

UNIVERSITY OF EDUCATION WINNEBA

SCHOOL OF BUSINESS

DEPARTMENT OF ACCOUNTING

**PROMOTING ENVIRONMENTAL SUSTAINABILITY THROUGH
ENVIRONMENTAL MANAGEMENT ACCOUNTING PRACTICES:
THE MEDIATING ROLE OF STAKEHOLDER ENGAGEMENT**



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UNIVERSITY OF EDUCATION, WINNEBA

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**A Dissertation in the Department of Accounting,
School of business,
submitted to the School of Graduate Studies,
in partial fulfilment of the requirements for the award of
Master of business Administration
(Accounting) Degree
In the University of Education, Winneba**

2023

DECLARATION

Student's Declaration

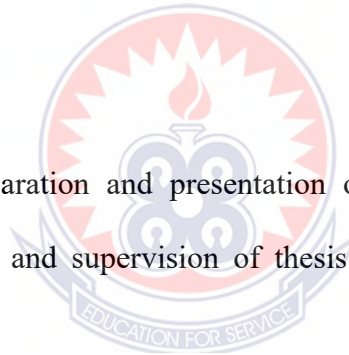
I, ELIZABETH GYAN, declare that this work with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

Signature:

Date:

Supervisor's Declaration

I hereby declare that the preparation and presentation of this thesis was supervised in accordance with the guidelines and supervision of thesis laid down by the University of Education, Winneba.



Supervisor's Name: Erskine Sangbunu Feruta

Signature:

Date:

DEDICATION

I dedicate this work to my hardworking mother Madam Sandra Adwoa Bortsiewah, my inspirational father Mr. Frank Kojo Gyan, my caring grandmother Madam Aba Gyaaba, my lovely son Kobbie and the entire Gyan family.



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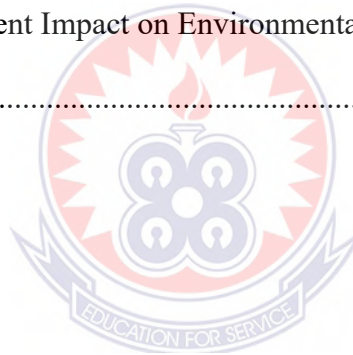
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ABBREVIATION

EMAP – Environmental Management Accounting Practices

ES – Environmental Sustainability

SE – Stakeholder Engagement

SME: Small and Medium-Sized Business



ABSTRACT

This study investigated the relationship between Environmental Management Accounting Practices (EMAP) and Environmental Sustainability while examining the mediating effects of Stakeholder Engagement. The study employed a quantitative research methodology, utilizing a structured questionnaire to collect data from a sample of 119 respondents from various SMEs. After analysing the data using SMART PLS 4, the study reveals that EMAP positively influences environmental sustainability, indicating that organizations implementing effective environmental management accounting practices are more likely to achieve higher levels of environmental sustainability. Moreover, the results demonstrate that Stakeholder Engagement mediate the relationship between EMAP and environmental sustainability. The study recommends that organizations aiming to enhance their environmental performance by implementing effective EMAP strategies and considering the mediating factor of stakeholder engagement. Additionally, the study indicates the need for further research to explore additional variables, extend the analysis to different contexts, and assess the long-term effects of EMAP on environmental sustainability.



CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

The issue of preserving the environment has recently been situated to the status of a major global problem, one that has far-reaching repercussions for countries all over the world (Anaman et al., 2023; Kumar & Bhatia, 2021). According to Mukwarami, Nkwaira, and van der Poll (2023), environmental sustainability is the responsible management and preservation of the earth's natural resources in a manner that satisfies the requirements of the present without compromising the ability of the next generations to do the same. This principle of intergenerational equality highlights the importance of the notion of environmental sustainability by putting an emphasis on the duty that the present generation has towards subsequent generations. As a result, environmental sustainability is not merely an environmental problem but a precondition for both social growth and economic resiliency (van Der Poll, 2022). Also, according to Nyahuna and Doorasamy (2022), it will take the coordinated efforts of nations all over the world to transition away from practices that are not sustainable and towards alternatives that are more sustainable in order to guarantee a healthier and more prosperous future for everyone.

In light of the pressing necessity of environmental sustainability and the substantial consequences this issue has for the nations of the globe, corporations too have an important part to play in the solution. The Environmental Management Accounting and Performance (EMAP) system is an essential instrument for the completion of this mission (Fuzi et al., 2020). EMAP, a key component of contemporary business strategy according to Mohd Fuzi, Habidin, Janudin, Ong, and Ku Bahador (2019), functions as a bridge between conventional accounting procedures and sustainability objectives. EMAP is an extension of management

accounting with a core focus on environmental considerations. EMAP entails identifying, collecting, assessing, and making use of information about materials, energy flow, and environmental cost. This all-encompassing strategy helps organisations to make well-informed decisions, both conventional and environmental, which ultimately contributes to the development of sustainable practises (Fuji et al., 2020; Javed et al., 2022; Kumar & Bhatia, 2021).

The ever-increasing pressures placed on the environment, as well as the growing interest in environmentally responsible methods of conducting business, have brought EMAP's relevance to the forefront. It plays a crucial role as a tool, making it possible for organisations to systematically discover, gather, analyse, and employ information that is relevant to the environment and finances (Nyahuna & Doorasamy, 2022). This not only contributes to better environmental performance but also presents chances to save costs in the future. EMAP can also be used to significantly contribute to a company's regulatory compliance efforts (Burawat, 2019). Organisations can demonstrate compliance with statutory obligations if they maintain accurate accounting for their emissions, waste, and resource use. In addition to this, EMAP is an essential component in the process of strategic planning. EMAP makes it easier to incorporate environmental concerns into a company's overarching business plan by assisting in the identification of environmental risks and opportunities (Javed et al., 2022).

The involvement of stakeholders is yet another essential area in which EMAP could make a big contribution. The term stakeholder engagement refers to the manner in which organisations connect with their stakeholders, respond to their concerns, and take their interests into consideration throughout the decision-making process (Nyahuna & Doorasamy, 2022). This is done in both a formal and informal setting. Employees, consumers, investors, regulators, non-governmental organisations, the wider community, and any other group or individual who may impact or is affected by the organization's activities, aims, and policies

are considered to be stakeholders (Freeman, 2016). The information that is offered by EMAP has the potential to create deeper interaction among stakeholders, who are demonstrating an increasing interest in the environmental performance of organisations (Jones et al., 2017). The benefits of this involvement include proactively resolving stakeholders' concerns, strengthening the organisation's reputation, and acquiring a social licence to operate.

1.1 Problem Statement

Environmental Management Accounting Practices (EMAP) have gained widespread recognition for their potential role in advancing environmental sustainability. By helping businesses understand the financial implications of environmental impacts, EMAP drives changes in corporate behaviour towards more sustainable practices (Fuzi et al., 2020). However, despite the growing global recognition, empirical research investigating this relationship, particularly within the context of small and medium-sized enterprises (SMEs) in Ghana, remains scarce. SMEs constitute a significant portion of Ghana's economy and, like other SMEs worldwide, they have a profound impact on the environment due to their collective size and reach (Anaman et al., 2023). While larger companies might have more resources to invest in environmental management systems and sophisticated EMAP, SMEs often face unique challenges (Anaman et al., 2023; Javed et al., 2022). These include limited financial and human resources, less access to information about environmental impacts and management, and potentially different attitudes towards environmental sustainability (Anaman et al., 2023). The lack of research on EMAP in Ghanaian SMEs not only leaves a gap in understanding how these businesses are managing their environmental impacts but also hinders the development of effective strategies and policies to promote environmental sustainability in this vital sector. It is important to explore how EMAP is being used by SMEs, what barriers and facilitators exist, and how these practices influence environmental outcomes.

Moreover, there is a significant gap that exists in understanding how the relationship between EMAP and environmental sustainability is influenced by stakeholder engagement, especially in the context of small and medium-sized enterprises (SMEs). Stakeholder engagement is a critical mechanism that can influence a company's environmental performance. The interests, expectations, and feedback from stakeholders such as customers, employees, suppliers, investors, and regulatory bodies can shape a company's environmental strategies and actions, including the implementation of EMAP (Javed et al., 2022). However, the mediating role of stakeholder engagement in the relationship between EMAP and environmental sustainability has not been thoroughly explored. This lack of understanding limits the ability to leverage stakeholder engagement effectively to enhance the impact of EMAP on environmental sustainability. It also impedes the development of comprehensive strategies that integrate EMAP, stakeholder engagement, and environmental sustainability. Therefore, it is imperative to investigate the mediating role of stakeholder engagement in the relationship between EMAP and environmental sustainability, particularly within the context of SMEs. This research is crucial for identifying ways to maximize the benefits of EMAP for environmental sustainability and for providing guidance on how to effectively engage stakeholders in this process.

1.2 Purpose of the Study

The study's main purpose is to examine the mediating role of stakeholder engagement in the relationship between environmental management accounting practices (EMAP) and environmental sustainability in SMEs in Ghana.

1.3 Research Objectives

The objectives of this study is to:

1. Examine the effect of environmental management accounting practices on environmental sustainability in SMEs in Ghana.
2. Evaluate the effect of environmental management accounting practices on stakeholder engagement in SMEs in Ghana.
3. Assess the effect of stakeholder engagement on environmental sustainability in SMEs in Ghana.
4. Investigate the mediating role of stakeholder engagement in the relationship between environmental management accounting practices and environmental sustainability in SMEs in Ghana.

1.4 Research Questions

The following research questions guided the study:

1. What is the impact of environmental management accounting practices on environmental sustainability in SMEs in Ghana?
2. What is the impact of environmental management accounting practices on stakeholder engagement in SMEs in Ghana?
3. What is the effect of stakeholder engagement on environmental sustainability in SMEs in Ghana?
4. What is the mediating effect of stakeholder engagement on the relationship between environmental management accounting practices and environmental sustainability of SMEs in Ghana?

1.5 Significance of the Study

The study which explored the mediating role of stakeholder engagement in the relationship between Environmental Management Accounting Practices (EMAP) and environmental sustainability, has significant implications for policy, practice, and academia. First of all, the findings of this study could inform the formulation of policies designed to promote environmental sustainability in small and medium-sized enterprises (SMEs). By understanding how stakeholder engagement influences the effectiveness of EMAP in achieving environmental outcomes, policymakers can develop regulations and incentives that encourage meaningful engagement with stakeholders in the implementation of EMAP. Furthermore, this research could highlight the importance of policies that support capacity building in SMEs for effective stakeholder engagement and EMAP.

Moreover, for practitioners, particularly those in SMEs, this study could provide valuable insights into how to improve their environmental performance through EMAP and stakeholder engagement. The findings could guide businesses in effectively integrating EMAP into their operations and in strategically engaging stakeholders to enhance the impact of these practices on environmental sustainability. This study can therefore contribute to the development of best practices for integrating environmental sustainability into business operations. Finally, to academia, this study addresses a significant gap in the literature on environmental management accounting and sustainability in SMEs. By investigating the mediating role of stakeholder engagement, the research could contribute to a more nuanced understanding of how EMAP influences environmental outcomes. This could stimulate further research in this area, leading to the development of robust theories that link EMAP, stakeholder engagement, and environmental sustainability. In addition, the study's focus on SMEs in Ghana provides a valuable contribution to the literature on environmental sustainability in developing economies, which is currently underrepresented in research.

1.6 Limitations of the Study

Although this study offers valuable insights, it is important to acknowledge its limits. The study primarily centres on small and medium-sized firms (SMEs) in Ghana, hence constraining the applicability of the findings to alternative settings or bigger organisations. The distinctive economic, cultural, and environmental circumstances in Ghana may further impact the results, rendering it difficult to generalise the findings. Additionally, the research utilises a quantitative approach, predominantly employing structured questionnaires as the primary means of data collection. This study does not go into qualitative findings, which have the potential to provide a more comprehensive understanding. Moreover, the utilisation of self-reported data from participants introduces the potential for response bias, wherein individuals may offer socially desired responses instead of accurately reflecting their genuine opinions or behaviours. This bias has the potential to impact the precision of the findings.

1.7 Delimitations of the Study

The study's delimitations refer to the decisions taken during the research design phase, which establish the parameters and restrictions of the research. A key delimitation is the emphasis on small and medium-sized enterprises (SMEs) in Ghana. The decision to establish this delimitation was made in order to provide a precise framework for investigating the relationship between Environmental Management Accounting Practices (EMAP) and environmental sustainability, acknowledging the significant contribution of Small and Medium Enterprises (SMEs) to Ghana's economy. The utilization of a quantitative research approach, particularly the implementation of structured questionnaires, represents an additional restriction. The chosen methodology was used in order to facilitate the gathering of quantifiable data pertaining to EMAP, stakeholder involvement, and environmental sustainability. This technique enables the application of statistical analysis and the generation

of conclusions that can be applied to a broader context. The scope of this study is limited to examining the mediating effect of stakeholder engagement on the relationship between EMAP and environmental sustainability. The selection of this particular topic was made in order to investigate a specific facet of environmental management inside small and medium-sized enterprises (SMEs), recognising the significant influence of stakeholders in influencing environmental outcomes.

1.8 Organization of the Study

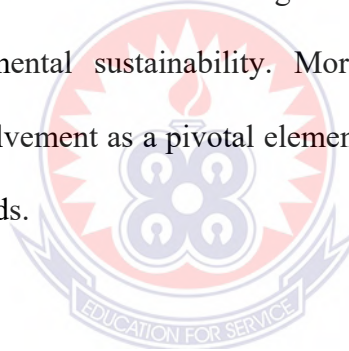
The content of this study consists of the following five chapters. The first chapter discusses the background of the study, the problem statement, the objectives, and the research questions of the study. The significance and organisation of the study are also included in this chapter. Chapter two contains the literature review. The various theories and empirical review on the topic under study as well as the conceptual review of the study. Chapter three deals with the methodology adopted for the study. Chapter four presents the results and discussion while the last chapter, chapter five, presents the summary, conclusion and recommendation for the study and provides suggestions for future studies.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The fundamental nature of contemporary business extends beyond just financial gains and expansion, encompassing its function and obligation towards the natural environment. In the midst of the dynamic business climate, the adoption of Environmental Management Accounting Practices (EMAP) has become more significant for organizations seeking to incorporate environmental sustainability into their operational strategies. This chapter undertakes a thorough exploration of the complex network of theoretical foundations, fundamental ideas, and empirical research that shed light on the multidimensional connection between EMAP and environmental sustainability. Moreover, it highlights the crucial significance of stakeholder involvement as a pivotal element that connects the ambitions of a corporation with societal demands.



2.1 Conceptual Review

2.1.1 *The Concept of Sustainability*

At its foundation, sustainability deals with the fundamental problem of using resources now while assuring their availability for future generations. The intricate equilibrium was eloquently captured in the Brundtland Report, entitled "Our Common Future," which was issued in 1987 by the World Commission on Environment and Development (Salas-Zapata & Ortiz-Muñoz, 2019). The concept of sustainability was elucidated as "a form of development that effectively fulfils the requirements of the current generation while safeguarding the capacity of future generations to fulfil their own needs." The provided description served as a unifying force, prompting leaders on a worldwide scale, as well as corporations and

individuals, to engage in self-reflection over unregulated patterns of consumption and development (Salas-Zapata & Ortiz-Muñoz, 2019; Vogt & Weber, 2019).

Nevertheless, as the discussion around sustainability evolved in the years after the publication of the Brundtland Report, academics, legislators, and business professionals engaged in a more detailed analysis of this comprehensive concept (Serrano et al., 2019). The realisation emerged that sustainability was not a simple, homogeneous notion, but rather has several dimensions. The initial factor that arose was economic sustainability, which acknowledges that for development to be really sustainable, it must possess economic viability. This facet of sustainability focuses on strategies that promote sustainable economic development while safeguarding the social, environmental, and cultural dimensions of communities. The objective is to ensure the conscientious administration of diverse economic elements, encompassing employment, income, and the mitigation of economic inequalities (Kumar & Bhatia, 2021).

In addition to economic factors, social sustainability emerged as a prominent concern, with a primary emphasis on the establishment and preservation of a cohesive community. This aspect emphasises the need of promoting social cohesiveness, equality, and justice (Mukwarami et al., 2023). In a community that prioritises social sustainability, the promotion of health, education, and social protection is of utmost importance, as it enables all individuals within the community to fully develop their capabilities and actively engage in the decision-making procedures. The issue of environmental sustainability is widely acknowledged as a critical factor, emphasising the importance of prudent resource utilisation (Nyahuna & Doorasamy, 2022). This component seeks to promote a stable climate, reduced pollution, and the preservation of biodiversity through embracing conservation practises and responsible management of land, water, and air resources.

2.1.2 The Concept of Environmental Sustainability

Environmental sustainability is a fundamental aspect of sustainable development, including a dedication to safeguarding and conserving the natural systems and resources of the Earth. The statement according to Moldan et al. (2012), acknowledges the limited capacity of the earth and the potential for irreversible degradation of ecosystems via irresponsible use. Such degradation can lead to imbalances that are harmful not just to the natural environment but also to human society. The fundamental concept behind environmental sustainability is the prudent utilisation of natural resources. This involves not just the visible resources such as water, minerals, and forests, but also embraces the intangible resources such as the air we breathe and the climate that sustains life. The excessive consumption, generation of waste, and pollution have the potential to exert pressure on the Earth's ability to replenish itself, resulting in the depletion of resources and degradation of the ecosystem (Purvis et al., 2019). In contrast, sustainable practises prioritise conservation through promoting strategies that aim to decrease consumption or adopt sustainable alternatives.

Furthermore, the concept of environmental sustainability highlights the necessity of safeguarding a wide range of ecosystems. Each habitat, such as the dense tropical rainforests that serve as the Earth's primary source of oxygen and the coral reefs, sometimes referred to as the marine equivalent of rainforests, fulfils a crucial function (Fischer et al., 2015). These ecosystems serve as important repositories of biodiversity, supporting a wide array of species, each playing distinct roles in the preservation of ecological equilibrium. The process of deforestation, urbanisation, and industrialization has the potential to fragment or completely eradicate natural habitats, resulting in the displacement or extinction of several species (Wong & Zhou, 2015). In addition, the preservation of biodiversity plays a key role in ensuring environmental sustainability. Biodiversity, which encompasses the extensive array of living forms on our planet, ranging from genetic diversity within species to the complexity

of entire ecosystems, plays a crucial role in promoting ecological resilience (Bibri, 2018). Every individual species, regardless of its size, ranging from microscopic bacteria to large mammals, plays a vital role in maintaining the overall health and functioning of the ecosystem. These contributions encompass a wide range of ecological processes, including nutrient cycling and temperature control. The disruption of these systems due to a decline in biodiversity can initiate a cascade of repercussions with wide-ranging impacts.

Based on the information above, it becomes apparent that environmental sustainability encompasses more than only ecological considerations, but rather represents a comprehensive strategy aimed at safeguarding the overall welfare of the world. The integration of resource management, habitat protection, and biodiversity preservation is a central theme, envisioning a state where human beings cohabit in a mutually beneficial manner with the natural environment. This vision recognises the interconnectedness between humans and nature, and strives to safeguard the welfare of both current and future generations.

2.1.3 Importance of Environmental Sustainability in Businesses

In the contemporary dynamic global context, the convergence of commercial operations and environmental stewardship has become more prominent. The integration of environmental sustainability into business practises has evolved from being a peripheral concern or a mere compliance measure for corporate social responsibility. The concept has undergone a significant transformation, becoming a fundamental element that influences the development of company strategies, organisational values, and future trajectories (Carroll & Brown, 2022). Throughout history, corporations have frequently prioritised profit margins as their main objective, often neglecting the environmental consequences associated with their activities. Nevertheless, the rise of astute consumers, along with an increasing acknowledgment of the limited availability of Earth's resources, has triggered a fundamental change in perspective.

There is a growing recognition within the business sector that environmental sustainability is not just a matter of ethics, but rather a crucial strategic necessity.

According to Gast et al. (2017), one of the primary advantages of incorporating sustainable practises is in the ability to decrease operating expenses. By adopting energy-efficient technologies, implementing recycling practises, and reducing trash, businesses have the potential to substantially reduce their expenditures. The practise of efficient resource management not only contributes to environmental conservation but also provides measurable financial benefits (Lahti et al., 2018). For example, organisations that use renewable energy sources might potentially see long-term advantages such as reduced energy expenses, as well as a decreased vulnerability to fluctuations in fossil fuel costs. Risk minimization is an additional noteworthy consequence of implementing sustainable practises. In the current epoch characterised by climate change and the deterioration of the environment, companies are confronted with a range of environmental hazards, encompassing the scarcity of resources and stringent regulatory measures. By implementing sustainable practises in advance, organisations may effectively foresee and negotiate these issues, so protecting their operations from future interruptions (Jansson et al., 2017).

Moreover, Lahti et al. (2018) posit that a sincere dedication to promoting environmental sustainability inevitably amplifies the market worth of a brand. In contemporary society, consumers possess a higher level of knowledge and are frequently inclined to make purchase choices predicated upon a brand's environmental values and principles (Braam et al., 2016; Jansson et al., 2017). The establishment of a reputation for sustainability may serve as a distinguishing factor for a business, cultivating client loyalty and facilitating access to previously untapped market groups. Finally, the pursuit of sustainability frequently serves as a driver for innovation. In order to achieve sustainability objectives, corporations are pushed to reassess conventional methodologies, resulting in the emergence of innovative goods,

services, or procedures (Braam et al., 2016). The use of such innovative practises not only facilitates the achievement of environmental goals but also confers a competitive advantage to enterprises operating in the market.

2.1.4 Environmental Management Accounting Practises (EMAP)

Environmental Management Accounting Practises (EMAP) have become more important in contemporary enterprises, serving as a crucial instrument for comprehensively assessing their environmental footprints (Fuzi et al., 2020). Kumar and Bhatia (2021) indicate that EMAP serves as a means of connecting the gap that exists between financial accounting and environmental responsibility, so providing a more holistic understanding of an organization's activities and their corresponding environmental consequences. The systematic identification and collecting of data on material and energy flows is a fundamental aspect of the EMAP framework (Javed et al., 2022). Through the systematic monitoring of raw material intake and energy use, organisations have the ability to identify and analyse inefficiencies, wasting, and excessive dependence on non-renewable resources. When examining this data from an environmental perspective, it becomes evident that certain regions require prompt action or gradual modification.

The critical factor of environmental costs is closely associated with these flow measurements. Frequently, conventional accounting approaches fail to appropriately consider or accurately measure the financial consequences associated with environmental degradation or the depletion of resources (Mukwarami et al., 2023; Nyahuna & Doorasamy, 2022). Nevertheless, EMAP highlights these expenses as significant, including a wide range of expenditures such as fees for waste disposal, penalties imposed by regulatory bodies, and the potential costs associated with harm to one's reputation. Organisations may make well-informed decisions by leveraging the abundance of diverse and comprehensive data available to them (Mohd Fuzi et al., 2019). Environmental issues have transitioned from being

secondary to becoming integral in the process of strategy building, as evidenced by the implementation of the Environmental Management and Assessment Programme (EMAP). This not only facilitates businesses in complying with regulatory standards but also establishes them as environmentally conscientious organisations in the marketplace (Anaman et al., 2023).

2.1.5 Promoting EMAP through Environmental Sustainability

The convergence of Environmental Management Accounting Practises (EMAP) with sustainability objectives gives rise to a revolutionary alignment that fundamentally reshapes the structure and tactics of corporate operations. The integration described not only enhances the extent and scope of organisational accountability, but also situates enterprises at the intersection of financial stewardship and environmental responsibility (Mukwarami et al., 2023). The EMAP framework, which is specifically developed to collect, analyse, and interpret data on material and energy flows, as well as the associated environmental costs, demonstrates a stronger alignment when integrated with wider sustainability goals (Javed et al., 2022). Within this integrated framework, accounting practises undergo a transformation from being primarily focused on numerical figures and financial results to being interconnected narratives that express an organization's dedication to both economic advancement and environmental conservation (Nyahuna & Doorasamy, 2022). The symbiotic association between EMAP and sustainability guarantees that enterprises are not just focused on monitoring their profitability or market share. Additionally, they are diligently monitoring their carbon footprints, water consumption, trash disposal practises, and several other environmental metrics. The implementation of a comprehensive tracking system effectively reconciles the longstanding tension between economic profitability and environmental sustainability, emphasising the compatibility and mutual reinforcement of these two objectives.

2.1.6 The Concept of Stakeholder Engagement

Within the dynamic and ever-changing domain of contemporary business, the act of engaging stakeholders has surpassed conventional frameworks, emerging as a crucial element for the effective and enduring administration of organisations. In contemporary business practises, it is no longer adequate for organisations to function in isolation. Instead, it is crucial for companies to proactively engage with and comprehend the many perspectives that surround the organisation, including them into decision-making processes to ensure that all stakeholders have the opportunity to contribute to its direction. Stakeholder engagement is more than mere talk; it entails a continuous exchange that fosters mutual trust and comprehension between an organisation and its many stakeholders. The stakeholders encompass a wide array of individuals and entities, including investors, employees, consumers, local communities, activists, and the environment. Each individual contributes distinct perspectives, considerations, and anticipations that can significantly impact the process of making decisions inside an organisation.

Comprehending various viewpoints is not just a matter of ethics, but also holds strategic significance. The act of including stakeholders in organisational processes offers a more comprehensive and diverse range of information, hence facilitating a deeper understanding of possible dangers, opportunities, and areas for enhancement. Moreover, when stakeholders perceive that their opinions are actually acknowledged and considered, it fosters trust, hence strengthening the organization's social legitimacy. The concerns and aspirations of stakeholders frequently transcend the sole focus on financial profitability. The individuals involved engage in an in-depth exploration of ethical considerations, the effects on the community, the responsible management of the environment, and the pursuit of sustainable practises over an extended period of time. Through proactive involvement with stakeholders, organisations have the ability to harmonise their goals and operations with these overarching

ambitions, so guaranteeing that their business activities are in sync with, and have a beneficial influence on, the wider ecosystem in which they operate.

2.2 Theoretical Review

2.2.1 Stakeholder Theory

The concept of Stakeholder Theory, as initially presented by R. Edward Freeman in his influential publication "Strategic Management: A Stakeholder Approach" in 1984, brought about a significant shift in the way organisations conceptualised their roles and obligations (Charan & Freeman, 1980). It challenged the long-standing notion that businesses were exclusively established to cater to the interests of their shareholders. Freeman's idea stated that firms ought to be held responsible to a broader range of entities or persons, sometimes referred to as stakeholders (Jones et al., 2017). The stakeholders were individuals and groups who were impacted by the activities of a corporation, including but not limited to workers, customers, suppliers, communities, and society as a whole. Historically, corporations have primarily prioritised the interests of their stockholders. The primary objective was to achieve maximum profitability, with success being measured only in terms of financial gains. Freeman's Stakeholder Theory introduced the concept that corporations possess moral and ethical responsibilities that extend beyond mere financial reasons (Miles, 2017). This concept was ground-breaking, positing that organisations may be seen as intricate networks of interconnections, whereby every individual component holds inherent worth and importance.

Freeman's definition of stakeholders was comprehensive, encompassing not only individuals with a financial interest in a corporation, but also other relevant parties (Freeman, 2016). This wide definition encompasses the integration of employees who contribute their time and abilities, consumers who place their faith in organisations to deliver high-quality products and services, communities that are affected by a company's operational choices, and suppliers

who engage in collaborative efforts for shared success. In its fundamental nature, a stakeholder refers to any individual or collective entity that possesses the potential to exert influence over or be influenced by the aims and activities of an organisation (Freeman, 2016; Jones et al., 2017). In contemporary times, the significance of Stakeholder Theory has experienced a notable increase, particularly within the realm of sustainability. Contemporary enterprises function within a global context where access to information is readily available to everyone, and the activities of corporations are subject to ongoing examination. The current global difficulties, encompassing issues such as climate change, socioeconomic injustice, and resource depletion, have elicited a heightened level of consciousness. In contemporary business environments, it is imperative for companies to recognise the necessity of engaging with external stakeholders and considering the wider consequences of their operations.

The concept of Stakeholder Theory holds significant relevance within the realm of sustainability (Freeman, 2016). The effective management of environmental and social difficulties demands more than mere acknowledgement of these concerns; it requires a comprehensive understanding and alignment with the diverse expectations of stakeholders. In contemporary society, customers possess a higher level of knowledge and exhibit a heightened inclination towards items that are supplied in an ethical manner and demonstrate environmental friendliness. Employees have a strong desire to be employed by organisations that prioritise sustainability, not only in terms of financial gains but also in their whole operational philosophy (Jones et al., 2017; Miles, 2017). Communities express a desire for firms to exhibit responsible behaviour as local stakeholders, therefore safeguarding against resource depletion and environmental harm resulting from their activity.

By incorporating Stakeholder Theory into this study, it offers a fundamental comprehension of the significance of involving stakeholders in order to effectively implement Environmental

Management Accounting Practises (EMAP) and advance environmental sustainability. The Environmental Management and Assessment Programme (EMAP) serves as a valuable tool for businesses, enabling them to effectively monitor and manage their environmental footprint. In order to achieve effectiveness, it is imperative for enterprises to possess a comprehensive understanding of the expectations and values held by their stakeholders. The implementation of EMAP in a vacuum, devoid of stakeholder engagement and comprehension, may potentially undermine the efficacy of these practises. Stakeholder engagement is a crucial process that assures alignment between the environmental measurements and metrics being monitored, controlled, and disclosed, and the concerns and values of the individuals and entities affected by the company operations.

2.2.2 Resource Based View

The Resource-Based View (RBV) is widely recognised as a fundamental cornerstone in the discipline of strategic management. The theory, initially proposed by Birger Wernerfelt in his seminal 1984 paper titled "A Resource-Based View of the Firm," posits that an organization's sustainable competitive advantage is not solely dependent on external market factors, but rather on its capacity to effectively utilise and leverage its internal resources (Kull et al., 2016). The proposed shift in paradigm regarding the identification of competitive advantage sources suggests that a firm's performance is primarily driven by its possession of distinctive, valuable, and difficult-to-replicate resources. The Resource-Based View (RBV) theory places emphasis on two distinct classifications of assets: tangible resources, which comprise physical assets, and intangible resources, which encompass assets such as brand reputation, company culture, and intellectual property (Kull et al., 2016; Miller, 2019). Nevertheless, mere possession of these resources is not sufficed; it is the firm's capacity to effectively utilise these resources in a manner that is arduous for competitors to mimic or reproduce, which bestows a legitimate competitive advantage.

When examining the sustainability landscape, Miller (2019) indicate that the ideas of the Resource-Based View (RBV) demonstrate a significant level of resonance. In light of the growing worldwide focus on sustainability and environmentally sensitive initiatives, businesses are progressively acknowledging the significance of sustainable resources and practises as distinct competitive advantages. For example, an entity that allocates resources towards the development of cutting-edge environmentally friendly technology not only facilitates decreased expenses in the future but also establishes a positive reputation among environmentally aware customers, interested parties, and governing bodies (Javed et al., 2022; Kull et al., 2016). Sustainable practises, therefore, assume significant importance as valuable assets that may be effectively leveraged for competitive advantage. The study establishes a connection between Environmental Management Accounting Practises (EMAP) and environmental sustainability, utilising the Resource-Based View (RBV) paradigm. The Environmental Management Accounting and Reporting (EMAP) system may be seen as a valuable strategic resource for enterprises, since it facilitates the monitoring, evaluation, and enhancement of their environmental performance. By incorporating these practises, organisations have the potential to access a range of benefits. These include the capacity to maximise the utilisation of resources, discover tactics that promote ecological efficiency, and establish a unique position in markets that place a growing emphasis on sustainability. In light of the resource-based view (RBV), the EMAP framework transcends its mere practical application and assumes the role of a strategic resource capable of enhancing a firm's competitive advantage within a business ecosystem driven by sustainability.

2.3 Empirical Review

2.3.1 Environmental Management Accounting Practices and Environmental Sustainability

The examination of Environmental Management Accounting Practises (EMAP) and its relationship to environmental sustainability is not only crucial but also sophisticated,

revealing additional levels of complexity as the scholarly perspective delves deeper. Building upon the seminal research conducted by Burritt et al. in 2002 and the intricate factors elucidated by Qian et al. in 2011, further investigations have continued to enhance the scholarly conversation. Adams and Frost (2018) conducted an in-depth analysis of the intricacies and details of EMAP processes. The researchers conducted a comprehensive assessment across many sectors and found that even within the EMAP framework, different practises exhibit varying levels of effectiveness in promoting environmental sustainability. It is worth noting that industries with more environmental implications, such as manufacturing and chemicals, demonstrated a greater degree of usefulness in employing particular Environmental Management and Assessment Programme (EMAP) systems that focused on waste management and emissions tracking.

Divergences manifest themselves on a global scale. The study conducted by Fernando and Lawrence (2019) focused on South Asian enterprises and found that the adoption of EMAP (Environmental Management Accounting and Reporting Practises) was increasing. However, the translation of this adoption into measurable environmental results was not occurring smoothly. Plausible factors were suggested, including regional dynamics, cultural subtleties, and various stakeholder demands. Matarazzo and Nardo (2020) presented an alternative perspective, adopting a European framework, to provide a distinct challenge. The authors emphasised that although companies were growing skilled at utilising EMAP for the purpose of achieving environmental sustainability, effectively communicating these practises and their results to stakeholders continued to be a significant obstacle. The research emphasised the need of using standardised reporting metrics in order to improve transparency and foster confidence among stakeholders.

The noteworthy investigation conducted by Talbot and Boiral (2021) should not be disregarded. The authors compared EMAP to other business sustainability plans, highlighting

that its true worth may lie not in its individual capacity, but rather as an integral component of a comprehensive strategy framework. Therefore, the significant connection between EMAP and environmental sustainability, while undeniable in its nature, is complex in its implementation. The interaction between the two entities is influenced by specific industry characteristics, localised factors, internal organisational values, and overall corporate objectives. The intricate and complex character of this interaction calls for ongoing scholarly investigation and empirical investigation.

2.3.2 Environmental Management Accounting Practices and Stakeholder Engagement

The use of Environmental Management Accounting Practises (EMAP) has significantly increased inside organisations. These practises serve as crucial methods for measuring environmental footprints and also play a significant role in engaging stakeholders. The interconnected nature of EMAP and stakeholder involvement offers a complex and multifaceted subject of study with significant practical ramifications.

An exploration of scholarly literature unveils the significance of this interaction. Laine et al. (2019) shown that organisations that use comprehensive Environmental Management and Assessment Programme (EMAP) systems frequently see an increase in engagement with stakeholders. The study conducted by the researchers proposed that the transparent and measurable data derived through EMAP offers a shared platform for organisations and their stakeholders to establish a foundation for their talks, hence promoting communication and cooperation. Nevertheless, although Laine et al. (2019) shed light on the favourable aspects, other scholarly investigations reveal more complex scenarios. The empirical study conducted by Chapman and Milne (2020) revealed that the effectiveness of EMAP in facilitating stakeholder discussion is influenced by the manner in which the data is presented. The utilisation of specialised terminology or too technical language in EMAP-driven interactions

has the unintended consequence of possibly isolating certain stakeholders, thereby impeding authentic involvement.

The study trajectory undergoes a further deviation when examining findings particular to different sectors. Thompson and Hansen (2021) conducted a thorough investigation of the energy industry, highlighting the heightened significance of EMAP in fostering effective stakeholder interaction. The transparent data and insights provided by EMAP are of great value to this industry, particularly in light of the increased environmental scrutiny it confronts. However, the aforementioned study uncovered a distinct division: whereas internal stakeholders, such as employees and management, were actively involved via the implementation of EMAP, external stakeholders, such as local populations, frequently experienced a sense of marginalisation. This highlights the necessity of formulating a well-rounded approach to involvement. Internationally, variations also arise. The research conducted by Rodriguez and Pereira (2022) sheds light on South American companies, highlighting the significance of cultural variations in stakeholder interaction supported through EMAP. The results of the study suggest that in areas where environmental issues are highly valued by society, the function of EMAP in promoting conversation among stakeholders becomes even more significant.

In a broader perspective, the existing corpus of research indicates that although EMAP unquestionably offers a systematic framework for including stakeholders, its effectiveness in this regard is not without ambiguity. The effectiveness of stakeholder involvement using EMAP relies on a combination of several aspects, including the clear and accessible presentation of data, unique characteristics of different sectors, and even cultural influences specific to different regions.

2.3.3 Stakeholder Engagement and Environmental Sustainability

The interplay between stakeholder engagement and the realization of environmental sustainability objectives is an area that has garnered significant attention within academic circles. This scrutiny is well-founded, as stakeholder engagement, at its core, is about understanding and aligning with diverse perspectives that influence the trajectory of organizational initiatives.

One of the seminal works in this area by Freeman and Reed (1983) framed stakeholders not just as passive entities affected by an organization's actions, but as active participants capable of shaping those actions. This perspective becomes particularly relevant when examining the realm of environmental sustainability. The rationale is evident: sustainability challenges are multifaceted and traversing them requires collaboration across a gamut of stakeholders, from suppliers and employees to regulators and activists.

Delving deeper, one encounters nuanced arguments. Hart (1995) presented a compelling case stating that firms that engage stakeholders comprehensively, especially those in the periphery like local communities, often foster more holistic and lasting environmental strategies. The premise is that these peripheral stakeholders bring ground-level insights that can enrich and refine sustainability blueprints.

Conversely, there's a contrary viewpoint as proffered by Hendry (2005), who argued that stakeholder engagement, when not thoughtfully executed, could result in a cacophony of voices. In such scenarios, while engagement levels might be high, it could become a counterproductive endeavor, diluting the focus of environmental sustainability strategies.

The industry-specific lens offers more depth. For instance, a study on the mining industry by Jenkins and Yakovleva (2006) unearthed the heightened significance of stakeholder engagement in sectors with pronounced environmental footprints. It was deduced that

industries operating in ecologically sensitive areas face elevated expectations from stakeholders, and here, engagement isn't just a strategic choice, but often a survival imperative. The findings posited that firms that failed to engage stakeholders earnestly faced operational disruptions, reputation damage, and sometimes even regulatory penalties.

Regionally, there's richness to uncover. A comparative analysis by Sarkis et al. (2010) spanning firms across Asia and Europe deduced variances in stakeholder engagement intensity and its consequent impact on environmental outcomes. While European firms showcased more structured stakeholder engagement mechanisms, Asian firms demonstrated more flexible, often informal engagement pathways. Interestingly, despite these operational differences, in both contexts, genuine stakeholder engagement translated into tangible environmental gains.

In summation, while the overarching narrative affirms the positive symbiosis between stakeholder engagement and environmental sustainability, it's not devoid of complexities. Effective stakeholder engagement doesn't just reside in the volume of interactions but in their quality, relevance, and strategic alignment. The mosaic of research, while endorsing the potential of stakeholder engagement, underscores the importance of its meticulous execution for fostering genuine environmental progress.

2.3.4 Environmental Management Accounting Practices, Environmental Sustainability, and Stakeholder Engagement

The focal point of scholarly and professional discussions in recent times has been the intersection of Environmental Management Accounting Practises (EMAP), environmental sustainability, and stakeholder involvement. According to several researchers, this triangle constitutes the fundamental basis of a viable corporate ethos in the contemporary day. In the past, EMAP primarily focused on the provision of both monetary and non-monetary

information pertaining to environmental costs and benefits. Bennett et al. (1999) provide a significant study indicating that the use of EMAP as a tool has the capacity to influence corporate environmental initiatives, hence facilitating their alignment with wider organisational objectives. Nevertheless, a common shortcoming of all tactics was the absence of authentic support and commitment from a diverse range of individuals and groups involved.

Upon entering the domain of environmental sustainability, one may discern a notable and dynamic transformation. According to Schaltegger and Burritt (2000), the concept of sustainability cannot be seen as a separate purpose for contemporary enterprises, since it is integrally interconnected with their financial and operational aspects. As a result, the role of EMAP expanded beyond its traditional scope, transforming from a simple accounting practise into a strategic tool focused on promoting sustainability. However, it appeared that a crucial element was absent. The aforementioned vacuum pertained to stakeholder participation. Mitchell et al. (1997) aptly emphasised that stakeholders are no longer only passive receivers of corporate activities, but rather play a pivotal role in influencing such actions. The importance of this insight is heightened when one considers the intricate fabric of environmental sustainability. The involvement of stakeholders in the process of EMAP implementation guarantees that the strategies and practises produced from it possess not just theoretical rigour but also contextual relevance and practical feasibility.

This notion is further supported by evidence derived from investigations conducted within various industries. An intriguing tendency was unveiled in a study conducted by Gond et al. (2012) in the textile sector. Companies who successfully incorporated Environmental Management Accounting and Planning (EMAP) into their operations, along with implementing stakeholder engagement tools, experienced improvements not just in environmental sustainability indicators but also in stakeholder trust and brand value. The

aforementioned dual benefit has particular relevance in businesses that are subject to scrutiny over their environmental impacts. Nevertheless, the canvas does not lack counterpoints. Tilling and Tilt (2016) conducted a research that raised concerns over the universal application of this trio throughout various company structures and geographical contexts. The capacity to integrate EMAP (Environmental Management and Assessment Programme), sustainability, and stakeholder engagement may vary significantly between major conglomerates and small and medium companies (SMEs) due to differences in available resources and localised operational factors.

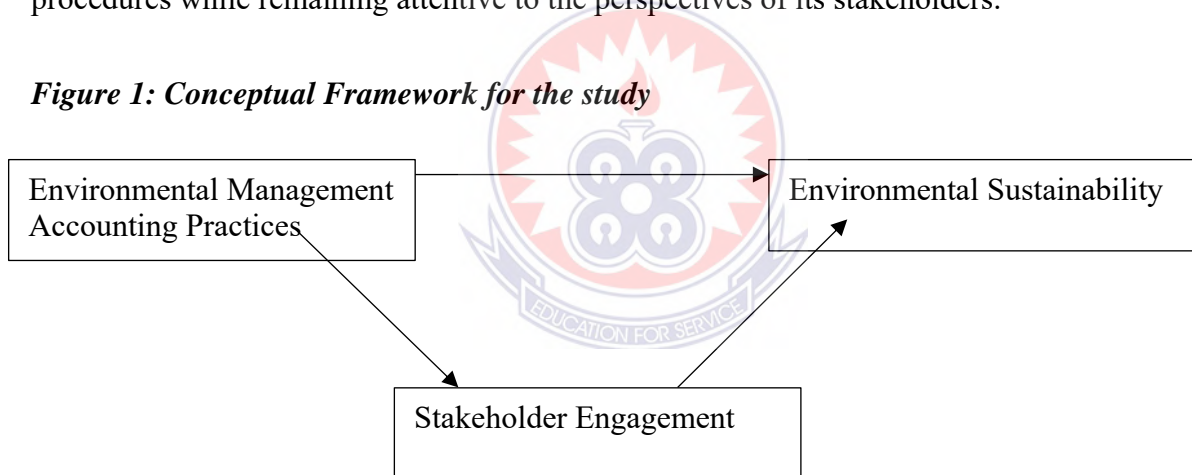
2.4 Conceptual Framework

The research is grounded on a conceptual framework that integrates theoretical principles with empirical data, elucidating the complex interconnections among Environmental Management Accounting Practises (EMAP), stakeholder involvement, and environmental sustainability. The framework in question functions not only as a navigational tool for directing the course of study, but also as a guiding instrument that highlights the interconnectedness, subtleties, and potential ramifications of the topics being examined. Central to this comprehensive analysis is the Environmental Management and Assessment Process (EMAP), which is founded on the impartial evaluation of an entity's ecological footprint. As previously said, the concept of EMAP involves the methodical process of identifying, gathering, and analysing environmental costs and benefits. The fundamental essence of this approach is centred around providing organisations with data and insights, which in turn influences the development of their environmental initiatives.

Emerging from the central nucleus are the extensions of stakeholder involvement. In contemporary discourse around corporate strategy, stakeholders are acknowledged as active players rather than mere passive viewers. They possess the agency to promote, challenge, or

even alter the path of an organisation. When integrated with the Environmental Management and Assessment Process (EMAP), stakeholder involvement functions as a dynamic method for receiving input. This practise guarantees that the environmental observations obtained are consistently compared to the desires, worries, and input of stakeholders. The synergy between different components enhances the precision and significance of tactics produced by EMAP. Finally, the core notion of environmental sustainability throughout this framework. It serves as the objective that directs all organisational activities. However, achieving this goal relies on the successful integration of EMAP's data-driven insights and the qualitative depth provided through stakeholder engagement. The triadic connection posits that in order for a firm to truly adopt environmental sustainability, it must effectively handle its accounting procedures while remaining attentive to the perspectives of its stakeholders.

Figure 1: Conceptual Framework for the study



Source: (Fuzi et al., 2020)

CHAPTER THREE

METHODOLOGY

3.0 Introduction

In order to fully understand the complexities of environmental management accounting practices (EMAP) and their correlation with environmental sustainability, it is imperative to adopt a research methodology that is methodologically rigorous. In order to get insights that are both informative and reliable, it is crucial to ensure that the selection of paradigm, study design, sampling methodologies, and analytic methods are harmoniously aligned. The next sections provide an explanation of the methodological decisions used in this study, outlining the progression from the overall paradigmatic perspective to the detailed examination of data. These choices were chosen with the intention of assuring the thoroughness and rigour of the inquiry. The objective of this demarcation is to give a clear account of the methodology employed in the study and to guarantee openness at every stage, presenting a reproducible framework for future investigations.

3.1 Research Paradigm

The epistemological and ontological perspectives of this research are rooted in the positivist paradigm, which emphasises the significance of an objective reality that exists autonomously from human experience. The paradigm is based on the premise that knowledge may be largely acquired via the observation and measurement of factual information. It emphasises the notion that the universe functions according to discernible and consistent rules and patterns (Comte, 1830). Therefore, the primary objective is to comprehend, elucidate, and forecast events by the use of empirical and frequently measurable data. The examination of the relationship between environmental management accounting practises (EMAP) and environmental sustainability is particularly focused in this study, with an emphasis on the

positivist perspective. What is the rationale behind this? This study aims to quantitatively assess the magnitude of this association, identify recurring trends, and infer the potential impact that one variable may exert on the other. Moreover, the significance of empirical data within this paradigm guarantees that the conclusions are firmly based on seen and quantifiable phenomena, hence avoiding the possibility of baseless speculations or excessive dependence on subjective perceptions.

Researchers who adhere to the positivist paradigm, as exemplified in this study, have a steadfast belief in the scientific method. According to Popper (1959), the effectiveness of this technique is attributed to its provision of structure and predictability, which are considered crucial for the discovery of truth. By employing a methodical approach to gathering, analysing, and interpreting data, it becomes feasible to draw conclusions about broader populations or fundamental principles. This practice not only guarantees the reliability of the results but also their relevance in practical situations. Moreover, the use of the positivist paradigm in the examination of EMAP and environmental sustainability signifies a dedication to ascertaining the measurable effects of accounting practices on the environment, going beyond just theoretical conjectures. Through the utilisation of statistical methodologies and meticulous data-gathering approaches, the research endeavours to derive results that withstand the scrutiny of empirical verification. According to Park et al. (2020), it is vital to emphasise the importance of methodical methods and empirical evidence in order to get meaningful and actionable insights from data, particularly in the context of environmental sustainability, which is an area of utmost significance and relevance.

3.2 Research Approach

The selected approach to research for this study is the quantitative method, which is known for its precision and objectivity. The core focus of this discipline largely centres on the collection and examination of quantitative data in order to get insights into various occurrences. In contrast to qualitative methodologies that explore subjective experiences and interpretations, quantitative research aims to achieve clarity by employing numerical data, measurements, and statistical analysis. This methodology is especially suitable for research endeavours that seek to identify patterns, correlations, or causal relationships among particular variables. Utilising measurable data as a foundation for the study guarantees that the results drawn are based on observable reality, therefore augmenting the research's dependability and validity. Apuke (2017) has highlighted the significance of using this particular methodology when the objective is to clarify the connections between various components. This approach offers a distinct, organised, and frequently applicable understanding of the dynamics involved.

One additional benefit of employing the quantitative method is its intrinsic characteristic of standardisation. The utilisation of instruments such as structured surveys ensures the maintenance of consistency in the data gathering process among various respondents. The process of standardisation serves the purpose of reducing possible biases and promoting the comparability of data. Hair et al. (2019) emphasise the significance of this aspect in order to validate and reproduce research findings in future studies. In addition, the utilisation of the quantitative technique, due to its systematic framework, facilitates the reduction of uncertainties, therefore empowering the researcher to derive conclusive findings from the collected data. Within the framework of comprehending the influence and correlation between EMAP and environmental sustainability, the selection of this particular methodology holds the potential to provide lucidity, accuracy, and practical knowledge.

3.3 Research Design

The decision to utilise a cross-sectional survey methodology was made in order to guide the direction of this study. This choice was based on the design's intrinsic capacity to capture a momentary representation of phenomena at a specific moment in time. In contrast to longitudinal designs, which observe changes over extended periods, cross-sectional designs provide a prompt snapshot of the present situation, rendering them particularly advantageous for research with limitations in time or resources. The fundamental aspect of this design resides in the use of standardised questionnaires, guaranteeing consistency in the gathering of data. The consistency of data collection is crucial as it guarantees the comparability of data obtained from various respondents, hence strengthening the integrity and dependability of the study. In the context of this study, a comprehensive questionnaire was carefully constructed to effectively examine crucial aspects such as EMAP, environmental sustainability, and potential mediating factors. The employment of this methodical methodology ensured an exhaustive examination of all relevant areas.

In addition, the utilisation of a cross-sectional design is advantageous in the identification of frequent patterns, trends, and correlations present within the dataset. The comprehension of these patterns and interactions is of utmost importance, considering the nature of the research inquiries presented in this paper. By assessing the emotions, attitudes, and reactions of the selected participants at a certain moment, significant knowledge about the interplay of EMAP, environmental sustainability, and the elements that mediate this relationship may be inferred, thereby accomplishing the primary goals of the study.

3.4 Population

The population under study include a diverse range of enterprises and stakeholders who are closely connected to the discourse on EMAP and the promotion of environmental

sustainability. These entities not only serve as the fundamental components of the current business environment, but also have a significant impact on the development of sustainable practises within the corporate sector. The population under consideration exhibits a wide range of variety, encompassing both small firms who are beginning to implement green initiatives and multinational organisations that are leading the way in sustainable innovation. Equally crucial are the stakeholders, encompassing a diverse range of individuals and groups such as investors, regulators, suppliers, environmental campaigners, and local communities. The inclusion of many views, influences, and expectations contributes to the intricate and nuanced nature of the study, rendering them essential elements in any thorough investigation of the effects of EMAP on environmental sustainability. The population of the study is 550 SMEs.

3.5 Sample and Sampling Techniques

The act of sampling from a comprehensive population is of utmost importance in order to accurately capture the fundamental characteristics and range of variation within the group. In the present study, considering the extensive range of firms and stakeholders engaged in the discussion on EMAP and environmental sustainability, the process of selecting an appropriate sample assumed heightened significance. The present study employed a carefully designed sampling methodology to ensure that the selected individuals adequately represented the diverse and complex characteristics of the larger population. The efficacy of a comprehensive sampling approach is contingent upon not just the quantity, but also the quality and pertinence of the data that can be derived from the selected subset. The objective is to attain a nuanced representation of the broader group by ensuring that the sample accurately reflects its heterogeneity, encompassing its many subtleties, variances, and quirks. By using this approach, the study attains a foundation of credibility. The inferences made, trends identified, and connections seen from this particular sample can afterwards be

generalised with a high degree of certainty to the broader population. The rigorous methodology employed in the sampling process further enhances the reliability of the study outcomes. The study's complete knowledge ensures that the insights and suggestions are appropriate and relevant to organisations and stakeholders in the EMAP area and environmental sustainability, hence providing comfort to stakeholders. The sample of the study include 119 SMEs.

3.6 Data Collection Instruments

Standardised surveys play a crucial role in this study, serving as the foundation of structured data gathering procedures. The inherent organisation of surveys guarantees consistency, allowing all respondents to address a standardised set of inquiries, therefore mitigating any potential inconsistencies in data gathering. The adoption of a standardised strategy was of utmost importance within the framework of this research, since it delved into intricate concepts like EMAP, environmental sustainability, and the hypothesised mediating factors. The surveys have a value that extends beyond mere consistency. Surveys are specifically constructed to obtain accurate data from participants while reducing the likelihood of biases and interpretive inaccuracies. As individuals from all backgrounds and affiliations contribute their viewpoints, the researcher acquires a more thorough and holistic understanding of the subject matter. In addition, the survey replies' quantitative form enables uncomplicated data analysis, hence enhancing the reliability and correctness of the conclusions. Through the use of standardised questionnaires, this study was strategically designed to derive solid, significant, and generalizable conclusions from the acquired data, hence enhancing the impact and applicability of the findings across various settings. The questionnaires were adapted from the study of Javed et al. (2022) and Nyahuna and Doorasamy (2022).

3.7 Validity and Reliability

Undoubtedly, the fundamental pillars of a strong research investigation are the concepts of validity and reliability. Validity is a crucial aspect of research as it guarantees that the measurements taken accurately capture the intended ideas being studied. On the other hand, reliability is equally important as it verifies the consistency and stability of these data over time. Within the framework of this research, the selection of tools, procedures, and analytical techniques was conducted with great care and precision in order to uphold these values. The deployment of standardised surveys has special significance. These tools have been subjected to rigorous testing in several settings, demonstrating their efficacy in gathering precise and reliable data. They serve as a safeguard against subjective biases and any modifications that may compromise the integrity of data collecting.

In addition to utilising surveys, the research utilised known statistical procedures to ensure the analysis was conducted with rigour and defensibility. The use of these methodologies, which are firmly grounded in established mathematical principles, establishes a solid basis upon which the research findings are built. The statement made by Hair et al. (2019) on the emphasis of the positivist paradigm on generalizability and replication serves to underscore the need of ensuring validity and reliability. A study that adheres to these principles not only maintains its integrity within its own context, but also serves as a guiding example for future research endeavours, providing a framework that may be reproduced and further developed in many environments. The study's commitment to upholding integrity, consistency, and replicability significantly boosts its overall contributions to the academic and professional domains.

Table 1: Construct Validity

Constructs	Factor Loadings	Average Variance Extracted (AVE)
EMAP1 <- EMAP	0.919	0.611
EMAP2 <- EMAP	0.688	
EMAP3 <- EMAP	0.776	
EMAP4 <- EMAP	0.739	
EMAP5 <- EMAP	0.844	
EMAP6 <- EMAP	0.784	
EMAP7 <- EMAP	0.694	
ES1 <- ES	0.772	0.568
ES2 <- ES	0.825	
ES3 <- ES	0.735	
ES4 <- ES	0.731	
ES5 <- ES	0.729	
ES6 <- ES	0.732	
ES7 <- ES	0.745	
SE1 <- SE	0.822	0.663
SE2 <- SE	0.777	
SE3 <- SE	0.822	
SE4 <- SE	0.767	
SE5 <- SE	0.789	
SE6 <- SE	0.863	
SE7 <- SE	0.854	

Source: Field Study (2023)

The Table 1 presents the construct validity for three key constructs: Environmental Management Accounting Practices (EMAP), Environmental Sustainability (ES), and Stakeholder Engagement (SE). Each of these constructs is evaluated through various items, with both factor loadings and the Average Variance Extracted (AVE) provided. For the Environmental Management Accounting Practices (EMAP) construct, there are seven items assessed. The factor loadings for these items are as follows: EMAP1 shows a loading of 0.919, EMAP2 at 0.688, EMAP3 at 0.776, EMAP4 at 0.739, EMAP5 at 0.844, EMAP6 at 0.784, and EMAP7 at 0.694. The Average Variance Extracted for EMAP is 0.611, indicating that a significant portion of variance in the EMAP items is explained by the construct.

The Environmental Sustainability (ES) construct is analysed through seven items. The factor loadings for the ES items are: ES1 at 0.772, ES2 at 0.825, ES3 at 0.735, ES4 at 0.731, ES5 at

0.729, ES6 at 0.732, and ES7 at 0.745. The AVE for ES is 0.568, which suggests a moderate level of variance in the ES items is captured by the construct. Lastly, the Stakeholder Engagement (SE) construct comprises seven items. Their factor loadings are as follows: SE1 at 0.822, SE2 at 0.777, SE3 at 0.822, SE4 at 0.767, SE5 at 0.789, SE6 at 0.863, and SE7 at 0.854. The AVE for SE is 0.663, indicating a strong level of variance in SE items accounted for by the construct.

Table 2: Discriminant Validity (Fornell-Larcker Criterion)

	EMAP	ES	SE
EMAP	0.782		
ES	0.879	0.865	
SE	0.834	0.925	0.814

Source: Field Study (2023)

Table 2 shows the discriminant validity of the constructs using the Fornell-Larcker Criterion. This criterion assesses the discriminant validity by comparing the square root of the Average Variance Extracted (AVE) of each construct with the correlations between the constructs. In this table, the constructs involved are Environmental Management Accounting Practices (EMAP), Environmental Sustainability (ES), and Stakeholder Engagement (SE). The diagonal elements of the table represent the square root of the AVE for each construct. For EMAP, this value is 0.782. For ES, it's 0.865, and for SE, it's 0.814. These diagonal values should be higher than the off-diagonal elements in their respective rows and columns to satisfy the Fornell-Larcker criterion, indicating that each construct is indeed distinct from the others. Thus, the discriminant validity criterion has been met.

Table 3: Construct and Composite Reliability

Construct	VIF	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)
EMAP1	5.485	0.892	0.903	0.916
EMAP2	1.997			
EMAP3	2.146			
EMAP4	2.111			

EMAP5	3.502			
EMAP6	2.196			
EMAP7	1.74			
ES1	2.428	0.873	0.876	0.902
ES2	4.022			
ES3	4.022			
ES4	2.344			
ES5	4.061			
ES6	3.882			
ES7	2.632			
SE1	2.42	0.915	0.915	0.932
SE2	2.21			
SE3	3.508			
SE4	2.1			
SE5	3.913			
SE6	3.669			
SE7	3.714			

Source: Field Study (2023)

Table 3 outlines the construct and composite reliability for the three constructs: Environmental Management Accounting Practices (EMAP), Environmental Sustainability (ES), and Stakeholder Engagement (SE). It provides a detailed view of the reliability of each construct through various metrics, including the Variance Inflation Factor (VIF), Cronbach's Alpha, Composite Reliability (ρ_a), and Composite Reliability (ρ_c). For the EMAP construct, seven items (EMAP1 to EMAP7) are analyzed. The VIF values for these items range from 1.74 to 5.485, indicating the level of multicollinearity. A VIF value above 5 is generally considered problematic, so only EMAP1 slightly exceeds this threshold. Cronbach's Alpha for EMAP is 0.892, suggesting a high level of internal consistency. The composite reliability measures, ρ_a and ρ_c , are 0.903 and 0.916 respectively, both indicating good reliability.

The ES construct includes seven items (ES1 to ES7) as well. The VIF values for these items range from 2.344 to 4.061, all within acceptable limits. Cronbach's Alpha for ES is 0.873, also denoting good internal consistency. The composite reliability values, ρ_a and ρ_c , are 0.876 and 0.902 respectively, again showing good reliability. Lastly, the SE construct is

evaluated through seven items (SE1 to SE7). The VIF values here range from 2.1 to 3.714, all below the threshold of concern. The Cronbach's Alpha for SE is 0.915, which is excellent, and the composite reliability values, ρ_a and ρ_c , are both high at 0.915 and 0.932, respectively. The VIF values across all items are largely within acceptable ranges, suggesting minimal concerns regarding multicollinearity.

3.8 Data Analysis Methods

The process of data analysis, which plays a crucial role in research, was supported by a variety of specialised tools and methodologies designed specifically for thorough inspection of the collected material. In order to begin the process of analysis, descriptive statistics were utilised. The aforementioned contribution facilitated the establishment of a fundamental comprehension by succinctly encapsulating and presenting extensive quantities of facts in an intelligible fashion. Descriptive statistics played a crucial role in providing an understanding of the core tendencies, variances, and distribution patterns of the replies. This first analysis allowed for a broad and comprehensive examination of the data environment.

Following the first study, the focus shifted into inferential statistics, which involved a more comprehensive analysis of the data. The utilisation of this particular methodology played a crucial role in deriving significant inferences from the collected sample data on the overall population, hence facilitating the process of hypothesis testing. In addition to a superficial examination, inferential statistics offer a comprehensive analysis that uncovers deep correlations and patterns among the numerous variables being examined. To enhance the level of analysis, mediation analysis was added. The use of this sophisticated methodology was crucial in comprehending the intricate functions of intermediate variables. The objective of this study was to investigate the intricate relationship between stakeholder involvement,

organisational culture, and leadership style, and how these impacts the connection between EMAP and environmental sustainability, either by enhancing or diminishing it.

In order to integrate and consolidate the many analytical components, the SMART PLS (Partial Least Squares) programme was utilised. The utilisation of this sophisticated modelling tool enabled the implementation of a comprehensive structural equation modelling approach, so assuring the proper depiction, examination, and interpretation of the numerous interconnections and complex pathways existing among the variables. The utilisation of SMART PLS not only facilitated the analytical procedure but also enhanced the accuracy and dependability of the study findings.

3.9 Ethical Considerations

The adherence to ethical norms in research is not only a procedural requirement, but rather a fundamental principle that guarantees the credibility and reliability of academic endeavours. The focal point of this inquiry revolved around the steadfast dedication to protecting the rights, welfare, and individual dignity of each participant. In order to commence the study, the researchers obtained informed permission from all participants, ensuring that they were fully informed about the research's goals, their own role in it, and any potential consequences of their participation. The use of a transparent approach enhanced the trust of the participants and empowered them by providing a sense of control.

Moreover, at a time characterised by widespread apprehensions over the protection of data privacy, the preservation of secrecy emerged as an important component. Procedures were implemented to guarantee the preservation of participants' anonymity, and any data that had the potential to reveal personal identities was carefully eliminated or anonymized. Finally, the integrity of the data was preserved by the use of stringent protocols to prevent tampering, distortion, and any type of prejudice. The meticulous methodology employed not only

enhanced the legitimacy of the research, but also demonstrated a profound reverence for the principles of academic honesty and the integrity of knowledge creation.



CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Introduction

Chapter Four involves the data presentation and analysis, focusing on the influence of Environmental Management Accounting Practices (EMAP) on Environmental Sustainability and Stakeholder Engagement within Small and Medium-sized Enterprises (SMEs) in Ghana. This chapter begins by providing demographic information about the respondents, followed by detailed descriptive statistics for the key variables: EMAP, Environmental Sustainability, and Stakeholder Engagement. It then explores the direct impacts of EMAP on Environmental Sustainability and Stakeholder Engagement, as well as the influence of Stakeholder Engagement on Environmental Sustainability. Additionally, this chapter examines the mediating role of Stakeholder Engagement in the relationship between EMAP and Environmental Sustainability in Ghana's SMEs, offering a comprehensive analysis of these interrelationships.



4.1 Demographic Information of Respondents

This section presents the background information of respondents.

Table 4: Background information of respondents

		Frequency	Percentage (%)
Gender	Male	82	68.9
	Female	37	31.1
Age	Below 25 years	39	32.8
	26 – 35	32	26.9
	36 – 45	26	21.8
	46 – 55	16	13.4
	56 years and above	6	5.0
Business Type	Engineering	3	2.5
	Manufacturing	21	17.6
	Service	46	38.7

Trading

49

41.2

Source: Field Study (2023)

Table 4 presents the background information of the respondents involved in the study on Environmental Management Accounting Practices (EMAP), Environmental Sustainability, and Stakeholder Engagement in SMEs in Ghana. The table categorizes the respondents based on gender, age, and business type, providing both frequency and percentage distributions for each category. In terms of gender, the study includes 82 male respondents, constituting 68.9% of the total, and 37 female respondents, making up 31.1% of the sample.

Regarding age, the respondents are divided into five groups. There are 39 respondents below 25 years, accounting for 32.8% of the total. Those aged between 26- and 35-years number 32, representing 26.9%. The 36-45 age group includes 26 respondents (21.8%), the 46-55 age group has 16 respondents (13.4%), and those aged 56 years and above are the smallest group with 6 respondents, making up 5.0% of the sample. The respondents also vary in terms of the business types they represent. The study includes 3 respondents from the engineering sector (2.5%), 21 from manufacturing (17.6%), 46 from the service sector (38.7%), and 49 from trading (41.2%).

4.2 Descriptive Statistics of Variables

This section presents the descriptive statistics of the three variables.

4.2.1 Descriptive Statistics on Environmental Management Accounting Practices (EMAP)

Table 5: Environmental Management Accounting Practices (EMAP)

	N	Min	Max	Mean	Std. Deviation
EMAP practices help my company identify areas for improvement in environmental sustainability.	119	1	5	3.53	1.040
EMAP practices reduce environmental costs and increase operational efficiency.	119	1	5	3.71	1.106
EMAP practices help my company identify and manage environmental risks.	119	1	5	3.91	.991

EMAP practices improve my company's reputation for environmental sustainability	119	1	5	3.74	1.069
EMAP practices promote innovation towards sustainable products and services	119	1	5	3.75	1.010
EMAP practices help my company prioritize environmental sustainability initiatives	119	1	5	3.74	1.131
I am satisfied with the level of EMAP practices implemented at my company	119	1	5	3.55	1.260

Source: Field Study (2023)

Note: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, and (5) strongly agree.

Table 5 presents an insightful analysis of Environmental Management Accounting Practices (EMAP) based on responses from 119 participants. This analysis covers various aspects of EMAP, as perceived by the respondents, using a rating scale from 1 (strongly disagree) to 5 (strongly agree). Firstly, the respondents generally agree that EMAP helps their companies identify areas for improvement in environmental sustainability, with a mean score of 3.53 and a standard deviation of 1.040. This indicates that many see EMAP as a useful tool for enhancing sustainability efforts.

In terms of cost and efficiency, the respondents have a slightly stronger agreement that EMAP practices reduce environmental costs and increase operational efficiency, as evidenced by a mean score of 3.71 and a standard deviation of 1.106. This suggests a recognition of the financial and operational benefits of implementing EMAP. Regarding risk management, the highest mean score of 3.91, accompanied by a standard deviation of 0.991, reflects a strong agreement among respondents that EMAP is effective in identifying and managing environmental risks. This highlights the importance of EMAP in risk mitigation.

The impact of EMAP on company reputation is also notable, with a mean score of 3.74 and a standard deviation of 1.069. This indicates that respondents believe EMAP practices contribute positively to their company's reputation for environmental sustainability. Furthermore, innovation towards sustainable products and services is also associated with

EMAP practices, as shown by a mean score of 3.75 and a standard deviation of 1.010. This reflects the role of EMAP in driving sustainable innovation.

Prioritization of environmental sustainability initiatives through EMAP is acknowledged with a mean score of 3.74 and a standard deviation of 1.131, suggesting that EMAP practices are helpful in setting sustainability priorities. Lastly, satisfaction with the level of EMAP implementation in their companies is reported with a mean score of 3.55 and a higher standard deviation of 1.260. This points to a generally positive but varied level of satisfaction among respondents regarding the implementation of EMAP in their organizations.

4.2.2 Descriptive Statistics on Environmental Sustainability

Table 6: Environmental Sustainability

	N	Min	Max	Mean	Std. Deviation
My company considers environmental sustainability in its decision-making processes	119	1	5	3.71	1.051
My company is committed to promoting environmental sustainability.	119	1	5	3.75	1.166
My company's environmental sustainability program creates a competitive advantage.	119	1	5	3.68	1.186
Environmental sustainability is a key priority for businesses in my industry.	119	1	5	3.88	1.114
My company's environmental sustainability program contributes to protecting natural resources for future generations.	119	1	5	3.92	1.114
Businesses can contribute to the global effort to mitigate climate change by promoting environmental sustainability.	119	1	5	3.92	1.043
I am satisfied with the level of environmental sustainability initiatives implemented at my company.	119	1	5	3.75	1.099

Source: Field Study (2023)

Note: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, and (5) strongly agree.

Table 6 provides an analysis of perceptions regarding Environmental Sustainability within companies, based on responses from 119 participants. The study employs a rating scale ranging from 1 (strongly disagree) to 5 (strongly agree) to gauge opinions on various

sustainability-related statements. The data reveals a general agreement among respondents that their companies consider environmental sustainability in decision-making processes, evidenced by a mean score of 3.71 and a standard deviation of 1.051. This indicates a prevalent acknowledgment of the role of sustainability in corporate decisions.

Respondents also agree, with a mean score of 3.75 and a standard deviation of 1.166, that their companies are committed to promoting environmental sustainability. This reflects an overall positive stance towards sustainability efforts within their organizations. The perception that a company's environmental sustainability program creates a competitive advantage is moderately agreed upon, as shown by a mean score of 3.68 and a standard deviation of 1.186. This suggests a recognition of the strategic benefits of sustainability initiatives.

Interestingly, the respondents strongly agree, with a mean score of 3.88 and a standard deviation of 1.114, that environmental sustainability is a key priority for businesses in their industry. This highlights a broader industry trend towards prioritizing sustainability. The contribution of a company's environmental sustainability program to protecting natural resources for future generations is also highly valued, with a mean score of 3.92 and a standard deviation of 1.114. This underscores the perceived long-term environmental impact of sustainability programs.

The belief that businesses can contribute to the global effort to mitigate climate change by promoting environmental sustainability is also strongly agreed upon, with a mean score of 3.92 and a standard deviation of 1.043. This reflects a broad consensus on the role of businesses in addressing climate change. Lastly, satisfaction with the level of environmental sustainability initiatives implemented at their companies is indicated by a mean score of 3.75

and a standard deviation of 1.099. This points to a generally positive view of how sustainability initiatives are being carried out in respondents' companies.

4.2.3 Descriptive Statistics on Stakeholder Engagement

Table 7: Stakeholder Engagement

	N	Min	Max	Mean	Std. Deviation
My company actively engages stakeholders in environmental sustainability initiatives.	119	1	5	3.50	1.057
My company values stakeholder input in the development of environmental sustainability strategies.	119	1	5	3.76	1.063
Stakeholder feedback is considered when making decisions related to environmental sustainability	119	1	5	3.75	1.051
My company provides sufficient opportunities for stakeholders to provide feedback on environmental sustainability initiatives	119	1	5	4.02	.911
Stakeholder engagement helps my company identify areas for improvement in environmental sustainability.	119	1	5	3.70	1.218
I believe that stakeholder engagement is important for the success of environmental sustainability initiatives.	119	1	5	3.66	1.159
I am satisfied with the level of stakeholder engagement in environmental sustainability initiatives at my company.	119	1	5	3.66	1.217

Source: Field Study (2023)

Note: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, and (5) strongly agree.

Table 7 provides insights into the perceptions of Stakeholder Engagement in environmental sustainability initiatives, based on feedback from 119 participants. The study utilizes a 5-point rating scale, ranging from 1 (strongly disagree) to 5 (strongly agree), to assess various aspects of stakeholder engagement. The data suggests that respondents moderately agree that their companies actively engage stakeholders in environmental sustainability initiatives, with a mean score of 3.50 and a standard deviation of 1.057. This indicates a recognition of stakeholder engagement but also leaves room for improvement.

Respondents also agree, with a mean score of 3.76 and a standard deviation of 1.063, that their companies value stakeholder input in developing environmental sustainability strategies. This underscores the importance given to stakeholders' perspectives in strategy formulation.

The consideration of stakeholder feedback in making decisions related to environmental sustainability is similarly agreed upon, as reflected by a mean score of 3.75 and a standard deviation of 1.051. This highlights the role of stakeholders in decision-making processes. Notably, respondents express strong agreement, with a mean score of 4.02 and a standard deviation of 0.911, that their companies provide sufficient opportunities for stakeholders to give feedback on sustainability initiatives. This is indicative of proactive efforts in engaging stakeholders.

The belief that stakeholder engagement helps companies identify areas for improvement in environmental sustainability receives a mean score of 3.70 and a standard deviation of 1.218, suggesting a general agreement on its beneficial impact on sustainability efforts. The importance of stakeholder engagement for the success of environmental sustainability initiatives is acknowledged, with a mean score of 3.66 and a standard deviation of 1.159. This reflects a recognition of the integral role stakeholders play in the success of these initiatives. Lastly, satisfaction with the level of stakeholder engagement in environmental sustainability initiatives at respondents' companies is indicated by a mean score of 3.66 and a standard deviation of 1.217. This points to a generally positive, yet somewhat varied, view on the extent of stakeholder engagement.

4.3 The impact of environmental management accounting practices on environmental sustainability in SMEs in Ghana

This section of the study presents information on the impact of EMAP on environmental sustainability in SMEs in Ghana.

Table 8: EMAP Impact on Environmental Sustainability

Original sample (O)	Sample mean (M)	Standard deviation	T statistics ((O/STDEV))	P values
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	(STDEV)				
EMAP -> ES	0.8790	0.8760	0.0400	21.7820	0.0000

Source: Field Study (2023)

Table 8 presents an analysis of the impact of Environmental Management Accounting Practices (EMAP) on Environmental Sustainability (ES) in SMEs. This table is focused on a single path in the model: EMAP leading to ES. The original sample estimate (O) for the path from EMAP to ES is 0.8790, indicating a strong positive relationship between EMAP and ES. The sample mean (M) is very close to the original estimate at 0.8760, suggesting consistency in the results across the sample.

The standard deviation (STDEV) associated with this path is 0.0400. This relatively low standard deviation indicates a high level of precision in the estimate of the impact of EMAP on ES. The T statistics, calculated as the absolute value of the original sample estimate divided by the standard deviation, is 21.7820. This high T value suggests a very strong statistical significance of the relationship between EMAP and ES. Also, the P value for this path is 0.0000. In statistical terms, a P value of less than 0.05 is typically considered significant. The P value of 0.0000 here indicates that the positive impact of EMAP on ES is highly statistically significant. Therefore, Table 8 demonstrates a strong and statistically significant positive impact of Environmental Management Accounting Practices on Environmental Sustainability in SMEs, with the relationship showing high consistency and precision across the sample.

The significant and constant helpful influence of Environmental Management Accounting Practices (EMAP) on Environmental Sustainability (ES) in Small and Medium Enterprises (SMEs), as shown in Table 8, aligns with the detailed discoveries of influential scholars in this area. The association, which is strongly supported by the study's high statistical

significance, demonstrates the intricate nature and diverse efficacy of EMAP, as elucidated in the works of Burritt et al. (2002), Qian et al. (2011), and Adams and Frost (2018). These studies highlight the varying effects of EMAP on different businesses, especially those that have considerable environmental concerns. Moreover, the examination of EMAP's implementation and efficacy from a worldwide standpoint, as investigated by Fernando and Lawrence (2019) and Matarazzo and Nardo (2020), offers a valuable understanding of the difficulties and geographical differences in adopting EMAP. Fernando and Lawrence noticed a growing use of EMAP in South Asian businesses, but they also identified challenges in generating quantifiable environmental results. Matarazzo and Nardo emphasised the significance of standardised reporting in European contexts, specifically addressing the communication issues and the role it plays in establishing trust among stakeholders.

In addition, Talbot and Boiral (2021) elucidate the potential of EMAP as a component of a wider sustainability plan, indicating that its genuine worth may reside in its incorporation within a holistic approach. The study's findings corroborate this perspective, demonstrating EMAP's substantial contribution to bolstering environmental sustainability in small and medium-sized enterprises (SMEs). The findings of the study align with the concepts of Stakeholder Theory, as originally stated by Freeman (1984), which highlight the ethical and strategic significance of taking into account stakeholder issues in the implementation of EMAP. Simultaneously, the Resource-Based View (RBV), as described by Wernerfelt (1984), emphasises EMAP as a strategic internal asset that enhances a company's competitive advantage in a market that values sustainability.

4.4 The impact of environmental management accounting practices on stakeholder engagement in SMEs in Ghana

Table 9: EMAP Impact on Stakeholder Engagement

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
EMAP -> SE	0.8340	0.8320	0.0540	15.4110	0.0000

Source: Field Study (2023)

Table 9 provides a statistical analysis of the impact of Environmental Management Accounting Practices (EMAP) on Stakeholder Engagement (SE) in SMEs. This analysis uses various statistical metrics to evaluate the strength and significance of the relationship between EMAP and SE. The original sample estimate (O) for the path from EMAP to SE is 0.8340, indicating a strong positive relationship. This suggests that the implementation of EMAP in SMEs significantly correlates with the level of stakeholder engagement. The sample mean (M), which is an average of the estimates across the sample, is 0.8320. This figure is very close to the original sample estimate, indicating consistency and reliability in the study's findings across different samples. The standard deviation (STDEV) for this relationship is 0.0540, denoting the variation in the data points from the mean. This relatively low standard deviation points to a high degree of precision and consistency in the measurements across the sample.

The T statistics, computed as the absolute value of the original sample estimate divided by the standard deviation, is 15.4110. This high T statistic value indicates that the relationship between EMAP and SE is statistically significant. Also, the P value for this path is 0.0000. A P value of less than 0.05 generally indicates statistical significance. The P value here, being 0.0000, strongly suggests that the positive impact of EMAP on Stakeholder Engagement is highly significant statistically. Therefore, Table 9 demonstrates a significant and positive impact of Environmental Management Accounting Practices on Stakeholder Engagement in

SMEs. The relationship is both strong and statistically significant, as indicated by the high T statistic and the low P value.

The results from Table 9, which illustrate a substantial and favourable influence of Environmental Management Accounting Practices (EMAP) on Stakeholder Engagement (SE) in small and medium-sized enterprises (SMEs), align harmoniously with the previous examinations of both empirical and theoretical viewpoints. According to Laine et al. (2019), Chapman and Milne (2020), Thompson and Hansen (2021), and Rodriguez and Pereira (2022), EMAP is an important tool for improving stakeholder involvement based on empirical evidence. These studies emphasise the significance of unambiguous and open communication in EMAP procedures, which enables productive stakeholder deliberations. The study demonstrates a clear and direct beneficial relationship between EMAP and SE, supporting the conclusion that the application of EMAP in SMEs efficiently enhances stakeholder involvement.

The study's results also correspond with the complexity and industry-specific subtleties in stakeholder involvement through EMAP, as witnessed in various sectors and cultural settings. Thompson and Hansen (2021) have highlighted the significant role of EMAP in the energy sector in engaging stakeholders. This finding aligns with the substantial association between EMAP and stakeholder involvement seen in the study's context of small and medium-sized enterprises (SMEs). Moreover, the study conducted by Rodriguez and Pereira (2022) demonstrates that EMAP facilitates stakeholder contact in many cultural contexts, highlighting the ever-changing nature of this connection across various areas.

The study's findings are closely connected to Stakeholder Theory, as stated by Freeman (1984), and the Resource-Based View (RBV), as detailed by Wernerfelt (1984), from a theoretical standpoint. The Stakeholder Theory highlights the moral and strategic significance

of taking into account a wide array of stakeholders in company activities. The substantial influence of EMAP on SE corroborates this concept, suggesting that the implementation of EMAP in SMEs is becoming more congruent with the wider obligations towards different stakeholders, thereby bolstering stakeholder involvement. Furthermore, these findings align with the RBV theory, which emphasises the utilisation of internal resources to gain a competitive edge. The correlation between EMAP and SE indicates that EMAP practices are being employed as strategic internal assets, serving not only environmental management but also the improvement of stakeholder relationships. This is essential for achieving sustainable competitive advantage in the present business environment.

4.5 The impact of stakeholder engagement on environmental sustainability in SMEs in Ghana

Table 10: Stakeholder Engagement Impact on Environmental Sustainability

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ((O/STDEV))	P values
SE -> ES	0.3930	0.4130	0.1380	2.8440	0.0040

Source: Field Study (2023)

Table 10 presents an analysis of the impact of Stakeholder Engagement (SE) on Environmental Sustainability (ES) in SMEs. This table provides a statistical assessment of this specific relationship using various metrics: the original sample estimate (O), the sample mean (M), the standard deviation (STDEV), the T statistics, and the P values. The original sample estimate (O) for the path from SE to ES is 0.3930, indicating a moderate positive relationship between stakeholder engagement and environmental sustainability. This suggests that as stakeholder engagement increases, there is a corresponding positive impact on environmental sustainability, albeit not as strong as some other relationships might be. The

sample mean (M) is slightly higher at 0.4130, showing a small variance but generally aligning with the original sample estimate. This consistency across the sample indicates a stable relationship between these variables.

The standard deviation (STDEV) for this path is 0.1380. This indicates some variability in the impact of SE on ES across different samples, but the deviation is still within a reasonable range. The T statistics, which is calculated as the absolute value of the original sample estimate divided by the standard deviation, is 2.8440. This value, while lower than the T statistics in some other tables, still suggests a statistically significant relationship between SE and ES. Also, the P value for this relationship is 0.0040. A P value of less than 0.05 typically indicates statistical significance. The P value of 0.0040 here confirms that the impact of Stakeholder Engagement on Environmental Sustainability is statistically significant, though the strength of this impact is moderate. Therefore, Table 10 indicates that there is a statistically significant, though moderate, positive impact of Stakeholder Engagement on Environmental Sustainability in SMEs. The consistency of the sample mean with the original sample estimate and the significance indicated by the P value support this conclusion.

The results from Table 10, which demonstrate a moderate yet statistically significant beneficial influence of Stakeholder Engagement (SE) on Environmental Sustainability (ES) in Small and Medium Enterprises (SMEs), align effectively with both the empirical investigations and the theoretical principles previously mentioned. The works of Freeman and Reed (1983), Hart (1995), Hendry (2005), Jenkins and Yakovleva (2006), and Sarkis et al. (2010) jointly emphasise the intricate yet essential significance of stakeholder participation in attaining environmental sustainability, based on empirical evidence. These studies emphasise the ever-changing nature of stakeholder participation, which may range from offering significant on-the-ground perspectives (Hart, 1995) to the dangers of weakening sustainability plans through disorganised engagement (Hendry, 2005). The study's findings

reveal that stakeholder involvement has a moderate influence on environmental sustainability. However, the success of this engagement is dependent on the quality and approach employed, as demonstrated by these empirical investigations.

This finding is in perfect accordance with Stakeholder Theory as articulated by Freeman (1984) from a theoretical standpoint. The theory's focus on taking into account a wide array of stakeholders in company operations is seen in the favourable correlation between SE and ES. Engaging with stakeholders not only fulfils ethical duties but also has a beneficial impact on sustainability results. This is reinforced by the detailed debates in the empirical research, where the extent and excellence of stakeholder involvement are seen as crucial elements in attaining sustainable objectives. In addition, the Resource-Based View (RBV), as described by Wernerfelt (1984), offers a supplementary comprehension. The relatively limited influence of social entrepreneurship (SE) on environmental sustainability (ES) may be seen within the resource-based view (RBV) paradigm as the strategic utilisation of stakeholder connections as a valuable asset for attaining sustainable environmental practices. This supports the idea that involving stakeholders in a meaningful way may be a distinct and important asset that enhances a company's competitive edge, especially in relation to its sustainability efforts.

4.6 The mediating role of stakeholder engagement in the relationship between environmental management accounting practices and environmental sustainability in SMEs in Ghana.

Table 11: Mediation effect

Hypothesis Path	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ((O/STDEV))	P values
EMAP -> SE -> ES	0.328	0.320	0.047	5.023	0.000 Mediation

Source: Field Study (2023)

Table 11 from the study examines the mediation effect of Stakeholder Engagement (SE) in the relationship between Environmental Management Accounting Practices (EMAP) and Environmental Sustainability (ES) in SMEs. This table uses several statistical measures to evaluate the strength and significance of this mediated relationship. The original sample estimate (O) for the mediated path (EMAP \rightarrow SE \rightarrow ES) is 0.328. This value indicates the strength of the combined impact of EMAP on Environmental Sustainability through the mediation of Stakeholder Engagement. A positive value here suggests that when EMAP positively influences Stakeholder Engagement, it, in turn, positively affects Environmental Sustainability. The sample mean (M) for this path is 0.320, very close to the original sample estimate. This nearness between the sample mean and the original estimate indicates consistency in the mediation effect across different samples.

The standard deviation (STDEV) for this mediated relationship is 0.047. This relatively low standard deviation implies that there is a high level of precision and reliability in the measurement of this mediation effect across the sample. The T statistics, calculated as the absolute value of the original sample estimate divided by the standard deviation, is 5.023. This high T statistic value signifies that the mediation effect is statistically significant. Also, the P value for this path is 0.000, which is well below the conventional threshold of 0.05 for statistical significance. This indicates that the mediation effect of Stakeholder Engagement in the relationship between EMAP and ES is highly significant. Therefore, Table 11 demonstrates that Stakeholder Engagement significantly mediates the relationship between Environmental Management Accounting Practices and Environmental Sustainability in SMEs. The relationship is statistically significant and consistent across samples, as evidenced by the high T statistic and the low P value.

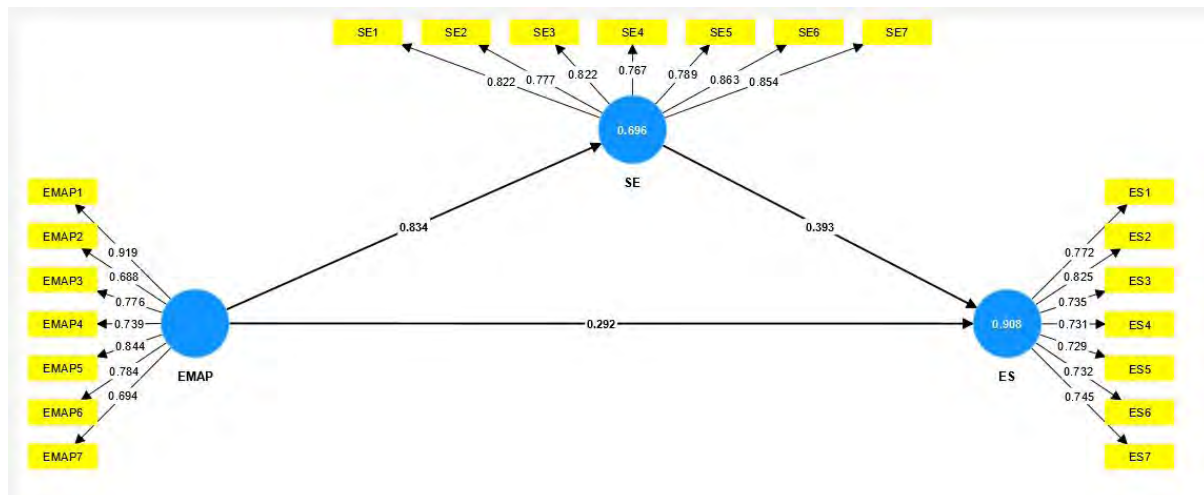


Figure 2: Results of structural model assessment

The results from Table 11 demonstrate a notable mediation effect of Stakeholder Engagement (SE) in the relationship between Environmental Management Accounting Practices (EMAP) and Environmental Sustainability (ES) in Small and Medium Enterprises (SMEs). These findings align effectively with the prior empirical studies and theoretical frameworks that have been discussed. The research conducted by researchers such as Bennett et al. (1999), Schaltegger and Burritt (2000), Mitchell et al. (1997), Gond et al. (2012), and Tilling and Tilt (2016) provides empirical evidence on the changing function of EMAP and emphasises the crucial significance of stakeholder engagement in promoting environmental sustainability. The studies highlight that the full potential of EMAP in promoting sustainability is achieved when stakeholders actively participate in the process, notwithstanding the rich environmental cost and benefit information it delivers. Consistent with the results shown in Table 11, it is evident that SE has a crucial role in mediating the influence of EMAP on ES. This suggests that including stakeholders boosts the efficacy of EMAP in attaining sustainability objectives. These findings are consistent with Stakeholder Theory, as proposed by Freeman (1984), from a theoretical standpoint. The notion posits that firms should consider the concerns and welfare of a diverse array of stakeholders, rather than only focusing on shareholders. The prominent role of stakeholder engagement (SE) in the link between environmental

management and environmental sustainability (EMAP-ES) highlights the necessity of including stakeholders in decision-making processes related to the environment. This aligns with Freeman's assertion that organisations have a wider duty. Furthermore, the outcomes of this study align with the Resource-Based View (RBV) theory, as first stated by Wernerfelt in 1984. The Resource-Based View (RBV) posits that internal resources, such as stakeholder connections, play a crucial role in attaining a competitive edge. The presence of social entrepreneurship (SE) acts as a mediator between environmental management and performance (EMAP) and environmental sustainability (ES). This suggests that engaging stakeholders effectively may serve as a useful asset for small and medium-sized enterprises (SMEs) in their pursuit of environmental sustainability, ultimately giving them a competitive advantage.



CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

Chapter Five presents a thorough overview of the study, including a concise description of significant findings, derived conclusions, recognized limitations, and proposed recommendations. This chapter seeks to summarize the core of the research, emphasizing its impact on the subject of Environmental Management Accounting Practices (EMAP), Stakeholder Engagement (SE), and Environmental Sustainability (ES) in Small and Medium-sized Enterprises (SMEs).

5.1 Summary of findings

The study revealed significant findings about the relationship between Environmental Management Accounting Practices (EMAP), Stakeholder Engagement (SE), and Environmental Sustainability (ES) within the context of small and medium-sized enterprises (SMEs). A significant finding was the strong and positive correlation shown between EMAP and Environmental Sustainability. This suggests that the successful integration of EMAP inside small and medium-sized enterprises (SMEs) greatly enhances their endeavours towards achieving environmental sustainability. The statement highlights the role that EMAP plays in improving sustainable practices and policy in smaller company settings.

Furthermore, the study revealed a substantial beneficial effect of EMAP on Stakeholder Engagement. This implies that implementing and using EMAP methods not only provide advantages for environmental management, but also serve as drivers for improved interaction with stakeholders. The significance of EMAP in promoting communication and collaboration between SMEs and their stakeholders is highlighted, as it is crucial for maintaining sustainable company operations. Moreover, the study emphasised the intermediary function

of Stakeholder Engagement in the correlation between EMAP and Environmental Sustainability. The study revealed that the implementation of SE greatly improved the efficacy of EMAP in attaining sustainability objectives. The mediation effect indicates that the advantages of EMAP in terms of environmental sustainability are partially achieved by enhancing stakeholder involvement. This emphasises the interdependence of these factors in promoting sustainability goals.

Finally, the study established a moderate but substantial positive correlation between Stakeholder Engagement and Environmental Sustainability. This discovery suggests that when small and medium-sized enterprises (SMEs) intensify their endeavours to involve stakeholders, it leads to a concurrent favourable influence on their sustainability practices. Despite being mild, the relevance of this connection should not be underestimated, as it highlights the importance of stakeholder involvement as a crucial element in the effort to achieve environmental sustainability in small and medium-sized enterprises (SMEs).

5.2 Conclusion

The study's findings emphasise the significance of Environmental Management Accounting Practices (EMAP) in improving environmental sustainability in Small and Medium-sized Enterprises (SMEs). The findings demonstrate that EMAP serves as more than just a tool for enhancing environmental management. It is a fundamental component of the wider sustainability strategy employed by SMEs. This conclusion is based on the significant and positive correlation established between the adoption of EMAP (Environmental Management and Assessment Programme) and the extent to which small and medium-sized enterprises (SMEs) have attained environmental sustainability. EMAP functions as a catalyst, stimulating small and medium-sized enterprises (SMEs) to adopt more sustainable practices. It achieves

this by equipping them with essential data, insights, and frameworks to comprehend and diminish their environmental footprint.

Furthermore, the study emphasises the increased influence of EMAP on environmental sustainability when combined with successful stakeholder involvement. The interdependent connection between EMAP and stakeholders indicates that EMAP serves as the foundational framework for sustainability, but its maximum effectiveness is achieved when stakeholders actively participate in the process. Engaging stakeholders improves the efficiency of EMAP by ensuring that sustainability policies are in line with stakeholder requirements and expectations, therefore promoting a more comprehensive and inclusive approach to sustainability. Additionally, it promotes the transfer of crucial knowledge and concepts, resulting in the development of more inventive and efficient sustainability solutions.

Moreover, the study's findings emphasise the significance of involving stakeholders as an essential element in effectively executing sustainability initiatives in small and medium-sized enterprises (SMEs). Interacting with stakeholders, including customers, workers, suppliers, and the community, not only provides vital insights and support, but also establishes trust and credibility for the sustainability efforts of small and medium-sized enterprises (SMEs). It guarantees that the environmental plans are not created separately, but instead are aligned with the wider society and market expectations, therefore enhancing their relevance and efficacy.

5.3 Limitations of the study

The study had the following limitations.

1. The study's focus on SMEs in a specific geographic region may restrict the broader applicability of its findings to other areas or business contexts.

2. The reliance on self-reported data could introduce biases, potentially affecting the accuracy and objectivity of the research outcomes.
3. As a cross-sectional study, it captures only a single point in time, lacking insight into long-term trends or the evolution of the studied phenomena over time.

5.4 Recommendations

5.4.1 To Policy

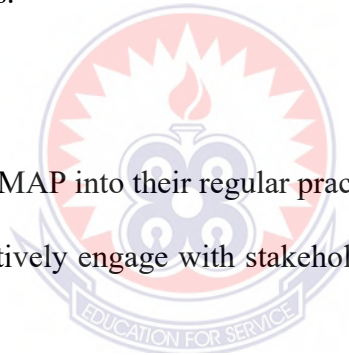
1. Policymakers should develop guidelines and frameworks that encourage SMEs to adopt EMAP.
2. Develop policies that mandate or incentivize SMEs to engage with stakeholders in their sustainability efforts.

5.4.2 To Practice

1. SMEs should integrate EMAP into their regular practices to enhance sustainability.
2. Businesses should proactively engage with stakeholders, considering their insights in sustainability initiatives.

5.4.3 To Academia

1. Future studies could explore the long-term impacts of EMAP and SE on ES and examine these relationships in different geographic or sector-specific contexts.
2. Employing a mix of qualitative and quantitative methods could provide a more holistic understanding of the phenomena.



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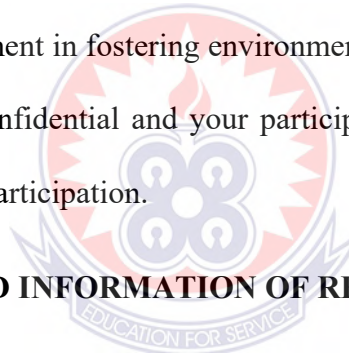
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APPENDIX I – QUESTIONNAIRE

Dear Participant,

I am conducting a research study on the relationship between Environmental Management Accounting Practices (EMAP) and Environmental Sustainability. EMAP refers to the process of integrating environmental factors into a company's accounting and financial management systems to enable better decision-making and more sustainable practices. Environmental Sustainability, on the other hand, refers to the responsible management of natural resources and the reduction of negative impacts on the environment. The purpose of this study is to explore the extent to which EMAP contributes to environmental sustainability and to identify the factors that may mediate this relationship. I am particularly interested in understanding the role of Stakeholder Engagement in fostering environmental sustainability through EMAP. Your responses will be kept confidential and your participation in this study is completely voluntary. Thank you for your participation.



SECTION A: BACKGROUND INFORMATION OF RESPONDENTS

1. Gender

Male	Female
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2. Age

Below 25 years	26 – 35 years	36 – 45 years	46 – 55 years
56 years and above			

3. Business Type

Manufacturing	Service	Trading
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SECTION B: ENVIRONMENTAL MANAGEMENT ACCOUNTING PRACTICES (EMAP)

This section is about Environmental Management Accounting Practices (EMAP). Please select the answer that best fits your opinion for each statement. Please indicate your response

using the following scale: (1) strongly disagree, (2) disagree. (3) neutral, (4) agree, and (5) strongly agree.

S/N		SD	D	N	A	SA
EMAP1	EMAP practices help my company identify areas for improvement in environmental sustainability.					
EMAP2	EMAP practices reduce environmental costs and increase operational efficiency.					
EMAP3	EMAP practices help my company identify and manage environmental risks.					
EMAP4	EMAP practices improve my company's reputation for environmental sustainability.					
EMAP5	EMAP practices promote innovation towards sustainable products and services.					
EMAP6	EMAP practices help my company prioritize environmental sustainability initiatives.					
EMAP7	I am satisfied with the level of EMAP practices implemented at my company.					

SECTION B: ENVIRONMENTAL SUSTAINABILITY

This section is about Environmental Sustainability. Please select the answer that best fits your opinion for each statement. Please indicate your response using the following scale: (1) strongly disagree, (2) disagree. (3) neutral, (4) agree, and (5) strongly agree.

S/N		SD	D	N	A	SA
ES1	My company considers environmental sustainability in its decision-making processes.					
ES2	My company is committed to promoting environmental sustainability.					
ES3	My company's environmental sustainability program creates a competitive advantage.					
ES4	Environmental sustainability is a key priority for businesses in my industry.					
ES5	My company's environmental sustainability program contributes to protecting natural resources for future generations.					
ES6	Businesses can contribute to the global effort to mitigate climate change by promoting environmental sustainability.					
ES7	I am satisfied with the level of environmental sustainability initiatives implemented at my company.					

SECTION C: STAKEHOLDER ENGAGEMENT

This section is about Stakeholder Engagement. Please select the answer that best fits your opinion for each statement. Please indicate your response using the following scale: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, and (5) strongly agree.

S/N		SD	D	N	A	SA
SE1	My company actively engages stakeholders in environmental sustainability initiatives.					
SE2	My company values stakeholder input in the development of environmental sustainability strategies.					
SE3	Stakeholder feedback is considered when making decisions related to environmental sustainability.					
SE4	My company provides sufficient opportunities for stakeholders to provide feedback on environmental sustainability initiatives.					
SE5	Stakeholder engagement helps my company identify areas for improvement in environmental sustainability.					
SE6	I believe that stakeholder engagement is important for the success of environmental sustainability initiatives.					
SE7	I am satisfied with the level of stakeholder engagement in environmental sustainability initiatives at my company.					