiring, buying goods, services or works from an external source, often via a tendering or competitive bidding process. The process is used to ensure the buyer receives goods, services or works at the best possible price, when aspects such as quality, quantity, time, and location are compared. Green Procurement aside the three traditional variables considered also factor environmental measures into the traditional processes through an effective supply chain management decision (Touboulic, & Chicksand, 2015). According to Kanapathy, Yee, Zailani and Aghapour (2016), Green purchasing is performing environmentally conscious procurement practices to control and minimize waste through recycling and reclamation of purchased materials without posing much danger to the environment. According to Lyson and Farrington (2012) green procurement is a process whereby public

organizations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life-cycle basis in terms of generating benefits not only to the organization, but also to society and the economy, whilst significantly reducing negative impacts on the environment. According to Tatrai (2015), procurement is considered green when organizations broaden this framework by meeting their needs for goods, services, works, and utilities in a way that achieves value for money and promotes positive outcomes not only for the organization itself but for the economy, environment, and society.

Globally, green purchasing or procurement has gained a considerable amount of attention in both the business environment and academia. Green purchasing is becoming a topical issue of concern for academia, business and global bodies due to the increasing levels of global warming, climate change and to help protect the depleting nature of our natural resources. The main actors within the center of realizing the dream to reduce global warming, greenhouse gases, and others are the industry players. The forces behind going “green” have made businesses being environmentally conscious an imperative means of achieving business success. The term “sustainability” where limited resources are used to satisfy the needs of current consumers and not compromising the chances of satisfying that of future consumers has become familiar with the concept of “Green purchasing” (Linton, Klassen & Jayaraman, 2007). The sustainability definition originated from the World Commission on Environment and Development in 1987 (WCED (1987).

Operations and procurement managers are now focusing on Life Cycle Assessments (LCA) for their products. The LCA simply evaluates the effect that manufactured products have on the environment, taking into account the packaging, shipping and

how they are being disposed of such that it does not have any negative effect on the environment throughout its lifespan (Heizer, et al., 2017). Through this consciousness of the environmental impacts of products on greenhouse gasses, green purchasing activities have helped to mitigate effects using the 3Rs of sustainability (reduce, reuse and recycle) (Heizer, et al., 2017).

Green procurement is one of the significant pillars of sustainable supply chain management (SCM) being adopted by organizations worldwide to address environmental concerns, remain competitive, and comply with regulatory requirements (Mishra & Sharma, 2021). Organizations have realized that sustainable procurement practices not only aid in reducing costs and risks but also provide an opportunity for competitive differentiation (Dubey & Gunasekaran, 2021; Nair & Paul, 2020).

According to Russel (2017), procurement officers play an integral role in reducing the impact that their products have on the environment. In this case, they select materials that have the least deleterious impact on the environment. Based on the argument of Botta (2018), placing purchasing managers that are environmentally conscious at the forefront of business operations to ensure that materials that are being used are highly recyclable, reclaimable and can be reduced. Lee (2015), added that, as companies are moving towards ensuring green operations, existing procurement rules and practices are being modified to meet current standards. Lo and Shiah (2016), proposed that purchasing officers should endeavour to substitute materials that are environmentally unfriendly with environmentally

Therefore, this study seeks to investigate the relationship between green procurement, operational capabilities, and organizational sustainability.

1.2 Statement of the Problem

As organizations strive to adopt sustainable practices, green procurement has emerged as a crucial aspect of ensuring environmentally responsible operations. However, the implementation of green procurement strategies is dependent on an organization's operational capabilities, which are limited by factors such as financial constraints, lack of technical expertise, and inadequate supplier base. The challenge for organizations is to balance the need for sustainable procurement practices with the operational realities of their business. Green procurement involves the procurement of goods and services that have minimal environmental impact throughout their lifecycle (Boiral & Gendron, 2011). Organizations that adopt green procurement practices can reduce their environmental footprint and enhance their corporate social responsibility image (Lai & Wong, 2012). However, the successful implementation of green procurement practices requires operational capabilities such as supplier management, supplier development, and green product design (Rao & Holt, 2005).

Operational capabilities refer to an organization's ability to execute its core activities effectively and efficiently (Prajogo & Olhager, 2012). However, organizations face challenges in building and sustaining their operational capabilities due to factors such as limited financial resources, lack of technical expertise, and inadequate supplier base (Liu et al., 2016). These factors limit organization's ability to implement sustainable procurement practices, which can, in turn, affect their overall sustainability.

Organizations that adopt sustainable practices can enhance their long-term viability, reputation, and profitability (Liu et al., 2016). However, the adoption of sustainable practices requires a balance between environmental, social, and economic factors (Jabbour et al., 2013).

The operational capability of an organization is crucial in implementing green procurement practices, which affect the operational sustainability of the organization positively (Nair & Paul, 2020). However, the relationship between green procurement practice, operational capability, and operational sustainability has not been explored explicitly (Mallikarjun & Chakrabarty, 2019). There have been some studies that have examined the impact of green procurement on organizational performance, but they did not consider the mediating role of operational capability (Touboulic & Chicksand, 2015). Moreover, studies have suggested that organizations' operational capability is a significant determinant of operational sustainability (Nair & Paul, 2020). Despite this, studies that have explored the interplay between operational capability and operational sustainability in the context of green procurement practices are inadequate (Nair & Paul, 2020).

Thus, there is a need to investigate the impact of green procurement practice, operational capability, and operational sustainability explicitly.

It is against this background that the study examines the impact of green procurement, operational capabilities, and organizational sustainability with the moderating effect of top management's environmental orientation.

1.3 Objectives of the Study

The main purpose of the study is to examine examines impact of green procurement and operational capabilities, on organizational sustainability with the moderating effect of top management's environmental orientation in the Ministry of Lands and Natural Resources. Specifically, the study seeks to;

i. analyze the impact of Green Procurement practices on the sustainability of Ministry of Lands and Natural Resources.

ii. assess the effect of Operational Capabilities on the Sustainability Ministry of Lands and Natural Resources.

iii. examine the moderating effect of top management's environmental awareness on the relationship between green procurement practice, Operational Capabilities and Organizational Sustainability.

1.4 Research Questions

i. What is the impact of Green Procurement practices on the sustainability of Ministry of Lands and Natural Resources?

ii. What is the effect of Operational Capabilities on the Sustainability Ministry of Lands and Natural Resources?

iii. How does top management's environmental awareness moderate the relationship between Green procurement practice, Operational Capabilities and Organizational Sustainability?

1.5 Hypotheses

H_1: *Green procurement practice and Operational Capabilities have a significant positive effect on Organizational Sustainability*

H_2: *Top management's environmental awareness has a significant positive effect on Organizational Sustainability.*

H_3: *Top management's environmental awareness has a significant moderating effect between Green procurement practice Operational Capabilities and Organizational Sustainability*

1.6 Significance of the Study

Firstly, the study addresses the need for organizations to adopt sustainable practices to reduce their environmental impact. The research will provide insights into green procurement practices that can enhance operational capabilities and improve organizational sustainability. This information is crucial for organizations that want to improve their environmental performance and reduce their carbon footprint.

Secondly, the study highlights the importance of top management environmental orientation in driving sustainable practices within the organization. The research will examine how the environmental orientation of top management can moderate the relationship between green procurement practices, operational capabilities, and organizational sustainability. By doing so, the study will provide a better understanding of the mechanisms through which top management can steer an organization towards environmental sustainability.

The research examines the role of operational capabilities in achieving organizational sustainability. Operational capabilities refer to the company's ability to efficiently and effectively manage its resources to achieve its goals. This research shows that companies with strong operational capabilities are better equipped to implement green procurement practices, which will, in turn, contribute to sustainable practices within the organization.

The study has significant implications for academics, practitioners, and policymakers. The findings can help organizations to develop effective green procurement strategies that enhance their operational capabilities and improve their sustainability performance. The study can also guide policymakers in developing regulations and policies that promote sustainable practices in organizations.

Finally, the study can contribute to the academic literature by providing insights into the role of top management environmental orientation in driving sustainable practices in organizations.

1.7 Delimitation of the Study

The delimitation of this study is influenced by the context and geographical coverage. Contextually, the study examines impact of green procurement and operational capabilities, on organizational sustainability with the moderating effect of top management's environmental orientation. Geographically, the study is confined in the Ministry of Lands and Natural Resources. This study area was sampled because of convenience and adequacy of population with the characteristics of the variables under study.

1.8 Limitations of the Study

In most studies, researchers encounter the issue of limitations (Patton, 2002). Data expense and job tasks were major challenges in pursuit of academic project of such magnitude. Scarcity of information, and publications especially in third world economy as ours, served as constraints to information gathering.

Time was a constraint, combining the academic and research work, finance was also another aspect of the constraint because every movement for the research activities required money. The researcher again faced the challenge of collecting data from respondents and most especially from the procurement department since they were preoccupied with official work other than attending to the researcher. However, this challenge was resolved by persistent visits to such employees on rescheduled appointments by the researcher.

1.9 Organization of the Study

This thesis is divided into five major chapters. Chapter one contains an introduction, statement of the problem, research objectives, research questions, hypotheses, significance of the study, delimitation, limitation of the study, and organisation of the work. Chapter two concentrates on the literature review where scholarly articles and working papers on the topics under study was reviewed. In Chapter three, the research methodology employed was described. These include research approach, research design, the population, sample and sampling technique, data source, instrumentation, procedures, and data analysis, validity and reliability as well as ethical considerations. Chapter four contains the presentation, analysis and discussion of the data collected in the study. Finally, in Chapter five, the researcher provides a summary of the findings of the study and conclusions. Recommendations are made for future practices to address identified deficient practices and to strengthen positive practices already in place. Suggestions for future research are addressed in this chapter as well.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter of the study concentrated on the literature review of prior research works on green procurement. The review assisted to answer inquiries brought up in the objectives. Furthermore it gave steady data that was vital for the study. The review lend much credence to books, articles and research works that cover the concept of procurement, Green Procurement practices, operational capabilities and organizational sustainability. The chapter again provides background information about Green procurement, Operational capabilities, organizational sustainability and the moderating effect of top management's environmental orientation, including definitions, theories, conceptual framework and operationalization table.

2.2 Conceptual Review

2.2.1 The Concept of Procurement

Procurement in the early 1970s was regarded as a clerical, reactive and a cost centre within most institutions. However, the situation has evolved in contemporary times. Accenture Global Service (2015) highlighted that procurement has become a strategic, pro-active, value-adding, solution-providing business function, which aids the organisation with complex concerns like profitability, corporate growth and competitive advantage. A great range of forces that embodies globalization, changing demographics, shifts in consumer demand, resource scarcity, environmental pressures, technology advances, governmental regulation and activism are currently reshaping the markets, industries and products (Carter, D'Souza, Simkins & Simpson, 2007).

Carter et al. (2007) indicated that organizations are turning to their procurement function for aid during these trying times and the procurement function can represent between 50 to 75 percent of the overall expenditure of these organizations. Knight (2012) defined procurement as the acquisition of goods and/or services at the possible total cost of ownership, in the right quantity and quality, at the right time and in the right place for the direct or indirect benefit of use to the organisation. Angeles and Nath (2007) highlighted that procurement normally represents one of the largest expense items in an organisation's cost structure.

According to Stentoft Arlbjørn and Vagn Freytag (2012), procurement is the process whereby sector organisations acquire goods and services from third parties. Public procurement includes much that supports the work of government and ranges from routine items. Examples include stationery, temporary office staff, furniture or printed forms; to complex spend areas (e.g. construction, Private Finance Initiative projects, aircraft carriers or support to major change initiatives). He added that, procurement also involves a growing spend where the private and third sectors provide key services directly to citizens in areas such as welfare-to work, further education, social care and health.

Procurement, according to Conway (2012), entails the process through which goods and services are obtained through the processing and preparation of requisition by issuing a receipt and approval of invoice for payment and services from preparation and processing of a requisition through to receipt and approval of the invoice for payment. It involves the plan for purchases, determination for standards, development for specifications, research and selection of appropriate supplier and value analysis of a product or a service to be delivered. It also entails the financing of goods and services,

negotiations for effective price, making the purchase, administration of the contracts, inventory controls and disposal of waste and other related functions that involves the delivery of products and services. Procurement, in the view of Asare and Prempeh (2017) is defined as the process of acquiring goods and services from a supplier which could be an individual or organization. The process for procurement could be viewed as involving sourcing contracts, monitoring and evaluation of the contract and expedition based on a specified standard.

From the study of Seyram (2016), procurement is a means of purchasing, hiring or obtaining a commodity, a property or a facility on a value-added cost with the correct amount, at the right period, in the right place to be effectively used by a firm while marinating the pact agreement with the PPA, Act 914 enacted in 2016. With this concept in mind, the management of a firm ensures that they become economically self-controlled, become liable, clearness, behaves morally good and delivers their services that is in line with the objectives of the company. This is what pushed the amendment and guided the PPA, Act 914 in the country; to ensure that public expenditure is done with a value-added in mind (Public Procurement Act, 2016).

2.2.2 Green Procurement

United nation development program (UNDP), (2008) defined environmental or green procurement as, “the purchase of products and services which have less impact on the environment and human health compared with competing products or services that serve the same purpose”. However, there are others who would argue that green procurement may also be based on purchasing a green product and on a green process of procurement. This may be done during the supplier appraisal where a supplier is chosen due to (for example) its environmental accreditation (for example implementing

ISO (International Organization for Standardization, 14001 standard), or due to its environmental policy. As this 'green' criterion results in a supplier's increased business, it encourages them to continue incorporating 'greenness' in their processes and even in their products and it also encourages competitors to implement green business processes (New et al., 2000). Though relatively new, green procurement is an excellent way of increasing environmental awareness which then motivates people to buy environmentally sound products (Environmental Protection Agency EPA, 2007).

Other advantages of green procurement is that it improves the market position of environmentally sound products, and as demand for green products increases, it acts as an incentive for technological advancements towards green products (Banytė et al., 2010).

Furthermore, purchasing green products may result in lower costs at the organizations, for example purchasing energy and water efficient products would result in lower costs of energy and water (Emmett and Sood, 2010). Green procurement affects the entire supply chain as suppliers/manufacturers are pressured to provide equipment that is environmentally-friendly. To this effect, manufacturers, often in collaboration with their suppliers, opt to design and develop equipment that are easy to disassemble and recycle, and acquire raw materials and other supplies and services that take into consideration environmental aspects (Emmett and Sood, 2010).

Finally, having green qualifications does not necessarily need to be the basis of the final product or supplier used. They can be used as a prequalification amongst other criteria during the procurement process. Thus the final deciding factor on the supplier or product could be a criterion other than its 'greenness'. Though this may not result in a significant environmental result, it communicates to suppliers that including green

aspects in their business or products is important. This approach is fairly simple and it may be considered the best way for a corporation to begin their green procurement journey (New et al., 2000) Other reasons for implementing green procurement in an organization include reduction of potential negative publicity, and green public procurement policies and/or schemes.

2.2.3 Steps to Successful application of Green Procurement

2.2.3.1 Adopt a green procurement policy:

There should be an established policy in place that will set out clearly the role of green procurement officials and buyers. Their policy should adopt the standards and targets that will show what will and will not be purchased and the agreed technique to be used (whole life costing, risk assessment).

2.2.3.2 Challenge current culture within the company

A Published green procurement policy will help senior management to show commitment to the course and ensure that senior figures are seen to pursuing this policy and demonstrate their total commitment to real action to the change.

2.2.3.3 Develop a dialogue with suppliers

There should be constant discussion with suppliers on the possibility of sustainability into current procurement contracts. All fresh procurements should include sustainability at the specification stage (Improvement and Development Agency, 2003).

2.2.4 Procurement Practices

Procurement practices are concerned with the management of a significant proportion of the non-pay expenditure and ensuring that the possible value for money is obtained when committing organisation expenditure (Petcavage & Pinkerton, 2010). The procurement practices are concerned with obtaining the required goods and services from appropriate suppliers to enable the institution to meet its strategic objectives in an economic, efficient and effective manner. Supplier partnership will be operationalized through reduction in lead time, product quality, and strategic sourcing. Procurement practices include: effective procurement planning, understanding procurement principles, managing supplier partnerships, contract management, among others (Petcavage & Pinkerton, 2010). Procurement practice will to lead to improvement in quality and reduction in cost. It improves proper allocation of firm resources, high quality and timely procurement. This eventually results in budgetary saving and increase profitability in organisations. Organisation performance will be measured by customer satisfaction, quality of products and quality of service delivery.

2.2.5 Green Procurement in Ghana

In Ghana there are various policies, laws and regulations that relate to the environment. There is no clear policy or law specifying green procurement in Ghana's public procurement law but there are a whole lot of laws and policies on land degradations, water bodies, animals among others which are related to green procurement by concept and practices. The concern about the land and environmental degradation has been expressed since the early decades of the twentieth century, notably since the 1930s (Agyepong, 1987; Benneh et al., 1990).

Legislation to protect specific aspects and components of the land were put in place in the early years of the century. For instance, in 1901, the Wild Animals Preservation Ordinance was passed, followed by the Rivers Ordinance in 1903. Forest reservation was initiated in 1907, followed a year later by the establishment of the Forestry Department. The Mining Rights Regulations Ordinance was introduced in 1925. Severe degradational problems in the northern savannas led to the institution of land planning and soil erosion measures in those areas.

These introduced conservational practices in the agricultural use of land, water, and grazing resources. Planning and execution involved the Departments of Agriculture and Forestry and the local people. The Land Planning and Soil Erosion Ordinance was passed in 1953, and amended in 1957, to create permanent committees of the areas designated for planning (Benneh, 1985). Ghana is the first African country to create AKOBEN, an environmental performance rating and disclosure initiative of pollution by the Environmental Protection Agency (EPA), which provides access to information on the release of mining and other wastes into the environment (Darko-Mensah & Okereke, 2013). The agency in charge of protecting the environment in Ghana is the Environmental Protection Agency which was called Environmental Protection Council (EPC) then.

The Environmental Protection Council (EPC) was established as a public institution with oversight responsibility for the environment in 1974 through the National Redemption Council Decree, number 239 (NRCD 239) in Ghana. Section 2 of the decree required among other things, the Environmental Protection Council to ensure the observance of proper safeguards in the planning and execution of all development projects including those already in existence that are likely to meddle with the quality

of the environment (Yeboah & Mensah, 2014). The enactment of Environmental Protection Agency Act, 1994 (Act 490) was to create a corporate body called the Environmental Protection Agency (EPA) which replaced the EPC. This agency has been in existence and in charge of environmental issues in Ghana to date. Among its functions, the EPA was mandated to "ensure compliance with any laid down environmental assessment procedures in the planning and execution of development projects, including compliance in respect of existing projects." According to the Environmental Protection Agency, there are Environmental Policy, Sustainable Development Policy and General Legislative Framework.

The environmental impacts of the Structural Adjustment Programme (SAP) and Economic Recovery Programme (ERP) in the early 1980s in Ghana led to the development of the Ghana Environmental Action Plan (EAP), a set of policy actions, related investments and institutional strengthening activities to make Ghana's development strategy more environmentally sustainable.

The emerging issues of the environmental challenges currently have assumed prominence and its impact on the economy and society have prompted Ghana to have second view of the public procurement system as a socio-economic instrument in dealing with the environment, society and the economy. The Public Procurement Authority as part of its drive to create an efficient and effective public-sector procurement system that is beneficial to the public at large has introduced a new concept, which is about sustainability issues, into Ghana's public procurement (SPP) seeks to address the environmental, social and economic consequences of public procurement actions (Public Procurement Amendment 2016, Act 914). This is in support of the government of Ghana's interest and drive towards sustainable

development. Ghana's current pattern of development puts a lot of pressure on the environment. The burdens on the natural eco-systems in Ghana are momentous and if acceptable interventions are not made to change to the contrary the situation, it is likely that the long-term overall effect would be irreversible and catastrophic to future generations.

2.2.6 Operational Capabilities

The development of operations capabilities as part of the operations strategy is crucial for creating a sustainable competitive advantage within different market environments which therefore form the basis for competition between firms (Sansone et al., 2017). Operations capabilities are the ability to assign resources to an operation and are developed over time through applying competencies and resources to the competitive priorities (Prester, 2016). The goals and objectives of manufacturing firms form the operations capabilities which are usually tacit, inimitable, non-transferable and firm specific (Prester et al., 2016). A key element of the operations strategy is to maintain, abandon and develop operations capabilities to meet changing demands (Größler & Grübner, 2006). Hence, to enable a firm to anticipate market changes, operations capabilities are required to be dynamic in order to transform swiftly into products and services, generating a superior position to its competitors (Zhang et al., 2015). Operations capabilities in turn influence the operations strategy, determining the performance of operations and are conceptualised as operational strengths (Größler & Grübner, 2006; Liu & Liang, 2015).

Literature has established and agreed on four basic operations capability dimensions, namely cost, quality, delivery and flexibility (Ferdows & De Meyer, 1990; Größler & Grübner, 2006; Hallgren, 2007; Liu & Liang, 2015; Miller & Roth, 1994; Ward et al.,

1996; Zhao, Yan Yeung, & Zhou, 2002). However, since markets, technologies and social factors are in a continuous state of change, three additional dimensions have emerged since the early 2000's and started to gain recognition in literature: Innovation, service and sustainability (Alsmadi et al., 2011; Cruz & Rodriguez, 2008; Koufteros et al., 2002; Longoni & Cagliano, 2015; Prester et al., 2016; Sansone et al., 2017; Zhao et al., 2002). Therefore, this thesis evaluates the importance of all seven operations capability dimensions and their underlying operations capabilities.

2.2.7 Organizational Sustainability

Organizational sustainability (OS) has become a popular theme over the last few years, which has led organizations to come under great pressure from markets and legislations, and have thus sought to align themselves with sustainability, originating the term OS. By reaching in the direction of sustainability, organizations seek legitimacy before markets, increasing their scope and securing greater financial returns.

In the context of OS, the Triple Bottom Line (Elkington, 1999) comes to light, which advocates that the traditional business model, that considers only economic factors in the appraisal of a company, should be expanded to a new model by also contemplating the organization's environmental and social performance, as well as the financial. The Triple Bottom Line offers guidelines so that organizations approach sustainability. This way, being the Triple Bottom Line a model conceived for the organizational sphere and widely accepted by various authors (Callado, 2010; Hoff, 2008; Dyllick & Hockerts, 2002; Savitz & Weber, 2006), including empirical works in the area (Souza, 2010; Cella-de-Oliveira, 2012; Bansi, 2013; Dias, 2013), its is chosen as the guide for this work. Other authors do not cite the Triple Bottom Line, but segment the OS in similar pillars (Passet, 1996; Sachs, 1990; Azapagic, 2003). By what has been stated, it is

inferred that the OS, by maintaining a balance between the economic, environmental and social perspective, is concerned as much by the organizations and shareholders financial interests, as with supporting the the natural environment and the social relations under the influence of the organization (stakeholders). A large number of organizations (Hahn & Scheermesser, 2006) have faced constant environmental changes and suffered pressure from legislations and society, forcing them to seek alignment with sustainability. One of the main obstacles of the OS is the confrontation with the economic pillar, since, in the classic view, organizations have as sole function the maximization of the shareholders' capital. The idea of a company aligned with sustainability is that of company activities developed in a socialenvironmental context which conditions the quality and the availability of natural and human capital. More than these three elements, the balance between them is fundamental (Savitz & Weber, 2006; Lemme, 2010).

So, it may be inferred that OS "balances the economic, environmental and social development, as much as in the internal as in the external sphere of the organization. Enables the organization the capacity to survive and pay the invested capital; seeks the reduction of environmental impacts and promotes the rational use of natural resources; guarantees the individuals sufficient resources to access equal opportunities and development in face of organizational objectives, as well as assures that individuals receive balanced and contextual social and environmental benefits and detriments that arise from organizational activities (Munck, Bansi, Dias, & Cella-de-Oliveira, 2013)." Sustainability is a state in which an organization or a society exhibits a relation to economical environmental and social aspects (Munck & Souza, 2009). Therefore, usually when it is said that an organization or a society is sustainable it is meant that it holds a certain state of sustainability. As such, sustainable is what can be maintained, in

other words, nothing is stagnant, that is why sustainability must be viewed in levels (Van Marrewijk & Werre, 2003). This way, the correct would be to say that a given organization or society holds a certain level of sustainability, rather than what is and is no longer sustainable.

Reinforcing the idea of viewing sustainability as a state, organizations may be classified in OS levels (Van Marrewijk & Werre, 2003):

- Level 0 (pre-sustainability): in this level there is no regard toward sustainability. However, certain steps labelled as sustainability may be initiated when the organization receives external pressures (legislation, consumer pressure, etc.);
- Level 1: in this level sustainability consists in providing society with well being, within the limits of legislation. There may also be actions of charity. The motivation for sustainability is its perception as a duty and an obligation;
- Level 2: sustainability consists in the integration of social, ethical and environmental aspects, as long as it contributes to the economic pillar of the organization. The motivation is economic, aiming at the organization's reputation
- Level 3: consists in balancing the economic, social and environmental concerns. Actions go beyond legal requirements and economic considerations. The motivation is that human potential, social responsibility and taking care of the planet are considered equally important;
- Level 4: seeks balance, functional solutions and creation of values in the economic, social and environmental spheres. It also seeks the synergy to win along side all of the interested parties. The motivation is recognition that sustainability is important on its own, especially because it is seen as an inevitable progress;

- Level 5: it's the level of holistic sustainability; totally integrated and incorporated in all aspects of the organization, aiming to contribute to the quality and continuity of life. The motivation comes from the view that sustainability is the only alternative, since all beings and phenomena are mutually interdependent.

Each person or organization, therefore, has a universal responsibility towards others. Each level includes and transcends the ones before, resulting in business practices and institutional development that denotes the different levels of sustainability (Van Marrewijk & Werre, 2003). Even though the Triple Bottom Line is a hierarchical model, the study of the OS lacks management instruments and tools which allow its operationalization, so, without casting judgement of values, a framework is presented that guides the management of the OS (Munck, Munck, & Souza, 2011). This choice arouse from the fact that this framework was conceived from the Triple Bottom Line e specifically for the management of the OS. This model shall be presented in the next section.

2.2.8 Management's Environmental Orientation

Oriented toward environmental strategies, managerial teams find opportunities to reduce costs and increase income and intangible values; they are building deep connections with customers, employees, and other stakeholder groups. Their strategies explain the sustainable competitive advantage, which Esty and Winston (2006) call Eco-Advantage. The result is the design and implementation of strategies to create competitive advantages while meeting the standards of sustainability. This is expressed by an economic growth designed to ensure welfare and health of the community involved, directly or indirectly, by protecting the natural environment and respecting its

regenerative capacity for future generations. Adaptive management uses the managerial interface as a strategic technology designed to explore the dynamics of ecosystems, as it identifies the uncertainties and sets techniques to test the related hypotheses. This managerial philosophy uses management not only as an instrument to change the system, but also as a learning tool. Adaptive management is bound to the need for knowledge and the cost of ignorance, while traditional management is focused on the preservation and cost of knowledge. If it is consistent with sustainable development, adaptive management must not only keep and develop political opportunities, but also create them. Therefore, according to Murray and Marmorek (2004), this evolutive managerial technology is a social, as well as a scientific process, meant to assist leadership in building confidence and increase the chances of achieving goals.

Adaptive management is a concept based on continuous improvement. This approach must be addressed in the context of an evolutive quality that is a way of life, or at least a cultural approach to improve quality, rather than an instrument or a technique, as Caraiani et al. (2007) have revealed. Masaaki (1997) believes restructuring or reinventing an entity may be destructive, costly, and frequently dysfunctional. The continuous improvement of processes that add value, but do not make excessive use of resources or produce waste, lead to low costs and significant improvements in the essential business processes. In turn, these improvements yield major increases in productivity, quality, client satisfaction, and profitability. Environmental-oriented management means observation, diagnostics, analytical thinking, creativity, and adaptability. Its natural course begins with the collection of environmental impact data and the primary observation of quantifiable causes and effects. The success of this first stage depends on the way managers reflect on the issues identified, employ analytical thinking, and adapt their opinions. As reasoning becomes clear and refined, managers

select quality information pertaining to the given eco-objective. This is known as active management, the first level of the environmental oriented management system. After acquiring the knowledge, benchmarking is needed to diagnose and solve the problems related to the environment and correlated with the proposed objective. Reasoning and analysis take the place of observation, while benchmarking offers more information, working procedures, and original tactics to achieve eco performance. In the field of eco-performance, the last level of environmental-oriented management yields valuable results from the managers responsible for development. The managerial strategy based on the implementation of environmental-oriented strategies might satisfy the conglomerate of interests leading to a sustainable value. Environmental-oriented management should not sacrifice responsibility for profits, nor profits for responsibility. Esty and Winston (2006) have proposed a framework for environmental-oriented management strategies.

An environmental-oriented managerial strategy involves advanced instruments to create eco-advantage. Short-term actions must be based on analyses and be a first step towards developing an environmental strategy. While short-term actions are aimed at understanding environmental risks and opportunities, the medium-term actions must be oriented towards outlining an eco-efficient culture specific to the company. Long-term actions involve the outlining of the business strategy in relation to environmental issues. Environmental-oriented management requires a design based on the complexity of phenomena and the adequate use of techniques, technologies, and managerial instruments that release information, ideas, and analyses useful in achieving such strategies.

2.2.9 Moderating Effect of Top Management's Environmental Awareness

The upper echelons theory believes that the top management, affected by their personal experiences, cognitive models, values, and environmental attitudes (Hambrick, 2007), is the core of business management and also a key role in corporate strategic decisions (Child, 1997). The cognitive psychology believes that consciousness is the response of human brain to the objective existence in environment and is reflected in people's awareness and attention to the outside world and their own environment (Hanbrick and Mason, 1984; Witkin, 1965), and environmental awareness, which is a concrete embodiment of cognitive models, embodies individuals' perception and behavioral tendency toward environmental issues. The influence of internal and external factors on green innovation mainly depends on the perception and interpretation of environment by the top management, whereas the decision to carry out ecoinnovation activities depends on the environmental awareness of the top management. The previous literature indicates that the top management knows that environmental opportunities may become an important source of increases in actual income. The stronger the environmental awareness is, the more the top management tends to identify the potential benefits and market opportunities of green innovation (Drucker, 1985; Christensen, 1995; Porter, 1995; Berrone et al., 2013; Feng and Chen, 2018; Wang and Zhang, 2018).

With a stronger environmental awareness, the top management will also have a strong sense of responsibility for green innovation and is willing to invest more resources and efforts into the green innovation field. With limited resources, the return on investment is the primary consideration for organizations' project investment. Given the large amount of resource input for green innovation, high market risks, and significant R&D uncertainty, only when the top management incorporates green innovation into the

scope of corporate responsibility will it invest more resources from a strategic height (Kharabsheh et al., 2015; Zhang and Walton, 2016; Huang and Li, 2017; Zhang and Lv, 2018). The top management with a stronger environmental awareness holds an open and supportive attitude toward green innovation, is good at exploratory learning, encodes and integrates the acquired information with corporate resources, absorbs internal and external knowledge of organizations and applies it to green innovation, and proactively responds to environmental issues.

The top management with a strong environmental awareness can utilize the exploitative learning to help organizations identify external market opportunities and reasonably allocate their resources and capabilities. Sharma (2000) analyzes the process of strategic selection by organizations from the perspective of opportunities and threats perceived by the top management. He believes that the top management who considers environmental issues as opportunities will tend to select proactive environmental strategies. Burki and Dahlstrom (2017) pointed out that the top management's attitudes and commitments to the environment affect green innovation, which in turn may be conducive to establishing a good cooperation environment.

The previous literature indicates that organizational learning behavior can help organizations be more sensitive to external opportunities, thereby improving their competitive advantages. However, learning activities alone cannot help organizations gain real competitive advantage. The environmental awareness of the top management, as a type of cognitive consciousness, has a moderating effect as it can more clearly reflect the value effect of learning activities. That is to say, the development of exploratory learning and exploitative learning activities will be affected by the environmental awareness of the top management.

A stronger environmental awareness of the top management will have a more significant influence on organizational ambidextrous learning and eco-innovation performance. Therefore, this article believes that the environmental awareness of the top management has a moderating effect on the ambidextrous learning (including learning and exploitative learning) of startups and eco-innovation performance and puts forward the following hypotheses:

2.2.10 Green Procurement and Organizational Sustainability

With both government and private sector; customers, clients, government bodies and the public sector is giving pressure to the implementation of sustainable procurement practices. From the World Summit on the policies of sustainable practices in 2002, it was realized that relevant authorities with the power to make a change in the community should try and promote public procurement practices that encourage development and the possible integration of sound environmental practices and products. Responding to this issues, the Business Operators and Professionals were very quick to design and implement all policies and strategic plans with emphasis on the development of sustainability. In addition, the UK strategy for Sustainability Consumption and Production is one organization that quickly responded to designing and implementing policies of sustainability in procurement. As a good step towards the implementation of sustainability measures, the Government of Europe established the Advisory Committee on Consumer Products and Environment to advice the government in sustainability issues. A study conducted in Europe and published in 2009 found that 80% of all purchases initiated sustainability procurement programmes in 2008 while as much as 90% considers the sustainability measures as critical to the

survival of their business development and growth (Bocken, Short, Rana, & Evans, 2014).

The procurement functions in an organisation or institution derive certain benefits or advantages that improve the performance of its operations. According to the journal (Loppacher, Cagliano & Spina, 2011), implementing procurement practices result in reduced operational and administrative costs and processing times for both governments and their vendor community, increased spending control and buying power and improved vendor relations. Pal, Wang and Liang (2017) commented that a firm by entering into a long-term relationship with a vendor and locking down prices over an extended period for key material could help the organisation reduce cost significantly. The following are some of the identified benefits: Good procurement services can help your company get the value for its money, because the procurement process involves comprehensive research about cost and value (Lingg, Wyss & Durán-Arenas, 2016). A strong procurement function in a company may also be able to negotiate better prices and value with suppliers and independent contractors because these companies will be eager for continuation of businesses. Also, for most companies' warehouse and floor space, is at a premium, thus keeping extra inventory can get expensive while not having enough can lead to serious shortages and unexpected crises (Kakwezi & Nyeko, 2019). A good procurement division will keep inventory streamlined ensuring that parts, materials, and equipment are on hand when they are needed, but not taking up valuable space while they are not needed in the organisation.

Additionally, ensuring lower costs while providing better value are only part of a procurement function's research responsibilities (Kakwezi & Nyeko, 2019). Good procurement departments ensure that the materials and services being used are in line with all local, state, or federal regulations and that, products and services continue to be available devoid of environmental hazards. Similarly, procurement services also ensure that the quality level of the goods or works being procured is up to the standards of the company. Good procurement services help protect companies against contractors and service companies that provide shoddy workmanship and against parts and equipment that are prone to frequent breaking or shortened lifespans (Kakwezi & Nyeko, 2019).

Communicating and conferring with suppliers, vendors, and contractors can literally be a full-time job depending on the size of the company and the scope of the project. Tasking regular employees with this challenge on top of their day-to-day responsibilities can be a recipe for a disaster. A dedicated procurement department or procurement company can take the headache out of complicated logistics (Okinyi & Muturi, 2016; Nzimande & Padayachee, 2017).

Organizations which practice procurement meet their needs for the provision of goods and services not on a private cost-benefit analysis, but with a view to maximizing the net importance for themselves and the entire world. In doing so, there is the need to consider incorporating extrinsic cost into every decision taken in addition to the decisions made on conventional procurement criteria for marinating cost and quality. These considerations are in three aspects: Environment, Economic and Social (also considered as the triple baseline). The most important areas to be considered environmentally is more efficient use of the raw materials in manufacturing activities, pollution and waste as well as energy savings. A review of available literature could

avail that if sustainability is effectively ensured, it has the ability to ensure affordable cost, shorten timelines, encourage effective relationship between stakeholders and give rise to increase in sales. It also results into reduction of risks, enhance reputation and improve margins. As stated by Geissdoerfer, Vladimirova and Evans (2018), the benefits that a firm can accrue in the adoption of policies and plans in procurement sustainability involves the will to exert control on the cost through the adoption of a wider approach to whole life costing, improving the internal and the external measures through the adoption of appropriate performance measurements, complying with issues in the environment and society, managing risks and reputations, building a sustainable supply chain and marinating this chain for the future involving local businesses and the community as a whole.

2.2.11 Firm's environmental performance and financial performance

Environmental performance includes environmental compliance improvement, a decrease in consumption of energy and water, minimum use of hazardous material and environmental accidents, and a decrease in carbon emissions (Yook, Choi and Suresh, 2018). Firms implementing GSCM practices minimize firm costs and improve environmental performance by protecting the environment (Shafique, Asghar and Rahman, 2017). A firm's GSCM practices cause environmental improvement and have a significant and noteworthy effect on a firm's financial performance (Yang, 2018). Change in a climate affects the industrial financial performance (Ali et al., 2021). Environmental concerns to achieve firm performance have an important impact on society (Luo, Ullah and Ali, 2021). Earlier studies have clear evidence of a remarkable relationship among the environmental and firm's financial performance (Al-Sheyadi, Muyldermans and Kauppi, 2019; Weimin et al., 2022). A firm's financial performance

improvement can happen through the successful implementation of GSCM (internal and external) practices (Al- Sheyadi, Muyldermans and Kauppi, 2019).

Environmental performance can be measured by waste reduction, prevention of pollution, or other items related to environmental performance (Tseng et al., 2019). Firms should adopt GSCM practices, but how they can improve environmental and financial performance is not clear yet (Zhu, Sarkis and Lai, 2019). Internal GSCM practices like ECD and IEM can reduce the use of toxic materials, energy, and water waste, which has a remarkable role in minimizing environmental impacts and enhancing firm financial performance by cost-cutting (Al- Ghwayeen and Abdallah, 2018). Financial performance improves as the firms successfully implement GSCM practices (Zailani et al., 2012). According to a study done in China on 126 automobile manufacturers, the indirect influence of GSCM practices on a firm's financial performance might be mediated by a firm's environmental performance (Feng et al., 2018). The rise in environmental performance minimizes pollution due to the successful implementation of GSCM (internal and external) practices, which results in the improvement of financial performance because of a reduction in costs (Esfahbodi et al., 2017). Environmental practices have a remarkable relationship with institutional pressure and green practices (Jianguo et al., 2022). The green growth objective cannot be achieved without the sustainable use of material resources (Xie et al., 2022). A firm's environmental performance mediates the relationship among GSCM practices and financial performance in manufacturing companies (Al-Ghwayeen and Abdallah, 2018).

A firm's environmental performance also mediates the relationship among the institutional pressures and a firm's financial performance (Gupta and Gupta, 2021). Future studies should be conducted to investigate the direct influence of institutional pressures on the environment and the indirect effect on firm financial performance (Yang, 2018). More studies are required to examine the impact of environmental performance, GSCM (internal and external) practices, institutional pressures, and financial performance in manufacturing firms (Saeed et al., 2018).

2.2.12 Barriers to Green Procurement

2.2.12.1 Community Social Responsibility (CSR) Policy

Every organization should have commitment towards the environment. The Corporate Social Responsibility of an organization should be towards the environment, society and cultural of its operations. Since neither private nor public organizations are run as charity institutions, business logic and bottom line results is in charge of the board rooms and therefore, the right arguments need to be brought forth in order to justify the undertaking. If arguments are not sound CSR may be rejected at the board level and that will hinder environmental sustainability (Blackburn, 2004).

2.2.12.2 Perceived Costs

There is a perception that products that meet sustainable requirements are often times expensive (Blair and Wrigh, 2012). According to the UN Procurement guide, the entire procurement procedure and results are seen to be costly and causes a lot of delay. This divergent view conflicts with the aim of acquiring goods at the lowest possible price (Lysons and Farrington, 2006). Procurement considers cost as an important part of its decisions. Total cost of ownership is not observed by many public organsiation.

Because of that, there is the need to provide the necessary information and tools that will change the mindset of the people towards environmentally desirable products to overcome status quo (Sterner, 2002).

The consequence of buying the cheapest goods and services has resulted from the perception that SPP is costlier. Additional financial burdens are also due to sustainable products having higher initial investments, accounting practices, inflexible budget systems. Also, there is information paucity on the relative product costs and services that are environmentally friendly and whole life cost of products (Dorasamy, 2012). According to Walker and Brammer (2009) the issue of environmental sustainability is costly and this can be affected by budget constraints. The perception of financial implication on implementing sustainable procurement play a crucial role on which the policies are acted upon since environmental sustainability is perceived to be more expensive (Stephen and Walker, 2007). According to Blair and Wright (2012), as cited by (Chari & Chiriseri, 2014), sustainable product or service is perceived to be costly and require a massive amount of money for its investment. This goes contrary to the procurement objective which focuses on the lowest possible price by Chari and Chiriseri (2014).

Additionally, the need and demand for the inclusion of environmental sustainability in the procurement process has not been extensively researched on especially within the developing countries to create more awareness. With this, Menguc et al (2010) stated that the costly or expensive nature of environmental sustainability or green procurement and building is the most factor that limits its adoption and implementation. The next challenge, the study stated was the limitation of design implementation and integration and technology. Their study concluded that the level within which the

concepts of green procurement have been hyped requires the participation and corporation of all stakeholders and interest groups involved starting from the decision taking level to the product consumption and disposal stage. Various researchers have given the suggestion that financial resource of companies could increase their exposure in the external market and external stakeholders. The financial resource is also considered as critical to organizational ineffectiveness (Sharma, 2000). It is anticipated that, higher financial resource could lead to exposure and hence result in more pressure from external stakeholders.

2.2.12.3 Senior Management Support

If senior management does not support environmental sustainable procurement, it becomes a barrier to the process. The culture and organisational structures, as well as its processes if in support, will help to achieve sustainable solutions. Senior management support is also paramount in environmentally sustainable procurement process. (Blair and Wrigh, 2012). According to Defra (2006) sustainable procurement task force should have clear course from top executives to convey sustainable progression goals through acquisition process as priority.

2.2.12.4 Structural and Organisational Change

Procurement activity been seen to be lower than in other functional departments, this is particular in the public sector (Uyarra, 2010). This perceived low function has caused general lack of commitment by senior management and political leaders to own the procurement strategies, as suggested by Morgan (2008).

2.2.12.5 Knowledge and Capacity

Barriers to procuring sustainably are diverse and knowledge and capacity is one of them. People with the requisite know how innovative environmentally sustainable procurement solutions can. But unfortunately, procurement decisions reside with individual who may not have capacity to procurer and the skills required for obtaining inventive solution. Rothwell and Zegveld(1981) noted that, if even relatively little capability is needed to procure off the-rack goods at the most minimal possible cost, there should be more capacity required to help suppliers to improve. Because procurement activities are now more of strategic nature, commentators are now critical to examine to the expertise required of procurement professionals (Tassabehji and Moorhouse, 2008). Cousins, Handfield, Lawson and Petersen (2006), argue that purchasers who have capacity and knowledge improve the operational efficiency and financial performance of the organization.

Case is quality change, design and lessening of lead times etc. They are able to distinguish between strategies, developed effective purchasing in accordance with strategic planning, procuring skills, procuring status and internal integration. As said by Defra, 2006, task force for the sustainable procurement concludes that a great deal of public sector needs proficient acquisition expertise. There is absence of thorough comprehension about sustainability and how it identifies with acquisition; issues raise is somewhat due to the understanding that environmental functionaries instead of procurement specialists convey practical acquirement direction. Because there is not much data, preparation and accountability, the barriers to including sustainable procurement is very difficult. Buyers become confuse about sustainability because there is not much and accurate information available. Sustainability training if it is

lacking demotivates procurers on the delivery of sustainable procurement (Green Procurement Taskforce).

2.2.12.6 Availability of Suppliers of Sustainable Assets or Services

Another barrier to green procurement is lack of suppliers who deals in sustainable products. Some goods which are environmentally friendly are not readily available on the supply market. This makes it very difficult to meet specifications set and that may not achieve value for money. However, these items often perform far better than their less-green counterparts through efficient life-cycle costs (Sterner, 2002).

Some of the goods and services required by public sectors are specialist and very challenging in identifying and procuring. NAO, (2005) as cited by Preuss (2009) also identified some factors to sustainable procurement as the trade-off between sustainability and cost, leadership commitment and integration of sustainability into the standard procurement process. Francesco et al., (2012) reported that access to service providers or suppliers is a significant factor in achieving sustainability. Some of the products or services to be procured can be of specialized nature and few suppliers or service providers are available. You are sometimes forced to forgo certain things in other to get your procurement fulfilled.

Moreover, it is noted that the lack of a clear path to job advancement and the low wages attached to the procurement industry also challenge the implementation of procurement reforms (World Bank, 2003a). Inadequate reports concerning sustainability practices (World Bank, 2003a), and lags in the settlement of awarded contracts and the smooth suppliers to the goods and services need in the SP process also forms part of the challenges militating against the smooth implementation of procurement reforms

(Azeem, 2007). Many contract bidders are also experiencing limitations in various capacity challenges which include the lack of basic and technical knowledge in procurement laws and standards, lack of capacity to appreciate and appraise the standard set by the procurement documents, no access to information on tendering process as well, as the lack of technical and managerial capacity to develop innovative ideas and hence presents a competitive advantage in the procurement sector (ODPP, 2007). In the Ghanaian public procurement sector, there is no doubt that, these challenges forms a major challenge to the effective implementation of SP practices.

2.2.12.7 Political Interference

In addition, the problem of political interference also plays a detrimental role in the procurement process. It presents a significant challenge to the implementation and enforcement of sustainability issues within the public procurement sector. A report from the world bank (World Bank, 2004b) stipulated that majority of politicians do think and have the perception that they have the mandate to intervene in the procurement procedures and standards which mostly leads to dangerous decisions that go to affect the delivery of quality services. Mostly these politicians meddle with the procurement processes and this leads to an increase in the in the cost of the procurement process.

2.3 Theoretical Review

A theory is a system that explains phenomena by stating constructs and the laws that interrelates these constructs and cognitive development to each other (Mugenda and Mugenda, 2003). Ofosu-Amin (2021), defines theories as statements about how concepts and variables are connected with a purpose of explaining why things happen

as they do. Two (2) theories are underpinned by this study. The theories are the stakeholder theory and the Resource-based View (RBV) theory. They are therefore explained in depth in the following section.

2.3.1 Agency Theory

The principal agency theory which is also referred to as Agency Theory describes the relationship between a principal who has contracted another (agent) to embark on work on his or her behalf explicitly or impliedly (Manyenze, 2013). Hill and Jones (1992) highlight in their study which combines agency theory with stakeholder theory, the main assumption of the theory as the divergence of interest of the principal and his or her agent. Th, therefore, inform that to promote the welfare of the principal, there is the need to institute appropriate monitoring and incentive tools to redirect the agent from opportunistic actions (Hill and Jones, 1992). The theory has other assumptions which have been explained by Keil (2005) below:

a) Both the agent and principal rationally behave towards their expectations under the principles of freedom of contract and private property;
b) The actions of the agent have external effects on the welfare of the principal;
c) The asymmetric information gives the agent discretionary freedom which leads to the agency problem when the agency takes undue advantage of the superior information. Hence, the need for the principal to incur monitoring cost in the form of incentives or supervision if there is minimal control over the activities of the agent;
d) There is divergence of interests. Thus, while both have their own interest, the agent is likely to undertake opportunistic acts to increase his/her own interest rather than that of the principal.

Keil (2005) categorizes these three types of opportunistic behavior of the agent into hidden intention (goals and interests), hidden characteristics (unknown abilities and skills), and hidden actions (limited control over his/her actions). The theory has mainly been used in the business and profit oriented circles to explain the relationship between managers and stockholders, managers and employees, among others (Jensen and Meckling, 1976). However, this extends beyond business to public governance (Kivisto and Zalyevska, 2015). For example, Leruth and Paul (2006) illustrate that there are a number of activities that can be assimilated to principal agent relationship in government: Minister (principal) and Civil Servants (agent) to implement promised programmes; Parliament (principal) and Executive (agent) to implement national programmes at all levels of government; central government (principal) and local government (agent) to implement national programmes at the local areas. In all these instances, there is an observable element which is noteworthy in any principal-agent relationship (Leruth and Paul, 2006). This could be an output, outcome or impact which serves as an indicator for the responsibility or action for which the agent was engaged. Applying the Principal Agency Theory (PAT), this study defines top management as the agent who has been contracted to ensure green procurement practices of its owners (the principal), over a period of time.

2.3.2 Stakeholder Theory

The stakeholder theory is centered on the premise that an organization's actions or policies may have either positive or negative effects on certain actors and parties interested in its affairs. These actors or parties interested in the affairs of the organization are referred to as stakeholders. Freeman (1984) who is the main proponent of this theory suggests in his book (strategic management: a stakeholder approach), a

collaboration among these stakeholders interest towards their benefits over time. Freeman (1984, p.46) cited in (Perlo-Freeman & Catalina, 2008) traditionally defined a stakeholder as "any group of individuals who can affect or is affected by the achievements of the organization's objectives". Upon subsequent recognition of the significant input stakeholders may make towards an organization's success, Freeman (2004) redefined stakeholders as individuals or groups whose efforts are necessary to the success or survival of an organization. Even though the concept was derived from stakeholders of a corporation, stakeholders look beyond the economic interest associated with shareholders to a broader interest which needs to be managed by management of the said organizations towards its success.

Whilst management is responsible to work on behalf of the corporation in responding to and balancing the multiple claims of all the conflicting stakeholders, employees are the individuals management employs to carry out a variety of specific tasks towards achieving general organizational objectives and aims. The organization procures raw materials, items , and other services from suppliers who are expected to be reliable at all times to meet the organization's needs even in times of emergencies. These raw materials are then refined or manufactured into goods or used for services to meet the needs of the customers whom the organization exists to serve. Successfully responding to the competing interest of all these groups presents the organization with a competitive edge from the good relationships created in the long run (Wanyonyi & Muturi, 2015).

The stakeholder theory seems to be popular in recent times due to concerns for sustainability of achieving objectives or outcomes of an organization, be it public or private. It must therefore, be acknowledged that government regulators,

nongovernmental organizations (NGOs), business, media, and policymakers in general have used the concept and tried to implement its principles in one way or the other. For instance, Ahenkan et al. (2013) use the theory to assess the various means through which the participation of local people could be enhanced in financial management and planning of local government agencies in Ghana. Upon categorizing stakeholders into mandatory and permissive (interest advocates and interest wielders), they however discovered among other things that most community members lack knowledge of the process and that they are not invited to community hearings meant to solicit their input.

The question is, is the organization is obliged to be fair or ethically responsible towards a stakeholder aside increasing their wealth or value? The study considers manufacturing firms in Ghana as an organization which seeks to implement a policy to improve a very significant function (procurement) towards the provision of goods and services albeit in a sustainable manner.

2.4 Empirical Review

In global and local perspective, several studies have been conducted with respect to green, sustainable procurement practices and their effect on organisational performance and sustainability.

Mensah and Ameyaw (2005) conducted a study into the difficulties of sustainable acquisition in the Ghanaian construction industry. The researcher found out that 16 exclusive few individuals at the departments responsible for procurement understands Green procurement idea which is an embodiment of environment, economic and social aspects. They identified that there is no policy on Green procurement issues in the Ghanaian construction industry. The study concluded that absence of comprehension of

the green procurement as a concept and the initial costs which might be higher were identified as the challenges faced by the Ghanaian green procurement landscape. The study recommended that institutions of education, NGO's and government agencies should play a leading role in regular education and creating vigorous awareness among interest groups on SP issues. The government should invest strategies and techniques needed to achieve SP.

According to Brammer and Walker (2007) study on sustainable procurement practice in the public sector in the UK, Financial limitation, perceive cost of the product, senior management not showing support and lack of sustainable products on the market were some limitations seen to be associated with sustainable procurement. Brammer and Walker (2007) agreed with Mensah and Ameyaw (2005) on the high initial costs procuring sustainable products as one of the barriers. Brammer and Walker (2007) concluded that there should be a clear policy on green procurement to facilitate observation of the legislative support for sustainable procurement is among organization. Lack of policy is the most frequently cited catalyst to achieve green procurement. They argue that, the national and international policy on environments will determinant of the degree to which organisations participate in sustainable acquisition. As recommended by Brammer and Walker (2007) the governments should make available legislation and regulatory support for SP, and make available adequate budgetary allocations for organisations to investments into GP that may be beneficial in the long-run perspective.

Wallace & Omachar (2016) conducted a study on the effects of green procurement practices on operational efficiency at an airways organization. Using descriptive research, the results of their findings indicated that an organization procures

environmentally compatible products that are sourced from credible suppliers that provide quality goods of green manufacturing enhanced environmental consciousness through reuse, recycle and refurbish. The result also established a strong relationship between suppliers and the company. This is because both parties' production efficiency engages the green procurement practices to offer their customer's environmentally friendly goods by green packaging practices, waste prevention, and energy savings on low energy-consuming goods.

In another study, Nadeem et al. (2017) examined driving indicators for implementing sustainable procurement behavior and practices in the Pakistan public procurement department. Employing a descriptive research design revealed that awareness and organizational commitment to change and approach to green supplier and products were positively related to sustainable public procurement implementation. Moreover, Khidir et al. (2010) investigated a study on the examination of four drivers, such as regulation, customer pressures, social responsibility, and expected business benefits for green purchasing adoption among environmental management system (EMS) 14001 certified companies in the Malaysian manufacturing sector.

Using a mail survey technique, the result of their findings asserted that green procurement is explicitly affected by drivers such as regulation, customer pressures, expected business benefits, and firm ownership. The result further states that, though the Malaysian firms show a high social responsibility level, it does not constitute a genuine driver for these firms to adopt green procurement. In a similar study, Nderitu & Ngugi (2014) researched the effect of green procurement practices on organization performance in the manufacturing industry, citing the case of East African Breweries Limited. Adopting descriptive, inferential statistics, the results discovered that the

manufacturing industry's performance contributes to more than one factor and that green procurement attributes contribute to performance. Also, the staff members' competence in green procurement concepts was an essential contributor to the effects of green procurement attributes to organization performance. Furthermore, East African Breweries Limited had already established an information communication infrastructure system that allows suppliers to participate, which increased their contribution to 29% of organizational performance.

Yang & Zhang (2012), in a survey of 144 Chinese companies, researched factors of green purchasing practices of Chinese using factor analysis, SPSS software, and regression analysis. The results revealed that leaders' support would boost green purchasing practices, and environmental management costs will hinder Chinese enterprises' green purchasing practices. Top Management Support Top management participation in green procurement means an increased motivation on collaboration as an essential requirement for supply network coordination. They must recognize the essence of collaboration (Ireland & Bruce, 2000) and approve supply chain management principles by providing the needed resources (Marien, 2000); and be actively involved in the collaboration. Stuart (1993) states that supplier partnership development relies on top management support. Increase the level of support in knowing key supplier activities and materials can be useful in influencing suppliers' activities (Walton et al., 1998).

External collaboration can be achievable through competent leadership (Andraski, 1998). Thus, top management support is a significant driver that is very powerful and very positive for the implementation of green procurement practices (Sandberg, 2007).

It is a critical factor that can drive efficient implementation of green procurement practices is awareness and acquaintance with guidelines, policies, and laws linked to green purchasing sustainability (Nadeem et al., 2017). According to Sun et al. (2012), green procurement awareness may influence its implementation in a sustainable way for both companies and states. Environmental awareness has often been a key factor of green sustainable performance, which has the potency to better implement green procurement (Zuo & Zhao, 2014). Accordingly, availability and awareness of green procurement guidelines and documents are a pathway towards improving and applying sustainable measures (Testa et al., 2016).

Procurement officers of companies are expected to abreast themselves with the laws, guidelines, and policies connected to contracting and tendering for sustainable procurement (Lin et al., 2015). They must also follow governmental regulations to enhance sustainability needed by governance authorities (Amann et al., 2014). However, the violation of procurement laws can lead to heavy fines imposed by government stakeholders. In effect, to increase compliance with sustainability, procurement officers' awareness training may serve as a vital influence on sustainable green procurement implementation (Geldermann et al., 2007). Thus, awareness of green procurement practices can transform procurement officers' mindset, which can impact the speed of sustainable implementation behavior (Tsipouri, 2015), specifically in educational institutions.

2.5 Conceptual Framework

A conceptual framework is a structure of concepts and or theories which are put together as a map for the study and it shows the relationship of research variables (Mugenda and Mugenda, 2014). The conceptual framework is used to explain the relationship between the independent variables and the dependent variable.

The diagram below illustrates the relationship of Green Procurement practices, Operational Capabilities and their impact on Organizational sustainability with top management's environmental awareness serving as the mediator.

Green Procurement practices and Operational Capabilities influences organizational sustainability by improving governance. This relationship is diagrammatically shown in Figure 2.1.

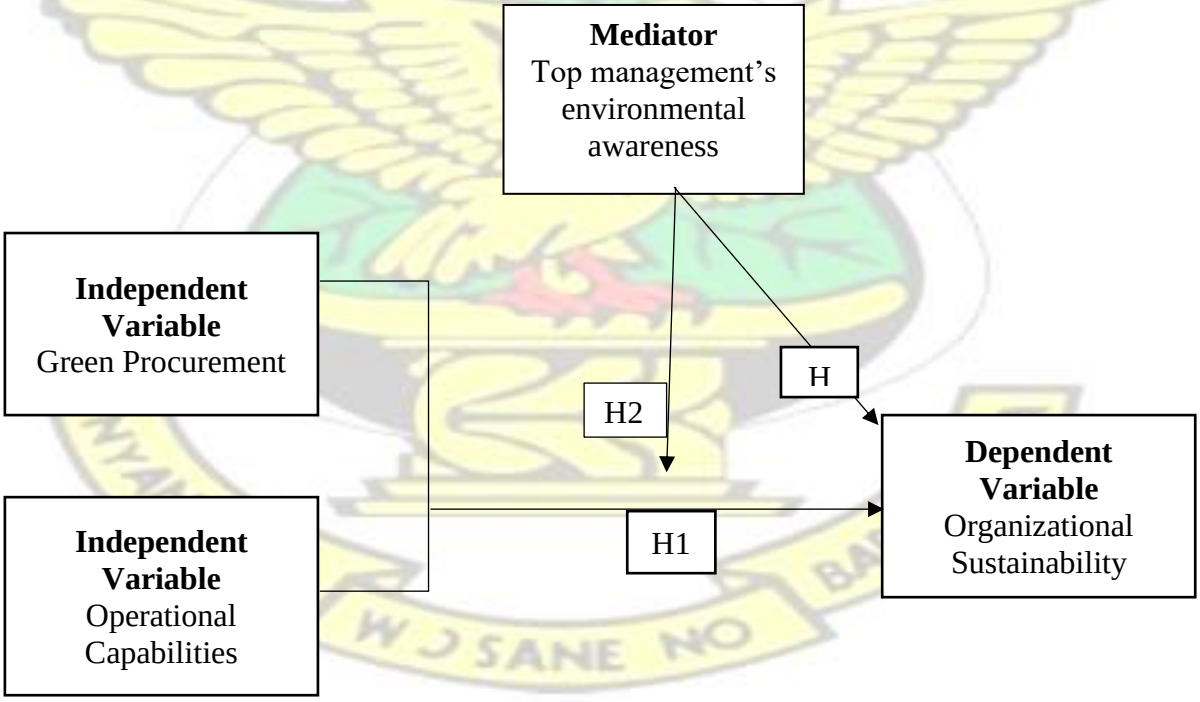

Figure 1: Conceptual Framework

Source: researchers; own construct, (July, 2023)

Figure 1, the study conceptualizes the effect of green procurement practices and Operational Capabilities on Organizational Sustainability With the moderating role of Top management's environmental awareness.

By the above conceptual framework, the study hypothesizes the following;

H1: Green procurement practice and Operational Capabilities have a significant positive effect on Organizational Sustainability

H2: Top management's environmental awareness has a significant positive effect on Organizational Sustainability.

H3: Top management's environmental awareness has a significant moderating effect between Green procurement practice Operational Capabilities and Organizational Sustainability

Table 1: Operationalization Table

TOPIC: Green Procurement practices, operational capabilities and organizational sustainability. The moderating effect of top management's environmental orientation.

CONSTRUCTS	**INDICATORS/SUB-CONSTRUCT/ PARAMETERS**	**ITEMS**	**SOURCE (S)**
Procurement	Green Procurement	GP1. Certification	Nadeem et al., 2017)
		2 Using environmental requirements as specification for purchases	
	Operational capabilities	OC1 Cost	(Hilletofth & Sansone, 2018)
		2 Quality	
		3 Flexibility	
Organizational Sustainability	Organizational Sustainability	OS1 Establishing Brand Loyalty	Wanyonyi & Muturi, (2015)
		2 Continually Innovative	
		3 Patent Products	

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter discusses the techniques and processes used in obtaining relevant data for the achievement of the objectives of the study. The chapter provides a profile of the research setting or the study area, research design and the study population, Sample and Sampling Techniques, data sources and data collection instrument, Validity and Reliability of instrument, data collection procedure, data analysis and Ethical Consideration.

3.1 Profile of Research Setting/ Study Area

The study was carried out in the Ministry of Lands and Natural Resources.

The Ministry of Lands and Natural Resources (MLNR) was established under Section 11 of the Civil Service Law, 1993 (PNDCL 327), and is mandated to ensure the sustainable management and utilization of the nation's lands, forests and wildlife resources as well as the efficient management of the mineral resources for socio-economic growth and development.

The broad aim of the Ministry is to provide leadership and guidance in the Management of the Nation's, Natural Resources through effective policy formulation, market regulation and asset management.

3.1.1 Goal

Address the degradation of natural resources and ensure the effective and efficient management of these resources for sustainable development

3.1.2 Vision

Excel in the management of land, forest, wildlife and mineral resources by well-trained, disciplined and motivated staff through the delivery of client oriented services.

3.1.3 Mission

The Ministry exist to ensure the sustainable management and utilization of Ghana's lands, forests, wildlife and mineral resources for socio-economic growth and development

The Ministry has three sub-sectors namely:

- Forestry Sub-sector
- Land Sub-sector
- Mining Sub-sector

1. The forestry sub-sector is managed by the Forestry Commission and has the following Divisions
   - Forest Services Division
   - Wildlife Division
   - Timber Industry Development Division
   - Plantation Development Fund Board
2. The Land Sub-sector is managed by the Lands Commission, Ghana Boundary Commission and the Office of the Administrator of Stool Lands. The Lands Commission has the following divisions;
   - Land Registration Division
   - Land Valuation Division
   - Survey and Mapping Division
   - Public and Vested Lands Management Division

3. The Mining Sub-sector is managed by the following Agencies:

    - Minerals Commission
    - Ghana Geological Survey Authority
    - Precious Minerals Marketing Company Limited
    - Minerals Development Fund
    - Ghana Integrated Aluminium Development Corporation
    - Ghana Integrated Iron and Steel Development Corporation

New Medium-Term Development Planning Framework Policy Objectives Relevant to the Mandate of the Ministry (2020-2023)

- Ensure sustainable extraction of mineral resources
- Ensure effective linkage of extractive industry to the rest of the economy
- Promote efficient management of mineral resources
- Develop efficient land administration and management system
- Expand forest conservation areas
- Protect forest reserves
- Combat deforestation, desertification and soil erosion
- Enhance climate change resilience
- Reduce greenhouse gases
- Promote effective disaster prevention and mitigation
- Promote sustainable groundwater resources development and management

To address the degradation of natural resources and ensure the effective and efficient management of these resources for sustainable development

3.1.4 Core Functions

The Ministry is responsible for the following:

- Ensuring the efficient formulation, Implementation, Co-ordination, Monitoring and Evaluation of policies and programs;
- Ensuring efficient and equitable land delivery services
- Facilitating the promotion of sustainable forest and wildlife resource management and utilization;
- Ensuring efficient management of mineral resources to catalyse sustainable development;
- Facilitating the promotion of effective inter-agency and cross sectorial linkages;
- Protecting the country's boundaries in collaboration with other state agencies

3.2 Research Approach

Based on the research objectives and questions of the study, the study made use of the quantitative research approach.

Quantitative research generates numerical data or information that can be converted into numbers. It focuses more in counting and classifying features and constructing statistical models and figures to explain what is observed (Sampson, 2012). The purpose is to quantify data and generalize results from a sample to the population of interest. It involves the use of structured techniques such as questionnaires (Creswell, 2005).

Figure 2: Ministry of Lands and Natural Resources

3.3 Research Design

Descriptive survey research design was used for the study since the study seeks to examine Green Procurement practices, operational capabilities and organizational sustainability. Descriptive research design involves systematic gathering of data about elements and collectivities in order to test hypotheses or answer research questions concerning the current status of the subject of the study (Ary, Jacobs, Razavieh & Sorensen, 2006). Ghauri and Grønhaung (2002) noted that in descriptive research, the research problem is well structured and understood and the researcher conducts a study to describe it accurately and the outcome is a detailed picture of the subject.

Malhotra and Birks (2007) consider this design to be wholesome when information is needed about conditions or relationships that exist; practices that prevail; beliefs, points of view, or attitudes that are held or process that are going on. They added that

descriptive research does not fit into the definition of either qualitative or quantitative research methodologies, but rather it can utilize elements of both usually within the same study. An advantage of a descriptive survey is that it helps the researcher to collect data to enable him draw the relationship between variables and analyze the data. It helps to observe, describe and document aspect of a situation as it naturally occurs (Ary et al., 2006). However, it is relatively laborious and time consuming method. It is susceptible or easily influenced to distortions through the introduction of biases in the measuring of instruments and so on. It is sometimes regarded as focusing too much on the individual level, neglecting the network of relations and institutions of societies (Ary et al., 2006). Due to these challenges, the researcher is objective and independent as possible. Data was organized and presented systematically in order to arrive at valid and accurate conclusions. The researcher also described variables and procedures accurately and completely as possible so that the study can be replicated by other researchers.

3.4 Population

Research population refers to or represents all the cases of people, organizations or institutions of interest to the researcher (Aidoo-Buameh, 2014). According to Mugenda and Mugenda (2003), a population refers to an entire group of individuals, objects or events having a common observable characteristic of the researcher's interest. The population is the group of individuals to which the findings, discussion of the findings, and the implications of the research is generalized (Sampson, 2012). That is, the population possesses certain characteristics or information relevant to the research or researcher. Population for the study include the members of the procurement board and

selected workers from other department of the Ministry of Lands and Natural Resources. In all, a population of 100 was used for the study.

3.5 Sample and Sampling Techniques

In undertaking a research study, it is practically impossible for the researchers to survey the whole population due to time constraints and unavailable resources, therefore only a subset of the population were chosen to represent the relevant attributes of the whole of the unit (Graziano & Raulin, 1997) Sampling is the process of selecting a sufficient number of elements from the population so that a study of the sample and understanding of its properties would make it possible to generalize such properties of the population elements (Sekaran, 2003). Sample size could be similarly explained as the suitable number of participants required to attain the desired study results (Bryman & Bell, 2003).

Fifty respondents [(50 (50%)] of the target population were selected for the study. This sample size was chosen based the assertion from Asamoah Gyimah and Duodu (2005). The authors asserted that, that for quantitative studies, a sample size of 30% to 60% of the population size is sufficient for generalization purpose. Again, the sample size was chosen to enhance a concise analysis of the data and for the researcher to work within time.

According to Saunders et al. (2007), sampling techniques provide a range of methods that enable a researcher to reduce the amount of data he needs to collect by considering only data from a subgroup rather than all possible cases or elements. Purposive sampling method was used to purposely select the respondents for data analysis.

Purposive sampling method was used because it allowed the study to focus on people who would most likely experience, know about, or have insights into Green Procurement practices, operational capabilities and organizational sustainability. Kerlinger (1986) explains purposive sampling as a type of non-probability sampling, which is characterized by the use of judgment and a deliberate effort to obtain representative samples by including typical areas or groups in the sample. A purposive sample is one in which a researcher tries to create a representative sample without sampling at random. In other words, purposive sampling targets a particular group of people. The importance of purposive sampling lies in selecting information rich-cases, for in-depth analysis related to the central issues being studied. Fifty (50) employees from Ministry of Lands and Natural Resources were purposively selected for the study.

3.6 Data Source and Data Collection Instrument

Data was collected using both primary and secondary sources. The main primary data used was Questionnaire. This data dealt with information that was collected directly from the respondents. Secondary was gathered from sources other than the respondents. These included journals, newsletters, the internet among others.

Since the research was based on a quantitative approach, structured questionnaires were used to collect primary data. Questionnaire, according to Saunders et al. (2003), is one of the most common data collection techniques, and it is a device for obtaining responses to a predesigned subject matter using a form that the respondent fills out. The survey included both closed-ended and open-ended questions, with closed-ended questions presenting respondents with a limited range of alternatives and open-ended questions encouraging them to disclose as much information as possible. These Questionnaires provided the researcher with data on the subject.

This instrument comprised of various questions regarding Green Procurement practices, operational capabilities and organizational sustainability.

3.7 Validity of Instrument

Validity is the degree to which the study accurately answers the questions it is intended to answer (Gravetter & Forzano, 2018). Validity gives the determination of the results of the research on whether it truly measures what it is intended to measure. In summary, data validity is how the outcome of the research reflects the true value of the outcome of the research (Neuman, 2014). One way the researcher ensured validity was by employing the expertise of colleagues and the supervisor. Vanderstoep and Johnson (2008) argued that a researcher can ensure validity by asking a group of experts to review instruments. By this, draft copies of the instrument was sent to some lecturers from the department who read through and made the necessary corrections. After this review, the questionnaires was again sent to the researcher's supervisor for further review. Their professional advices helped shape the instrument hence ensuring validity.

3.8 Reliability of Instrument

Reliability is the consistency of test instruments across samples selected repeatedly (Webb, Shavelson, & Haertel, 2006). According to the study of (Neuman, 2014), reliability is the ability or the extent to which respondents sourced in a study are consistent and constitute an accurate representation and measure of the sample frame. When the research is such that it can be replicated using a similar methodology or the same methodology, then the instrument used for the study is said to be reliable. To ensure reliability of the study, a pilot study was carried out in the Electricity Company of Ghana (ECG). This company was selected because of its similar characteristics with

the company selected for the actual study. After the pilot study, unclear questions were modified and wrong phrasings of questions were rephrased to fit the study. Ambiguous questions were also detected and corrected accordingly. All these were done to ascertain the level of suitability of the instruments used, ease understanding and maximize their reliability.

3.9 Data Collection Procedures

The researcher was given a research authorization letter and an introduction letter by the Department of procurement and Supply Chain Management-Kwame Nkrumah University of Science and Technology authorizing the researcher to proceed with data collection. With these letters, the researcher visited the head of the procurement department, as well as other departmental heads in the ministry, introduced herself with the available letters and sought the permission to reach the workers to administer the questionnaires. Necessary arrangements concerning days and time were made with the departmental heads.

On the data collection day, the researcher sampled the respondents according to the sampling technique adopted. All the respondents were assured of anonymity and confidentiality of the highest order. The respondents were reminded that the research was purely for academic purposes. The respondents were then requested to fill the questionnaires and the researcher collected them.

3.10 Data Analysis

Kaul (2000) defined data analysis as studying of the organized material in order to discover inherent facts. Crang and Cook (2007) acknowledge that data analysis as a process “involves doing nitty-gritty things with paper, pens, scissors, computers and

software. It's about chopping up, re-ordering, re-construction and (re) assembling the data we have so diligently constructed" (Frankel & Wallen, 2009). Analysis is done on data for the purposes of description, generating empirical relationship and explanation and prediction.

The researcher edited, tabulated and analyzed the quantitative data using the Statistical package for Social Science (SPSS) version 23.0, and transferred these statistical data into statistical chart such as Pie charts and Bar charts using Microsoft Word and Excel software.

3.11 Ethical Consideration

Neuman (2007) posits that, ethical issues tell what is not legitimate to do or what a moral research procedure involves. Ethical principles have it that, a researcher must have respect for human beings, beneficence, there must be research merit and integrity as well as justice (Australian Council for International Development, 2017). Favaretto (2020) also discussed that, the principles of ethics are minimizing the risk of harm, obtaining informed consent, protecting anonymity and confidentiality, avoiding deceptive practices and providing the right to withdraw.

The researcher appropriately addressed ethical issues with regards to the approach adopted. An introductory letter of permission to obtain data from the target respondents was obtained from the Department of procurement and Supply Chain Management-Kwame Nkrumah University of Science and Technology. The purpose and objectives of the study were be concisely explained to the target respondents. The confidentiality of their responses was clearly explained for the appreciation of the respondents. Respondents were involved after their informed consent were obtained. They were

again notified that their involvement will not have anything to do with their job evaluation. Finally, it was emphasized that their responses were voluntary.

3.12 Chapter Summary

This chapter concentrated on the data and methodology employed for the study. Specifically, the chapter discussed the profile of the research area, research design, population of the study, sample size and sampling techniques, data source and collection, validity and reliability, data collection procedure, data analysis procedure and ethical considerations all with the primary goal of achieving the objectives of the study.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS

4.0 Introduction

This chapter is a presentation, analysis and discussion of the data gathered from respondents. It gives the demographic characteristics of the respondents and the variables used.

The researcher distributed 100 questionnaires but was able to retrieve only 86 questionnaires that were correctly filled and answered. This gave a retrieval rate of 86%, according to Amin (2004), if the response rate is more than 70%, this is enough to carry on and continue with data analysis.

4.1 Demographic Characteristics of Respondents

Table 2: Gender

Gender	Frequency	Percent
Female	18	36.0
Male	32	64.0
Total	50	100.0

Source: Field Data (February, 2023)

The data in table 2 displays data on gender of the respondents selected for the study. The table presents the number of respondents and the percentage of respondents in each gender category. There were 50 respondents in the study, of which 32 were male and 18 were female. This represents 64% of the respondents being male and 36% being female. The gender differences in this study suggest that males were more likely to participate in the study than females, with nearly twice as many male respondents as female respondents.

Table 3: Age

Age	Frequency	Percent
18-30years	9	18.0
31- 40years	24	48.0
41-50years	17	34.0
Total	50	100.0

Source: Field Data (February, 2023)

Table 3 shows the results of the study based on the age range of the respondents. According to the table, 9 respondents, representing 18% of the total sample were within the age range of 18-30 years, 24 respondents, representing 48% of the total sample were within the range of 31-40 years and 17 respondents, representing 34% of the total sample were within the range of 41-50 years. It can be seen in the table that, the majority of the respondents were between the ages of 31-40 years, with nearly half of the total respondents falling into this age group. The 41-50 years age group had the second-highest number of respondents, while the 18-30 years age group had the lowest number of respondents.

Table 4: Educational Attainment

	Frequency	Percent
First Degree	19	38.0
HND	5	10.0
Professional Certificate	4	8.0
Second Degree	22	44.0
Total	50	100.0

Source: Field Data (February, 2023)

Table 4 presents the educational attainment of the respondents in the study. The table has it that, 19 respondents, representing 38% of the total sample had a First Degree, 5

respondents, representing 10% of the total sample had Higher National Diploma (HND), 4 respondents, representing 8% of the total sample had Professional Certificate while 22 respondents, representing 44% of the total sample had a Second Degree.

It can be seen that a significant proportion of the respondents had attained a second degree, with 44% of the total respondents falling into this category. The first degree category had the second-highest number of respondents, while the professional certificate and HND categories had the lowest number of respondents. It can therefore be inferred that the majority of respondents in this study had completed a degree program, either at the first or second-degree level, and can therefore be in the best position of contributing to the attainment of the objectives of the study.

Table 5: Department

	Frequency	Percent
Geological survey Department	13	26.0
Procurement	29	58.0
Forestry Commission	4	8.0
Mineral Commission	3	6
Lands Commission	1	2.0
Total	50	100.0

Source: Field Data (February, 2023)

Table 5 presents the department of the respondents in the study. The data shows that there were a total of 50 respondents, from different departments or organizations, and the percentages indicate the proportion of each department to the total sample. From the table, it can be seen that 13 respondents, representing 26% of the total sample were from the Geological Survey Department, 29 respondents, representing 58% of the total sample were from the Procurement Department, 4 respondents, representing 8% of the

total sample were from the Forestry Commission, 3 respondents, representing 6% of the total sample were from the Mineral Commission whiles 1 respondent, representing 2% of the total sample Lands Commission.

This study depicts that the majority of the respondents in the study were from the Procurement department, with 58% of the total respondents belonging to this department. The Geological survey department had the second-highest number of respondents, while the Forestry Commission, Mineral Commission, and Lands Commission had the lowest number of respondents. Overall, the respondents were drawn from a diverse range of departments or organizations, but Procurement had the highest representation in the study. This is so as the goal of the study is on procurement.

Table 6: Management Level of Employees

	Valid Percent	Percent
Director	3	6.0
Junior Staff	8	16.0
Manager	12	24.0
Senior Staff	27	54.0
Total	50	100.0

Source: Field Data (February, 2023)

Table 6 shows the management level of employees in the study. The table shows that out of the total of 50 respondents, the largest group was senior staff, representing 54% of the total sample. This suggests that a majority of the employees in this study are in higher positions of management. The managerial level followed at 24%, indicating that a significant proportion of employees held management positions, although not as high

as the senior staff. Junior staff represented the smallest group at 16%, with just 8 respondents, and directors comprised 6% of the total sampled.

Table 7: Number of years worked with the ministry

Years	Frequency	Percent
1-5years	29	58.0
11-15years	7	14.0
6-10years	6	12.0
Above 15years	8	16.0
Total	50	100.0

Source: Field Data (February, 2023)

Table 7 displays the number of years that respondents have worked with the Ministry. The table has it that 29 respondents representing 58% of the total sample have been with the ministry for 1 to 5 years, 6 respondents, representing 12% of the total sample have been with the ministry for 6 to 10 years. 7 respondents, representing 14% of the total sample size have been with the ministry for 11 to 15 years. Again, 8 respondents, representing 16% of the total sample have worked with the ministry for over 15 years. The results suggest that a majority of the respondents had 1-5 years of experience, representing 58% of the total sample. This indicate that the ministry has a relatively young workforce with a high proportion of employees in their early years of service. Additionally, 16% of the respondents had above 15 years of experience, indicating a small proportion of long-serving employees. Meanwhile, 14% of the respondents had 11-15 years of experience, and 12% had 6-10 years of experience.

4.2 Impact of Green Procurement Practices

This section of the chapter analyzes the impact of Green Procurement Practices on the sustainability of Ministry of Lands and Natural Resources. Green procurement

practices are sub-divided into three categories which are Supplier Selection, Green Purchasing, and Supplier Development. These categories are presented and analyzed below. It begins with supplier selection which is presented in Table 8.

Table 8: Supplier Selection

Supplier Selection	SA	A	NAD	D	SD	Mean	Std. Dev
We only deal with suppliers whose products are considered Green	5	24	16	5	0	2.42	.810
	10.0%	48.0%	32.0%	10.0%	0.0%		
We frequently select suppliers who use Green Materials such as recycle, re-use, reduce, re-furbish	14	11	20	5	0	2.32	.999
	28.0%	22.0%	40.0%	10.0%	0.0%		
We frequently select suppliers who use Green Materials such as recycle, re-use, reduce, re-furbish	14	15	13	6	2	2.34	1.136
	28.0%	30.0%	26.0%	12.0%	4.0%		
We frequently select suppliers who use energy conservation products/service	4	31	6	7	2	2.44	.972
	8.0%	62.0%	12.0%	14.0%	4.0%		
We only deal with suppliers whose products reduce the use of harmful substance	12	19	13	4	2	2.30	1.055
	24.0%	38.0%	26.0%	8.0%	4.0%		

Source: Field Data (February, 2023)

Table 8 presents data on the impact of supplier selection on organizational sustainability, based on responses from the participants. The data includes different statements about supplier selection practices and the corresponding number of respondents who agreed with each statement, represented as percentages and mean scores. The statement of dealing only with suppliers whose products are considered Green received a moderate level of agreement from the respondents. 58.0% of the respondents presented their agreement with the statement, indicating a positive

sentiment. The statement had a mean score of 2.42 and standard deviation of 0.810 which suggests a moderate level of agreement. The first instance of frequently selecting suppliers who use Green Materials showed a similar level of agreement as the previous statement. Approximately 50.0% of the respondents agreed (SA + A) with this statement, contributing to a moderately positive sentiment. The mean rating of 2.32 suggests a slightly lower level of agreement compared to the first statement. The standard deviation of 0.999 indicates a moderate level of variability in the responses, suggesting diverse opinions among the respondents. The statement of frequently selecting suppliers who use Green Materials received a comparable level of agreement as the first instance. On this statement, 58.0% of the respondents agreed indicating a positive respondent. The mean score of 2.34 suggests a moderately positive level of agreement. The standard deviation of 1.136 indicates a relatively higher level of variability in the responses, reflecting diverse opinions among the respondents.

The statement of frequently selecting suppliers who use energy conservation products or services received a relatively high level of agreement from the respondents as 70% of the respondents agreed. The mean of 2.44 indicates a moderately high level of agreement while the standard deviation of 0.972 indicates relatively consistent opinions among the respondents, with a moderate level of variability. With respect to the statement of "only dealing with suppliers whose products reduce the use of harmful substances", it was seen that 63% of respondents presented a high level of agreement. The mean score of 2.30 and standard deviation of 1.055 indicates a moderate level of agreement and a higher level of variability in the responses to the statement.

The analysis shows that the respondents generally expressed agreement with the supplier selection criteria related to green practices and sustainability.

Table 1: Green Purchasing

Green Purchasing	SA	A	NAD	D	SD	Mean	Std. Dev
We frequently ensure environmental requirements for purchased item	3	37	7	3	0	2.20	.639
	6.0%	74.0%	14.0%	6.0%	0.0%		
We frequently ensure environmental requirements for purchased item	9	27	8	4	2	2.26	.986
	18.0%	54.0%	16.0%	8.0%	4.0%		
We frequently ensure environmental requirements for purchased item	4	32	8	4	2	2.36	.898
	8.0%	64.0%	16.0%	8.0%	4.0%		
We frequently assess environmental audit of suppliers internal management	15	20	8	5	2	2.18	1.101
	30.0%	40.0%	16.0%	10.0%	4.0%		
We frequently cooperate with suppliers for environmental objectives	10	25	7	6	2	2.30	1.055
	20.0%	50.0%	14.0%	12.0%	4.0%		
We frequently cooperate with suppliers for environmental objectives	11	24	13	2	0	2.12	.799
	22.0%	48.0%	26.0%	4.0%	0.0%		

Source: Field Data (February 2023)

Table 9 presents data on the impact of Green Purchasing on organizational sustainability, based on responses from the participants. The data includes different statements about green purchasing and the corresponding number of respondents who agreed with each statement, represented as percentages and mean scores.

The statement of frequently ensuring environmental requirements for the purchased item shows a relatively high level of agreement among the respondents. This is so because it was seen from the data that 80% of the respondents agreed or strongly agreed with this statement. The mean score for the statement was 2.20 which suggests a moderate level of agreement. The low standard deviation of 0.639 indicates relatively

consistent opinions among the respondents. The second statement of frequently ensuring environmental requirements for the purchased item received a similar level of agreement as the first statement. This is so as 72% of the respondents agreed or strongly agreed with this statement. The mean rating of 2.26 suggests a moderately positive level of agreement. The standard deviation of 0.986 indicates a moderate level of variability in the responses, reflecting some diversity of opinions among the respondents.

The statement of frequently ensuring environmental requirements for the purchased item received a similar level of agreement. 72.0% of the respondents agreed or strongly agreed with this criterion. The mean score of 2.36 suggests a moderately positive level of agreement.

On the statement of frequently cooperating with suppliers for environmental objectives, the table has it that, 70% respondents agreed or strongly agreed to the statement. The mean score of the statement was 2.30 whiles the standard deviation was 1.055. These suggest that there is a moderate and a relatively higher level of variability in the responses. Lastly, the statement of frequently cooperating with suppliers for environmental objectives received a moderate level of agreement. This is evident as 70% of the respondents agreed or strongly agreed with this criterion. The mean rating of 2.12 suggests a moderately positive level of agreement whiles the low standard deviation of 0.799 indicates relatively consistent opinions among the respondents.

The analysis shows a relatively high level of agreement among the respondents for the criteria related to ensuring environmental requirements for the purchased items. The

criteria of assessing environmental audits and cooperating with suppliers for environmental objectives also received moderate levels of agreement.

Table 2: Supplier Development

Supplier Development	SA	A	NAD	D	SD	Mean	Std. Dev
Our suppliers invest (financial, machinery, technology) in green products	9	24	9	6	2	2.36	1.045
	18.0%	48.0%	18.0%	12.0%	4.0%		
We frequently communicate on green procurement with suppliers	10	25	6	7	2	2.32	1.077
	20.0%	50.0%	12.0%	14.0%	4.0%		
We frequently train our supplier on green practice	8	27	5	8	2	2.38	1.067
	16.0%	54.0%	10.0%	16.0%	4.0%		
We reward/award our suppliers for improvements in green practice	11	19	8	10	2	2.46	1.164
	22.0%	38.0%	16.0%	20.0%	4.0%		

Source: Field Data (February, 2023)

Table 10 presents data on the impact of supplier development on organizational sustainability, based on responses from the participants. From the table, it can be seen that the statement about suppliers investing (financial, machinery, technology) in green products received a moderate level of agreement from the respondents. Approximately 66.0% agreed or strongly agreed with this statement, indicating a positive level of agreement. The mean score of 2.36 suggests a moderately positive level of agreement, while the standard deviation of 1.045 indicates some variability in the responses.

Again, the statement regarding frequent communication on green procurement with suppliers also received a moderate level of agreement from the respondents. Around 70% agreed or strongly agreed with this statement, indicating positive level of agreement. The mean rating of 2.32 suggests a moderately positive level of agreement, while the standard deviation of 1.077 indicates some variability in the responses.

Similarly, the statement about the frequent training of suppliers on green practices received a moderate level of agreement from the respondents. Approximately 70.0% agreed or strongly agreed with this statement, indicating a positive sentiment. The mean rating of 2.38 suggests a moderately positive level of agreement, while the standard deviation of 1.067 indicates some variability in the responses.

Lastly, the statement about rewarding/awarding suppliers for improvements in green practice received a moderate level of agreement from the respondents. Around 60.0% agreed or strongly agreed with this statement, indicating a positive sentiment. The mean rating of 2.46 suggests a moderately positive level of agreement, while the standard deviation of 1.164 indicates some variability in the responses.

The analysis reveals a moderate level of agreement among the respondents regarding the supplier development statements. The respondents generally showed a positive sentiment, indicating support for suppliers investing in green products, frequent communication on green procurement, frequent training on green practices, and rewarding/awarding suppliers for improvements in green practice.

Table 3: Effect of Operational Capabilities

	SA	A	NAD	D	SD	Mean	Std. Dev
We frequently train our supplier on green practice	8	27	5	8	2	2.38	1.067
	16.0%	54.0%	10.0%	16.0%	4.0%		
We reward/award our suppliers for improvements in green practice	11	19	8	10	2	2.46	1.164
	22.0%	38.0%	16.0%	20.0%	4.0%		
Our information system facilitates cooperation across functions.	10	36	3	1	0	1.90	.580
	20.0%	72.0%	6.0%	2.0%	0.0%		
Our operational procedures facilitate teamwork across functions.	13	31	6	0	0	1.86	.606
	26.0%	62.0%	12.0%	0.0%	0.0%		
Employees are skilled at maintaining healthy relationships to solve problems.	13	33	4	0	0	1.82	.560
	26.0%	66.0%	8.0%	0.0%	0.0%		
Our equipment has been used in unique ways to better render the needed services to the nation	18	27	5	0	0	1.74	.633
	36.0%	54.0%	10.0%	0.0%	0.0%		
Our planning systems have been modified to better serve the needs of the people.	17	25	8	0	0	1.82	.691
	34.0%	50.0%	16.0%	0.0%	0.0%		
We sense or are aware of a change in environment and respond promptly.	13	23	13	1	0	2.04	.781
	26.0%	46.0%	26.0%	2.0%	0.0%		

Source: Field Data (February, 2023)

Table 11 presents data on the effect of Operational Capabilities in the sustainability of the ministry selected for the study. Regarding the statement "We frequently train our suppliers on green practices," 16.0% of the respondents strongly agreed, 54.0% agreed, 10.0% neither agreed nor disagreed, 16.0% disagreed, and 4.0% strongly disagreed. The mean rating for this statement was 2.38, with a standard deviation of 1.067. It can be seen from the data that the majority of respondents (70%) either agreed or strongly

agreed that their organization frequently trains suppliers on green practices. This indicates a positive perception and recognition of the importance of sustainability and environmental considerations within the supply chain. However, there is a notable proportion (20%) who expressed some level of disagreement or uncertainty about the frequency of such training, suggesting room for improvement in this area.

In response to the statement "We reward/award our suppliers for improvements in green practices," 22.0% of the respondents strongly agreed, 38.0% agreed, 16.0% neither agreed nor disagreed, 20.0% disagreed, and 4.0% strongly disagreed. The mean rating for this statement was 2.46, with a standard deviation of 1.164. It can be seen from the data that, a significant portion of respondents (60.0%) either agreed or strongly agreed that their organization rewards or awards suppliers for improvements in green practices. This indicates a positive practice of incentivizing sustainability efforts and recognizing supplier contributions. However, there is still a substantial proportion (24.0%) who expressed disagreement or uncertainty, suggesting potential gaps in rewarding and acknowledging sustainable practices within the supply chain.

With regard to the statement "Our information system facilitates cooperation across functions," 20.0% of the respondents strongly agreed, 72.0% agreed, 6.0% neither agreed nor disagreed, 2.0% disagreed, and 0.0% strongly disagreed. The mean rating for this statement was 1.90, with a standard deviation of 0.580. From this, it can be realized that the majority of respondents (92.0%) agreed or strongly agreed that their information system facilitates cooperation across functions. This indicates a positive perception of effective information sharing and collaboration within the organization. The high agreement suggests that the information system plays a significant role in promoting cross-functional cooperation and communication.

Concerning the statement "Our operational procedures facilitate teamwork across functions," 26.0% of the respondents strongly agreed, 62.0% agreed, 12.0% neither agreed nor disagreed, and 0.0% disagreed or strongly disagreed. The mean rating for this statement was 1.86, with a standard deviation of 0.606. It is evident from the data that majority of respondents (88.0%) agreed or strongly agreed that their operational procedures facilitate teamwork across functions. This indicates a positive perception of the organization's operational processes in fostering collaboration and teamwork across different functional areas. The absence of any disagreement or strong disagreement suggests that these procedures are well-regarded in terms of their ability to promote cross-functional cooperation.

Regarding the statement "Employees are skilled at maintaining healthy relationships to solve problems," 26.0% of the respondents strongly agreed, 66.0% agreed, and 8.0% neither agreed nor disagreed. No respondents disagreed or strongly disagreed with this statement. The mean rating for this statement was 1.82, with a standard deviation of 0.560. The data makes it clear that the majority of respondents (92.0%) agreed or strongly agreed that employees in their organization are skilled at maintaining healthy relationships to solve problems. This indicates a positive perception of employees' abilities to navigate and resolve problems through effective communication and relationship-building. The absence of any disagreement or strong disagreement suggests a high level of agreement on the competence of employees in problem-solving and relationship management.

In response to the statement "Our equipment has been used in unique ways to better render the needed services to the nation," 36.0% of the respondents strongly agreed, 54.0% agreed, and 10.0% neither agreed nor disagreed. No respondents disagreed or

strongly disagreed with this statement. The mean rating for this statement was 1.74, with a standard deviation of 0.633. it can be seen from the data that significant majority of respondents (90.0%) agreed or strongly agreed that their equipment has been used in unique ways to better render services to the nation. This indicates a positive perception of innovation and adaptability in utilizing equipment to improve service delivery. The absence of any disagreement or strong disagreement suggests a widespread agreement on the organization's ability to leverage equipment effectively.

Regarding the statement "Our planning systems have been modified to better serve the needs of the people," 34.0% of the respondents strongly agreed, 50.0% agreed, and 16.0% neither agreed nor disagreed. No respondents disagreed or strongly disagreed with this statement. The mean rating for this statement was 1.82, with a standard deviation of 0.691. It can be realized that the majority of respondents (84.0%) agreed or strongly agreed that their planning systems have been modified to better serve the needs of the people. This indicates a positive perception of efforts to align planning processes with the requirements and preferences of stakeholders. The absence of any disagreement or strong disagreement suggests a general agreement on the organization's responsiveness in adapting planning systems to meet people's needs.

The mean scores for most statements fall within a relatively narrow range, ranging from 1.74 to 2.46. This suggests that, on average, respondents generally agreed or strongly agreed with the statements related to operational capabilities. The standard deviations for most statements are relatively moderate, ranging from 0.560 to 1.164. This indicates a reasonable degree of agreement among the respondents for these statements, with some variability in certain cases.

4.3 Regression Analysis

This section captures the results of regression analysis to determine the effect of the independent variables on the dependent variable. The section also captures the results of moderation analysis to determine the impact of the moderator on the relationship between the independent variable and the dependent variable. It is here that the hypothesis is also tested at 0.05 level of significance.

H_1: *Green procurement practice and Operational Capabilities have a significant positive effect on Organizational Sustainability*

Table 4: Impact of Green procurement practice and Operational Capabilities on Organizational Sustainability

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.700[a]	.490	.480	.61651		
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.038	.343		.112	.911
	GP-POC	1.078	.159	.700	6.795	.000
a. Dependent Variable: OS						
b. Predictors: (Constant), GPP-OC						

Source: Field Data (February, 2023)

The statistics in Table 12 indicate a regression analysis on the proportion of variance in Organizational Sustainability explained by the predictors, Green procurement practice, and Operational Capabilities. The R Square value of 0.490 suggests that the predictors (Green procurement practice, and Operational Capabilities), collectively, account for 49.0% of the variance in Organizational Sustainability. This implies that the model has moderate explanatory power in explaining the sustainability of the organization based on the chosen predictors.

The Adjusted R Square value of 0.480 takes into account the number of predictors in the model. It is slightly lower than the R Square value, indicating that the model's fit is adjusted for the number of predictors and potential overfitting. The coefficient for Green procurement practice, and Operational Capabilities (GPP-OC) is 1.078. This coefficient indicates that for every unit increase in GPPOC, Organizational Sustainability is expected to increase by 1.078 units. The standardized coefficient (Beta) of 0.700 suggests a moderate positive effect of GPP-OC on Organizational Sustainability.

The t-value of 6.795 for the GPP-OC coefficient indicates that it is statistically significant ($p < 0.001$), suggesting that there is a significant relationship between Green procurement practice, operational capabilities and Organizational Sustainability.

The results therefore suggest that higher levels of Green procurement practice and operational capabilities (GPP-OC) are associated with higher levels of Organizational Sustainability.

Therefore, the hypothesis 1 “Green procurement practice and Operational Capabilities have a significant positive effect on Organizational Sustainability” is accepted by the study.

H_2: *Top management’s environmental awareness has a significant positive effect on Organizational Sustainability.*

Table 13: Impact of Top Management's Environmental Awareness on Organizational Sustainability.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.714[a]	.510	.499	.60479
a. Predictors: (Constant), TMEA				

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.238	1	18.238	49.861	.000[b]
	Residual	17.557	48	.366		
	Total	35.794	49			
a. Dependent Variable: OS						
b. Predictors: (Constant), TMEA						

Source: Field Data (February, 2023)

The statistical model used in Table 13 shows that the relationship between top management's environmental awareness and organizational sustainability is significant. The R-squared value of 0.510 indicates that approximately 51.0% of the variability in organizational sustainability can be explained by top management's environmental awareness. The adjusted R-squared value of 0.499 suggests that the model adequately adjusts for the number of predictors. The standard error of the estimate (0.60479) represents the average distance between the observed values and the predicted values by the regression model. A lower value indicates a better fit of the model to the data.

The analysis of variance (ANOVA) table presents the sum of squares, degrees of freedom, mean square, F-value, and significance level for the regression and residual components. The regression component has a sum of squares of 18.238 and one degree of freedom, resulting in a mean square of 18.238. The F-value of 49.861 indicates that the regression model is statistically significant. The significance level (p-value) of

.000b suggests that the relationship between top management's environmental awareness and organizational sustainability is unlikely to be due to chance.

The residual component, representing the unexplained variability in the model, has a sum of squares of 17.557 and 48 degrees of freedom, resulting in a mean square of 0.366. The total sum of squares is 35.794, which accounts for the overall variability in the dependent variable.

The results shows a significant relationship between top management's environmental awareness and organizational sustainability. Approximately 51.0% of the variation in organizational sustainability can be explained by top management's environmental awareness. The analysis provides evidence to support the importance of top management's environmental awareness in driving organizational sustainability efforts.

Therefore the study fails to reject the hypothesis 2 that "Top management's environmental awareness has a significant positive effect on Organizational Sustainability".

H_3: *Top management's environmental awareness has a significant moderating effect between Green procurement practice Operational Capabilities and Organizational Sustainability.*

Table 5: Moderating effect of Top Management's Environmental Awareness on the relationship between Green Procurement Practice, Operational Capabilities and Organizational Sustainability.

Model Summary									
					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.701[a]	.491	.469	.62261	.491	22.669	2	47	.000
2	.732[b]	.536	.506	.60064	.045	4.501	1	46	.039
3	.739[c]	.546	.505	.60111	.009	.928	1	45	.340
a. Predictors: (Constant), OC, GPP									
b. Predictors: (Constant), OC, GPP, TMEA									
c. Predictors: (Constant), OC, GPP, TMEA, GPP_OC_TMEA									

Source: Field Data (February, 2023)

Data in Table 14 shows the results of a hierarchical multiple regression analysis that examines the relationship between Organizational Sustainability (the dependent variable) and three independent variables: Green Procurement Practice (GPP), Operational Capabilities (OC), and Top Management's Environmental Awareness (TMEA), as well as the interaction effect between GPP, OC, and TMEA.

The Model Summary table provides information about the overall fit of the model. The R-squared value for Model 1 is 0.491, indicating that the independent variables (GPP and OC) explain 49.1% of the variance in Organizational Sustainability. When TMEA is added in Model 2, the R-squared increases to 0.536, indicating that TMEA accounts for an additional 4.5% of the variance in Organizational Sustainability. However, when the interaction term (GPP_OC_TMEA) was added in Model 3, the R-squared only increases slightly to 0.546, indicating that the interaction effect does not contribute much to the explanation of variance in Organizational Sustainability.

The Adjusted R-Square values in the Model Summary table also provide information about the overall fit of the model. The Adjusted R-Square adjusts for the number of predictors in the model, penalizing for models with more predictors. The Adjusted R-

Square values for Model 1, Model 2, and Model 3 are 0.469, 0.506, and 0.505, respectively. This suggests that the addition of TMEA in Model 2 provides a better fit to the data compared to Model 1, but the inclusion of the interaction term in Model 3 does not improve the fit of the model compared to Model 2.

The Change Statistics table provides information about the change in R-squared and the F-statistic for each model. The R Square Change column indicates the change in R-squared from one model to the next. The F Change column indicates the increase in the F-statistic when additional variables are added to the model. The F-statistic measures the overall significance of the model. The results in the table indicate that the addition of TMEA in Model 2 and the interaction term in Model 3 were both statistically significant, with p-values of .039 and .340, respectively.

In general, the results suggest that Green Procurement Practice and Operational Capabilities have a positive relationship with Organizational Sustainability, and Top Management's Environmental Awareness moderates this relationship, indicating that the effect of Green Procurement Practice and Operational Capabilities on Organizational Sustainability is stronger when Top Management's Environmental Awareness is high.

Therefore, the hypothesis 3 “Top management’s environmental awareness has a significant moderating effect between Green procurement practice Operational Capabilities and Organizational Sustainability is accepted by the study.

4.4 Discussion of Results

The data presented on the impact of green procurement on organizational sustainability indicates a relatively high level of agreement among the respondents regarding the importance of ensuring environmental requirements for the purchased items. The first statement received a high level of agreement, with 80% of the respondents agreeing or strongly agreeing. This finding aligns with existing literature that emphasizes the significance of environmental considerations in supplier selection and green purchasing practices (Johnson & Flynn, 2015; Seuring & Müller, 2008). The focus on environmental requirements reflects a growing trend in organizations to integrate sustainability into their supply chains and procurement processes. Additionally, the statement, which pertains to ensuring environmental requirements for purchased items, received a slightly lower but still substantial level of agreement, with 72% of the respondents agreeing or strongly agreeing. This finding supports the notion that organizations recognize the importance of considering environmental factors when selecting suppliers and purchasing goods. It suggests that organizations are placing a moderate level of emphasis on green purchasing practices, which is consistent with the literature on sustainable supply chain management (Seuring & Müller, 2008).

The statement related to frequently cooperating with suppliers for environmental objectives received a moderate level of agreement from 70% of the respondents. This finding highlights the recognition of collaboration between organizations and suppliers to achieve environmental objectives. Literature supports the idea that cooperation and collaboration with suppliers are essential in implementing sustainable practices throughout the supply chain (Sarkis et al., 2010). Engaging suppliers in environmental initiatives and fostering partnerships can lead to improved environmental performance and overall sustainability outcomes. The variability in responses, as indicated by the

standard deviations, suggests some diversity of opinions among the respondents. This variability may stem from differences in organizational contexts, supplier relationships, and levels of environmental commitment. The moderate levels of variability in the responses underscore the need for tailored approaches to supplier selection and environmental cooperation, considering the unique characteristics and requirements of each organization.

Results on the effects of Operational Capabilities on Organizational Sustainability has it that, the majority of respondents agreed or strongly agreed that their organization frequently trains suppliers on green practices. This result aligns with the literature on sustainable supply chain management, which emphasizes the importance of training suppliers to adopt environmentally friendly practices (Sarkis et al., 2011). Effective training programs can enhance suppliers' understanding of sustainability requirements, improve their environmental performance, and contribute to the overall sustainability of the Ministry. Again, findings indicate that the Ministry rewards or awards suppliers for improvements in green practices. This aligns with the literature on sustainable procurement, which suggests that recognizing and incentivizing suppliers for sustainable initiatives can foster a culture of sustainability within the supply chain (Pagell et al., 2010). Supplier rewards can motivate continuous improvement in environmental performance and encourage the adoption of sustainable practices. In addition, respondents generally agreed that the information system in the Ministry facilitates cooperation across functions. This finding resonates with a study on organizational collaboration and sustainability, which highlights the significance of information sharing and cross-functional cooperation in achieving sustainability goals (Sharma et al., 2010). Effective information systems can enhance communication,

collaboration, and coordination among different functions, supporting the integration of sustainability considerations throughout the organization.

Consequently, the respondents expressed agreement that operational procedures in the Ministry facilitate teamwork across functions. This aligns with the literature on cross-functional collaboration and sustainability, emphasizing the importance of teamwork and coordination to address complex sustainability challenges (Schaltegger et al., 2013). Strong teamwork across functions can enable the sharing of knowledge, expertise, and resources, leading to more holistic and integrated sustainability initiatives. The majority of respondents agreed that employees in the Ministry are skilled at maintaining healthy relationships to solve problems. This result corresponds to the literature on sustainable organizational behavior, which emphasizes the significance of employee skills and competencies in addressing sustainability issues (Waldman et al., 2012). Skilled employees with problem-solving abilities and strong interpersonal relationships can contribute to effective problem-resolution and decision-making processes, fostering sustainability within the Ministry.

Further, findings indicate that the Ministry has utilized equipment in unique ways to better render services to the nation. While specific literature on unique equipment use and sustainability in the context of a Ministry may be limited, the broader literature on innovation and sustainability suggests that innovative use of equipment and technologies can contribute to sustainability outcomes (Hockerts, 2015). Leveraging equipment creatively and adaptively can enhance service efficiency, resource conservation, and overall sustainability performance. Lastly, respondents agreed that planning systems in the Ministry have been modified to better serve the needs of the people. While direct literature linking planning system modifications and sustainability

in a Ministry context may be scarce, the literature on sustainable planning and governance highlights the importance of citizen-centric approaches and stakeholder engagement in achieving sustainable development goals (Knieling & Othengrafen, 2018). Modified planning systems that prioritize people's needs can promote inclusivity, social equity, and long-term sustainability.

Green procurement practices involve incorporating environmental considerations into the procurement process, such as selecting suppliers with sustainable practices, using environmentally friendly materials, and promoting energy-efficient technologies (Sarkis, Zhu, & Lai, 2011). These practices contribute to reducing the environmental impact of an organization's supply chain activities. The positive relationship between green procurement practices and organizational sustainability has been documented in previous studies (Sarkis et al., 2011; Zhu, Sarkis, & Lai, 2007).

Operational capabilities refer to an organization's ability to effectively manage its operations and processes to achieve desired outcomes, including sustainability goals (Prajogo & Olhager, 2012). Building operational capabilities related to sustainability, such as waste reduction, energy efficiency, and eco-design, can enhance an organization's environmental performance and contribute to its overall sustainability. The positive relationship between operational capabilities and organizational sustainability has been explored in the literature (Prajogo & Olhager, 2012; Zhu et al., 2007).

Furthermore, the analysis suggests that Top Management's Environmental Awareness moderates the relationship between Green Procurement Practice, Operational Capabilities, and Organizational Sustainability. This finding implies that the effect of green procurement practices and operational capabilities on organizational

sustainability is stronger when top management demonstrates a high level of environmental awareness.

Top management plays a crucial role in driving sustainability initiatives within organizations by setting strategic goals, providing resources, and creating a culture that values environmental performance (Klassen & Vereecke, 2012). When top management shows a strong commitment to environmental sustainability, it sends a clear message to the entire organization, influencing the adoption and implementation of green practices and operational capabilities. The moderating effect of top management's environmental awareness on the relationship between green procurement practices, operational capabilities, and organizational sustainability has been recognized in the literature (Klassen & Vereecke, 2012; Zhu et al., 2007).

In conclusion, the results of the analysis support the positive relationship between Green Procurement Practice and Operational Capabilities with Organizational Sustainability. Moreover, the findings suggest that the influence of these factors on organizational sustainability is strengthened when top management demonstrates a high level of environmental awareness. This highlights the importance of top management's role in driving sustainability initiatives and fostering a culture of environmental responsibility within organizations.

CHAPTER FIVE

FINDINGS CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter concentrates on summary of key findings, conclusion, recommendations as well as suggestions for further studies.

5.1 Summary of key Findings

The following findings were made by the study.

Firstly, the study revealed a positive relationship between Green Procurement Practice and Organizational Sustainability. This suggests that organizations that adopt green procurement practices, such as selecting suppliers with sustainable practices, using environmentally friendly materials, and promoting energy-efficient technologies, are more likely to achieve higher levels of sustainability. These findings align with previous research highlighting the importance of incorporating environmental considerations into the procurement process.

Similarly, the study found a positive relationship between Operational Capabilities and Organizational Sustainability. Organizations that develop operational capabilities related to sustainability, such as waste reduction, energy efficiency, and eco-design, are more likely to improve their environmental performance and overall sustainability outcomes. This finding supports the notion that effective management of operations and processes is critical for achieving sustainability goals.

Furthermore, the study identified the moderating role of Top Management's Environmental Awareness in the relationship between Green Procurement Practice, Operational Capabilities, and Organizational Sustainability. It was found that the

impact of green procurement practices and operational capabilities on organizational sustainability is strengthened when top management demonstrates a high level of environmental awareness and commitment. This highlights the influential role of top management in driving sustainability initiatives within organizations.

5.2 Conclusion

In conclusion, this study examined the relationship between Green Procurement Practice and Operational Capabilities with Organizational Sustainability, and the moderating role of Top Management's Environmental Awareness. The results revealed a positive relationship between Green Procurement Practice and Operational Capabilities with Organizational Sustainability, indicating that organizations that adopt green procurement practices and develop operational capabilities aligned with sustainability goals are more likely to achieve higher levels of sustainability. Furthermore, the study found that Top Management's Environmental Awareness moderates this relationship, suggesting that the impact of Green Procurement Practice and Operational Capabilities on Organizational Sustainability is strengthened when top management demonstrates a high level of environmental awareness and commitment. These findings contribute to the existing literature on sustainable supply chain management and highlight the significance of integrating environmental considerations into procurement practices and developing operational capabilities for achieving organizational sustainability. Moreover, the study emphasizes the influential role of top management in driving sustainability initiatives within organizations. Organizations can benefit from adopting green procurement practices, enhancing their operational capabilities, and fostering a culture of environmental awareness and commitment among top management. By doing so, they can effectively contribute to environmental

sustainability, reduce their ecological footprint, and improve their overall organizational sustainability performance.

5.3 Recommendations

Based on the above findings, the following recommendations are made by the study.

The study recommends that training and education programs be provided to enhance top management's environmental awareness and knowledge. These programs can help top management understand the importance of sustainability, stay updated on emerging trends and best practices, and develop strategies for effectively integrating sustainability into the organization's overall strategy and operations.

1. Again, the study recommends that collaboration and partnership with suppliers be fostered to collectively work towards achieving sustainability goals. Top management can engage suppliers in initiatives related to green procurement, share best practices, and encourage continuous improvement in environmental performance throughout the supply chain. This collaboration can enhance the effectiveness of green procurement practices and further contribute to organizational sustainability.
2. Further, the study recommends that robust Performance Measurement and Reporting systems be implemented to track and evaluate the impact of green procurement practices and operational capabilities on Organizational Sustainability. Management can develop key performance indicators (KPIs) that align with sustainability goals and regularly report on progress to internal and external stakeholders. This transparency can enhance accountability and facilitate continuous improvement efforts.

3. Another recommendation the study wishes to make is the integration of Sustainability into Procurement Processes: top management can integrate sustainability criteria into the procurement processes and supplier selection criteria, and develop guidelines and tools to assess suppliers' environmental performance, social responsibility, and ethical practices. This integration can ensure that sustainability considerations are embedded in the decision-making process and contribute to the overall sustainability goals of the organization.
4. Consequently, the study recommends Knowledge Sharing and Collaboration. There is a need for management to promote knowledge sharing and collaboration within the organization regarding green procurement practices and operational capabilities. Management and other stakeholders can ensure this by encouraging cross-functional teams to share best practices, lessons learned, and success stories related to sustainability initiatives. This knowledge-sharing can facilitate organizational learning and create a culture of continuous improvement in sustainability practices.

5.4 Suggestions for Further Studies

Based on the findings of this study, the study wishes to suggest that the following studies be conducted.

1. It is important that further study be conducted to explore other potential moderating factors that may influence the relationship between Green Procurement Practice, Operational Capabilities, and Organizational Sustainability. For example, organizational culture, stakeholder pressures, and regulatory frameworks could be examined to better understand their impact on the relationship.

2. It is again important that longitudinal studies be conducted to examine the long-term effects of implementing green procurement practices and developing operational capabilities on Organizational Sustainability. This would provide a more comprehensive understanding of the sustainability outcomes over time and the sustainability-related benefits and challenges that organizations may encounter.

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APPENDIX I

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

CONSENT TO PARTICIPATE IN RESEARCH

Dear respondent, you are humbly invited to participate in a research study entitled**; Green Procurement practices, operational capabilities and organizational sustainability. The moderating effect of top management's environmental orientation.**

This study is being conducted by a postgraduate student at the Kwame Nkrumah University of Science and Technology (KNUST) as her research topic in the partial fulfillment of requirement for MSC. Procurement and Supply Chain Management.

The purpose of this research is to examine impact of **Green Procurement practices and operational capabilities on organizational sustainability with the moderating effect of top management's environmental orientation.**

Your participation in the study will contribute to a better understanding of the above research study. Kindly note that the researcher respects privacy a lot and as a result, all the information given will strictly be used for academic purpose (the research only) and will be treated with the utmost confidentiality. Your honesty is therefore very critical and paramount when you respond to the questionnaire.

If you have any questions about the study; contact the researcher, **Adjaho Amanda Klenam** on **0547277575** or send an email to **amandadjaho124@gmail.com**.

Thank you for your consideration. Your help is greatly appreciated.

APPENDIX II

QUESTIONNAIRE FOR STAFF OF THE PROCUREMENT DEPARTMENT AND OTHER SELECTED DEPARTMENTS OF THE MINISTRY OF LANDS AND NATURAL RESOURCES

Section A: Basic Information about Respondents

Direction 1: Please tick [√] the option that best describes you.

1. Gender:
   Male [ ]
   Female [ ]

2. Age:
   18 – 30years [ ]
   31 – 40years [ ]
   41-50years[ ]
   Above 50years [ ]

3. Educational Attainment
   HND[ ]
   Professional Certificate[ ]
   First Degree [ ]
   Second Degree[ ]
   PhD[ ]

4. Department
   Geological survey Department [ ]
   Procurement [ ]
   Forestry commission [ ]
   Mineral commission [ ]
   Lands commission [ ]
   Other,
   specify……..…….

5. Mgt. Level of Employees
   Junior Staff[ ]
   Senior Staff[ ]
   Manager[ ]
   Director [ ]

6. How many years have you worked with ministry?
   Less than 1year [ ]
   1-5years [ ]
   6-10years [ ]
   11-15years [ ]
   Above 15years [ ]

Direction 2: Please write your rating on the space before each option which corresponds to your best choice in terms of level of agreement or disagreement. Kindly use the scoring system below:

Score	Response Mode	Description	Interpretation
1	Strongly Agree	You agree with no doubt at all	Very satisfactory
2	Agree	You agree with some doubt	Satisfactory
3	Neutral	You are not sure about any	None
4	Disagree	You disagree with some doubt	Unsatisfactory
5	Strongly Disagree	You disagree with no doubt at all	Very Unsatisfactory

Section B: Green Procurement Practices

1. Using the scale below, please tick your level of agreement or disagreement for the following questions on sustainability.1 – Strongly Agree (SA), 2- Agree (A), 3- Neither Agree nor Disagree (NAD), 4 – Disagree (D), 5 – Strongly disagree (SD).

Statements	SA	A	NAD	D	SD
Supplier Selection					
1. We only deal with suppliers whose products are considered Green					
2. We frequently select suppliers who use Green Materials such as recycle, re-use, reduce, re-furbish					
3. We frequently select suppliers who use Green Materials such as recycle, re-use, reduce, re-furbish					
4. We frequently select suppliers who use energy conservation products/service					
5. We only deal with suppliers whose products reduce the use of harmful substance					
Green Purchasing					
1. We frequently ensure environmental requirements for purchased item					
2. We frequently ensure environmental requirements for purchased item					
3. We frequently ensure environmental requirements for purchased item					
4. We frequently assess environmental audit of suppliers' internal management					
5. We frequently cooperate with suppliers for environmental objectives					
Supplier Development					
1. We frequently cooperate with suppliers for environmental objectives					
2. Our suppliers invest (financial, machinery, technology) in green products					
3. We frequently communicate on green procurement KPI's with suppliers					
4. We frequently train our supplier on green practice					
5. We reward/award our suppliers for improvements in green practice					

6. **Operational capabilities**

Using the scale below, please tick your level of agreement or disagreement for the following questions on operational capabilities. 1 – Strongly Agree (SA), 2- Agree (A), 3- Neither Agree nor Disagree (NAD), 4 – Disagree (D), 5 – Strongly disagree (SD).

Operational capabilities	**SA**	**A**	**NAD**	**D**	**SD**
1. Our information system facilitates cooperation across functions.					
2. Our operational procedures facilitate teamwork across functions.					
3. Employees are skilled at maintaining healthy relationships to solve problems.					
4. Our equipment has been used in unique ways to better render the needed services to the nation					
5. Our planning systems have been modified to better serve the needs of the people					
6. We sense or are aware of a change in environment and respond promptly.					

Section C: Top Management's Environmental Orientation

Using the scale below, please tick your level of agreement or disagreement for the following questions on Top Management's Environmental Orientation. 1 – Strongly Agree (SA), 2- Agree (A), 3- Neither Agree nor Disagree (NAD), 4 – Disagree (D), 5 – Strongly disagree (SD).

Top Management's Environmental Orientation	**SA**	**A**	**NAD**	**D**	**SD**
1. Top managers ensures recycling of recyclable materials					
2. Top managers assess procurers and suppliers based on their ability to procure and supply green products.					
3. Top managers assess workers based on their ability to control pollution.					
4. Top managers provide design specifications to partners that include environmental requirements for purchased items.					
5. Top managers deliver their services to avoid or reduce the use of hazardous products which will degrade the safety of the environment.					
6. Top managers undertake environmental based research annually or periodically on quality issues.					
7. Top managers collect, analyze and disseminate information for decision making by management					
8. Top managers ensure that planning of the quality control is initiated in all the departments.					

Section D: Organizational Sustainability

This section captures information about organizational sustainability. Please tick the option that indicates your level of agreement or disagreement with the statements in the table below. Please use the scale below: 1=strongly agree; 2=agree; 3=not sure; 4=disagree; and 5=strongly disagree.

Organizational Sustainability	SA	A	NAD	D	SD
1. Our organization has increased its market share as compared to competitors.					
2. Our organization has increased its return on investment as compared to competitors.					
3. Our organization has increased its market share growth as compared to competitors.					
4. Our organization has increased its sales growth as compared to competitors.					
5. Our organization has increased its growth in return on investment as compared to competitors.					
6. Our organization has increased its profit margin on sales as compared to competitors.					
7. Our organization has increased its overall competitive position in the market					

Thank You for your participation