UNIVERSITY OF GHANA

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ASSESSING GREEN ECONOMY POLICY IMPLEMENTATION IN PUBLIC SECTOR INSTITUTIONS IN THE BONO REGION OF GHANA

BY

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DECLARATION

I solemnly declare that this thesis is the product of my independent research conducted under the academic supervision of Professor Albert Ahenkan and Dr. Benjamin Otchere-Ankrah. It has not been presented wholly or in part to this or any other institution to obtain an educational qualification. All sources of information, quotations, and references have been duly cited and acknowledged.

24/12/2025

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CERTIFICATION

This is to certify that this thesis was completed under supervision in line with the academic guidelines and regulations of the University of Ghana Business School, Legon.

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DEDICATION

This work is dedicated to the entire Nangoo Foriwaa's Lineage of the Akrosumah Royal Family of Badu, whose unwavering love, encouragement, and support have been the foundation of my academic journey.

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LIST OF ABBREVIATIONS

GE	Green Economy
BE	Brown Economy
UNSDGs	United Nations Sustainable Development Goals
UNEP	United Nations Environment Programme
UNDP	United Nations Development Programme
EPA	Environmental Protection Agency
MAG	Modernizing Agriculture in Ghana
AFO	Affordable Financing for Agriculture
PERD	Planting for Export and Rural Development
MTS	Modified Taungya System
FIP	Forest Investment Program
RCC	Regional Coordinating Council
GSS	Ghana Statistical Service
MoFA	Ministry of Food and Agriculture
CBGs	Community-Based Groups
WS	Waste Sector
AS	Agricultural Sector
FS	Forestry Sector
GH-INDCs	Ghana's Intended Nationally Determined Contributions
PACC	Paris Agreement on Climate Change
ILO	International Labour Organization
WGEO	World Green Economy Organization
GGKP	Green Growth Knowledge Platform
SD	Sustainable Development
PI	Policy Implementation
IC	Institutional Collaboration
CGF	Collaborative Governance Framework
UNECA	United Nations Economic Commission for Africa
UNCED	United Nations Conference on Environment and Development

CBNRM	Community-Based Natural Resource Management
NGOs	Non-Governmental Organizations

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ABSTRACT

Amid growing environmental challenges and the global call to transition from a brown to a green economy (GE), Ghana must strengthen the implementation of green policies, particularly within its public sector institutions. To align with global sustainability goals, Ghana has integrated green economy principles into its national policies, such as the National Climate Change Policy Framework and the Renewable Energy Master Plan (2019-2030). The National Green Jobs Strategy (2021-2025) also aims to create sustainable job opportunities. However, there remains a significant gap between the aspirations of these policies and their practical implementation, particularly at the regional level. This study, therefore, assesses the implementation of green economy policies in the Bono Region, focusing on three critical public sectors: agriculture, forestry, and waste management. The research adopts an interpretive paradigm, a qualitative approach, and a case study design to explore institutional experiences. Thirteen key informants from public sector institutions were selected using purposive and snowball sampling. Data were collected through semi-structured interviews and were analyzed thematically using Braun and Clarke's (2022) framework. The findings revealed that the studied public institutions have adopted several green policies and initiatives, including climate-smart agriculture, afforestation and reforestation programs, and waste recycling programs. Institutional collaboration emerged as a crucial pillar for the successful implementation of green economy policies by enhancing planning, resource mobilization, and policy coordination. However, challenges like limited funding, inadequate logistics, weak technical capacity, lack of advanced technologies, and climate-related threats, along with issues such as illegal logging and mining and poor waste disposal, hinder effective policy implementation. The findings suggest that while significant strides have been made in implementing green economy policies in the Bono Region, overcoming the identified barriers and strengthening institutional collaboration will be critical in scaling up efforts and ensuring long-term sustainability. Greater investment in capacity building, technology, and inclusive governance will be essential for accelerating Ghana's green transition.

Key Words: *Green Economy Policy Implementation, Collaborative Governance, Institutional Collaboration, Sustainable Development Goals (SDGs), Public Sector Institutions, Bono Region, Ghana*

CHAPTER ONE

GENERAL INTRODUCTION

1.0 Introduction

This chapter presents a general introduction to the study. It includes the research background, the problem statement that informs the overall purpose of the study, the study's objectives and questions, the significance of the study, the study scope, and the organization of the study.

1.1 Background of the Study

The green economy (GE) is gaining traction globally as countries seek environmentally friendly ways to promote economic growth while addressing social inequity, climate change, and environmental degradation. Influenced by the Agenda 2030 and the United Nations Sustainable Development Goals (UNSDGs), the GE model aims to achieve ecological sustainability, economic growth, and social equity (Salifu & Salifu, 2024; Akalibey et al., 2023; Ali et al., 2021). According to the United Nations Environmental Programme (UNEP), a GE is "an economy that improves human well-being and social equity while significantly reducing environmental risk and ecological scarcity." It is characterized by being low-carbon, resource-efficient, and socially inclusive (UNEP, 2011). Historically, the emergence of the green economy can be traced to growing critiques of conventional growth-oriented development models, which, despite driving economic expansion, generated widespread environmental degradation, resource depletion, and social inequality. The inability of these traditional models to reconcile economic growth with ecological sustainability prompted a paradigm shift toward development frameworks that integrate environmental protection with socio-economic objectives (Healy, 2019).

The global shift towards a green economy (GE) is driven by the unsustainability of traditional economic models, known as the "brown economy" (BE), which deplete resources and harm the environment (Akalibey et al., 2023). This transition is essential for addressing environmental

challenges and social inequalities. Key events like the Rio+20 Conference and the Paris Agreement have highlighted the need for inclusive, resource-efficient, and low-carbon economies (Ali et al., 2021). These international frameworks not only articulated the principles of a green economy but also underscored the central role of public sector institutions in translating global commitments into national policies, regulatory instruments, and implementation mechanisms. Leading economies such as China and the European Union have launched strategic plans to support this shift, with China focusing on electric vehicles and green energy and the EU implementing initiatives like the Resource Efficiency Roadmap (Ali et al., 2021).

In Africa, the green economy is crucial for achieving sustainable growth and reducing environmental harm. The continent's reliance on agriculture, extractive industries, and energy has led to issues like land degradation, deforestation, and climate change impacts (Chukwu, 2020). Many African countries struggle to shift from high-carbon industrial practices to sustainable, low-carbon technologies, resulting in waste, pollution, and inefficiency in production (Salifu & Salifu, 2024). Regional organizations, including the African Union and UNECA, stress the need for green economy strategies to tackle these challenges. By 2020, 52 African countries, including Ghana, had incorporated GE strategies into their policy frameworks (UNECA, 2020). Countries such as Tunisia, Mauritius, Morocco, Algeria, Cabo Verde, Egypt, Botswana, South Africa, Rwanda, and Kenya have integrated national GE strategies to decouple environmental pressure from economic growth (UNECA, 2020). This illustrates the continent's commitment to transitioning to a GE and the potential to harness green economy opportunities to address poverty, unemployment, and inequality while promoting ecological sustainability. Despite these policy commitments, the practical implementation of green economy strategies across African countries has been uneven, often constrained by weak institutional coordination, limited technical capacity, financing gaps, and fragmented sectoral approaches (Ahenkan et al., 2018; Gyimah et al., 2024).

Ghana has shown its commitment to the green economy (GE) by ratifying international agreements like the Paris Agreement on Climate Change (PACC), aiming to mitigate climate change and reduce greenhouse gas emissions (Agyekum et al., 2016; Ahenkan et al., 2018). Through the Multi-Sectoral Implementation Plan for its Nationally Determined Contributions, Ghana focuses on low-carbon development pathways, including renewable energy, afforestation, and climate-smart agriculture. The country has made progress with national policies and strategies aligned with sustainable development objectives, aiming to transition from a brown to a green economy and contribute to the achievement of the Sustainable Development Goals (SDGs) (Ahenkan et al., 2018; Akalibey, 2020). Notwithstanding these policy initiatives, concerns remain regarding the effectiveness of green economy policy implementation within Ghana's public sector. Studies point to challenges such as fragmented institutional mandates, limited inter-sectoral collaboration, capacity constraints, and weak monitoring mechanisms, which hinder the translation of policy intentions into tangible outcomes (Yamoah et al., 2020). This gap between policy formulation and implementation highlights the need for empirical investigation into how green economy policies are operationalized within public sector institutions, particularly at the sub-national level, where implementation responsibilities are most pronounced.

1.2 Problem Statement

The urgency of transitioning to a green economy (GE) has gained global traction as a critical pathway toward achieving sustainable development. In Ghana, this transition has been reflected in key national frameworks, including the National Climate Change Policy, the Renewable Energy Master Plan (2019–2030), and the National Green Jobs Strategy (2021–2025), which aim to promote low-carbon development, sustainable job creation, and environmental conservation. Despite the existence of these policy frameworks, a fundamental problem remains concerning how green economy policies are translated from national policy commitments into concrete actions

within public sector institutions at the regional level. In practice, the mechanisms through which public institutions interpret, coordinate, and operationalize green economy policies remain poorly understood and weakly documented in the Ghanaian context (Ali et al., 2021; Dunee et al., 2024). Empirical studies have highlighted this implementation gap. For example, Agyekum et al. (2016) and Akalibey (2020) emphasize Ghana's progress in policy formulation but note limited traction in localized execution, particularly in public institutions that are expected to lead the green transition. Similarly, Ali et al. (2021) and Dunee et al. (2024) point to a disconnect between national policy frameworks and practical outcomes, with inadequate attention given to how regional public sector institutions operationalize GE policies on the ground.

Furthermore, although sectors such as agriculture, forestry, and waste management are central to Ghana's green transition, as outlined in the country's Intended Nationally Determined Contributions (GH-INDCs), there is a noticeable paucity of empirical research assessing how these sectors are implementing GE policies at the subnational level. Most existing studies focus on national policy instruments (Agyekum et al., 2016; Akalibey, 2020; Gyimah et al., 2024), the drivers of GE (Chukwu, 2020; Akalibey et al., 2023; Sabat et al., 2023; Debra et al., 2021), and the role of the private sector in transitioning to a green economy (Ahenkan et al., 2018), with limited exploration of the institutional dynamics, operational bottlenecks, and contextual challenges faced by regional public sector actors. This reveals a clear knowledge gap in the existing literature regarding how green economy policies are implemented by public sector institutions at the sub-national level, particularly within key productive and environmental sectors such as agriculture, forestry, and waste management.

In addition, while global and regional frameworks highlight the importance of institutional collaboration in achieving effective green transitions (UNEP, 2011; WGEO, 2018), scholarly work in Ghana has largely overlooked the role and interplay of inter-agency partnerships, joint resource

mobilization, and policy coordination in enhancing GE policy outcomes (Yamoah et al., 2020; Nordjo et al., 2025; Ograh et al., 2025). While these studies make important contributions to understanding sector-specific collaboration and policy coordination, they stop short of providing an integrated, regional-level analysis of how inter-institutional collaboration influences the effectiveness of green economy policy implementation within public sector institutions. For instance, Yamoah et al. (2020) examined stakeholder collaboration in Ghana's cocoa sector, focusing narrowly on Ghana's COCOBOD and its stakeholders (NGOs), while neglecting a systemic analysis of the possible cross-sectoral coordination mechanisms required for the implementation of a GE policy in Ghana's public sectors. Similarly, Nordjo et al. (2025) critiqued the lack of institutionalized collaboration in Ghana's Decent Work Pilot Project, revealing how siloed actions by local governments and CSOs undermine policy coherence. While their work underscores the importance of multi-stakeholder platforms, it does not explore how such partnerships enhance the successful integration of GE policies, particularly at the regional level. Consequently, the neglect of empirical research that focuses on the role and interplay of inter-agency partnerships, joint resource mobilization, and policy coordination in enhancing GE policy outcomes has only helped in exacerbating the knowledge gap that exists in the GE transitions and restricts the development of actionable strategies for policy coherence and integrated implementation in Ghana. These gaps point to a critical need for empirical investigation into how green economy policies are implemented at the regional level in Ghana, particularly within key public sector institutions. This study addresses that need by focusing on the Bono Region, an economically and environmentally significant area, and exploring the state of GE policy implementation in its agriculture, forestry, and waste sectors. It further examines the role of institutional collaboration and the barriers that hinder effective policy execution. By bridging this gap, the study contributes to both scholarly understanding and policy improvement in Ghana's

green transition agenda. The Bone region was selected due to the following reasons. First, the Bono Region remains under-represented in empirical green economy scholarship, as most existing studies on green economy policy implementation in Ghana concentrate on national-level policy frameworks or a limited number of regions, leaving significant gaps in understanding how green economy policies are operationalized in other ecologically and economically important regions. Second, the dominant nature of agricultural production in the Bono Region, characterized by extensive land use, expansion of cocoa and food crop farming, and reliance on forest-adjacent livelihoods, has contributed to deforestation, land degradation, and pressure on forest resources, making the region a critical site for examining the effectiveness of green economy policies in addressing environment–livelihood trade-offs. Finally, Sunyani's commitment to environmental cleanliness and effective municipal waste management was nationally recognized when the city was adjudged the cleanest city in Ghana for the year 2007 by the Ghana Tourist Board (now Ghana Tourism Authority). This recognition highlighted the municipality's strong governance, public participation in sanitation activities, and consistent enforcement of waste disposal regulations. As part of the award, Digital Production Partnership (DPP), an advertising agency, donated a billboard valued at approximately GH₵1,000 (about US$62) to the municipality to support its promotional and public awareness campaigns on cleanliness and civic responsibility (*MyJoyOnline*, 2008; *ModernGhana*, 2008). This national award reinforces Sunyani's reputation as a model city for sustainable and green economy policy and practices and provides a precedent for replicating such initiatives in other Ghanaian municipalities.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of the study is to assess the implementation of GE policies within the waste, forestry, and agriculture sectors in the Bono region.

1.3.2 Specific Objectives

The specific objectives of this research are to:

1. Assess the implementation of green economy policies in the public sector across waste, agriculture, and forestry sectors in the Bono Region of Ghana.
2. Examine the role of institutional collaboration in implementing GE policies in the waste, forestry, and agriculture sectors.
3. Analyze the challenges hindering effective green economy policy implementation in the waste, forestry, and agriculture sectors.

1.4 Research Questions

To achieve the research objectives, the following research questions were asked.

1. What are the green economy policies implemented in the public sector across waste, agriculture, and forestry in the Bono Region of Ghana?
2. What is the role of institutional collaboration in implementing GE policies in the waste, forestry, and agriculture sectors in the Bono region of Ghana?
3. What are the challenges for GE policy implementation in the waste, forestry, and agriculture sectors in the public sector institutions in the Bono Region?

1.5 Significance of the Study

The public sector in Ghana plays a crucial role in shaping national development policies, particularly in agriculture, waste management, forestry, and mining. Understanding the challenges faced by public sector institutions is vital for effective policy development. This study enhances academic knowledge of green economy policy implementation in the Bono region and serves as a foundation for further research in sustainable development. The findings can inform operational

strategies for public sector institutions and contribute to the establishment of sustainable policies. Additionally, the study emphasizes the need for inter-sectoral collaboration to foster integrated policy-making and achieve more sustainable outcomes in the Bono region and potentially across Ghana.

1.6 Study Scope

This study focuses on the implementation of green economy (GE) policies in three key public sectors: agriculture, forestry, and waste, within Ghana's Bono region. It examines GE policy execution, institutional collaboration, and the challenges these sectors face. Participants include staff, directors, and policy executors selected for their expertise in GE policies. The selected sectors align with Ghana's Intended Nationally Determined Contributions (GH-INDCs) under the Paris Agreement, playing crucial roles in climate change mitigation and sustainable development. The Ghana National Climate Change Policy and other relevant documents recognize these sectors as vital for advancing the green economy.

1.7 Organizations of the Study

The study is divided into five chapters. Chapter One introduces the research, outlining the problem statement, objectives, research questions, scope, and significance. Chapter Two reviews relevant literature on GE, including its definition, theoretical foundations, and empirical studies on policy implementation in Ghana, along with the role of institutional collaboration. Chapter Three details the research methodology, including paradigm, design, area, population, sampling techniques, data collection, analysis, and ethical considerations. Chapter Four presents and analyzes the collected data, discussing findings related to the research questions. The final chapter summarizes key findings, draws conclusions, makes recommendations, and suggests areas for future research to enhance the academic discourse on GE.

1.8 Summary of Chapter

Chapter one introduces the study, focusing on the concept of Green Economy (GE) globally and in Africa, particularly in Ghana's public sector institutions. It highlights literature gaps and contextual issues regarding GE policy implementation, emphasizing the importance of institutional collaboration. The study examines three public sectors: agriculture, waste, and forestry in the Bono region as Ghana transitions to a GE for sustainable development. The main goal is to assess the current state and challenges of GE policy implementation while looking at the role of institutional collaboration in GE policy implementation.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.0 Introduction

The literature review explores the concept of a green economy, focusing on its importance to sustainable development. It examines international best practices in GE policy implementation, particularly in Ghana. Studies on Ghana's GE efforts were analyzed, including policy documents, government reports, and academic papers. The chapter is divided into three key themes. Part one conceptualizes GE, which includes defining GE, the historical origin of GE, and the link between GE and sustainable development. Its goal is to help readers understand what GE entails and why it has become an item in global discussions. The second part reviews the literature on GE policy implementation. It also looks at the role of institutional collaboration while assessing the opportunities presented by the global GE initiatives and the potential challenges. The last part looks at the theoretical and conceptual frameworks guiding the study.

2.1 Conceptualizing the Green Economy

2.1.1 Defining Green Economy

The concept of GE has gained prominence in recent decades as governments, organizations, and researchers strive to address environmental challenges and promote sustainable development. There is no single definition for the GE concept. However, it is widely acknowledged that an economy must function within the ecological bounds of the Earth's biosphere to be considered green (Healy, 2019). Despite the difficulties in getting an exact definition for the concept of GE, different institutions and scholars have provided various interpretations based on their perspectives

and contexts. Nevertheless, all these definitions share common principles, emphasizing the need to balance growth, environmental sustainability, and social inclusivity. Arguably, however, UNEP (2011) produced the most comprehensive articulation, calling for GEs to be "...low carbon, efficient, and clean in production, but also inclusive in consumption and outcomes, based on sharing, circularity, collaboration, solidarity, resilience, opportunity, and interdependence." In light of this, it defines a green economy as an "economy that results in improved human well-being and social equity while significantly reducing environmental risks and ecological scarcities. It is characterized by being low-carbon, resource-efficient, and socially inclusive" (UNEP, 2011). The World Bank describes "a green economy as an economy that pursues growth while reducing pollution and greenhouse gas emissions, minimizing waste and the efficient use of natural resources, maintaining biodiversity, and strengthening energy security" (World Bank, 2012). In addition, the World Green Economy Organization (WGEO) defines a green economy as being one that is "low carbon, climate-resilient, resource-efficient, and socially inclusive" (WGEO, 2018).

The definitions presented by the above institution, though varied, shared some common elements that highlight the multidimensional nature of a GE. One of the key aspects is environmental sustainability, which involves reducing carbon emissions, minimizing pollution, promoting renewable energy, and ensuring the efficient use of natural resources (UNEP, 2011; WGEO, 2018). Another common component across the definitions is social inclusivity and equity. The UNEP highlights the role of a green economy in creating decent jobs, reducing poverty, and promoting social welfare. These definitions suggest that a GE should protect the environment and support social development by addressing issues such as inequality, unemployment, and lack of access to basic services.

In addition to the common themes is the focus on economic growth and development. Most of the definitions above describe GE as one that seeks to achieve sustainable economic growth. They argue that a GE does not mean abandoning economic development; rather, it implies redefining growth to be more sustainable and equitable. They also advocate for an economic transformation that decouples growth from environmental degradation.

Notwithstanding the above institutional definitions, the concept of GE has also been defined by various scholars, each offering unique perspectives that reflect their academic and research orientations. Notable scholarly contributions include those from Barbie (2010), Pearce (2012), and Jacobs (2013), whose definitions have shaped the discourse of GE. Barbie (2010) defines a green economy as promoting economic growth while reducing environmental risks and ecological scarcities. He emphasizes that a green economy is not merely about transitioning to green technologies but also involves structural changes that lead to long-term economic resilience and sustainability. Barbie emphasizes the significance of harmonizing economic activities with ecological preservation, arguing that this alignment is crucial for achieving sustainable development. Similarly, Peace (2012) offers a broader perspective by defining a green economy as an economy that generates growth and development while the natural assets continue to provide the resources and environmental services necessary for human well-being. Jacobs (2013) also added by indicating that a green economy is a framework for economic activity that not only seeks to protect the environment but also promotes social justice and economic inclusion. Jacobs contends that a green economy should be people-centered, ensuring that the benefits of economic growth are distributed equitably across society. His definition broadens the scope of the green economy to include social dimensions, emphasizing that environmental sustainability should not

come at the expense of social equity, aligning well with the principles of sustainable development, where the economic, social, and environmental pillars must be balanced to achieve holistic development.

To this end, a GE is an economic system that promotes sustainable development by fostering economic growth, social inclusivity, and environmental sustainability. It is characterized by low-carbon and resource-efficient activities and equitable social benefits, such as poverty reduction and job creation, while ensuring long-term ecological balance and human well-being.

2.1.2 Historical Origin and Rationale of the Green Economy

The empirical review has shown that historically, the origin of GE can be traced back to the growing concerns over environmental degradation and the limits of traditional economic models in addressing the sustainability of natural resources (Chukwu, 2020; Akalibey et al., 2023). The first significant steps towards the conceptualization of a green economy began in the early 1970s when global environmental issues started gaining attention internationally in the area of sustainability. The United Nations Conference on the Human Environment, held in Stockholm in 1972, marked a turning point by highlighting the linkages between economic development and environmental protection, drawing attention to sustainable development models like GE (Ali et al., 2021; Healy, 2019).

Throughout the 1980s and 1990s, the GE concept continued to develop as researchers and policymakers recognized the unsustainable nature of conventional economic models. The Brundtland Report of 1987 and the Blueprint for a Green Economy report in 1989 laid the foundation for further exploration of how economies could grow without degrading the

environment (Healy, 2019). The 1992 United Nations Conference on Environment and Development (UNCED) resulted in the adoption of Agenda 21, a comprehensive blueprint for sustainable development that emphasized the need to integrate environmental sustainability into economic planning (Healy, 2019).

The contemporary green economy (GE) movement gained traction after the 2008 global financial crisis, which highlighted the shortcomings of the traditional brown economy. In 2009, the Global Green New Deal was proposed to revitalize the economy, reduce poverty, mitigate climate change, lower renewable energy costs, eliminate energy poverty, and create jobs worldwide (Ali et al., 2021; Dianjaya & Epira, 2020). In 2011, the United Nations Environment Programme (UNEP) published a key report, "Towards a Green Economy: Pathways to Sustainable Development and Poverty Reduction," which argued for the benefits of transitioning to a green economy to promote economic recovery, environmental sustainability, and social equity (UNEP, 2011).

Similarly, the Rio+20 Conference highlighted the green economy as a pathway to sustainable development, focusing on job creation, economic growth, and poverty eradication while maintaining ecosystem functionality (Ali et al., 2021). It addressed two key themes: "a green economy in the context of sustainable development and poverty eradication" and "the institutional framework for sustainable development."

In 2012, the Green Growth Knowledge Platform (GGKP) was established by key international organizations to promote the exchange of ideas, policies, and tools that support governments in transitioning to a green economy (GGKP, 2013).

Scholars like Akalibey et al. (2023), Barbie (2010), Ahenkan et al. (2018), Sach et al. (2019), and Healy (2019) have explored the rationale for this transition, noting its potential to achieve the triple bottom line of sustainability: economic, social, and environmental, offering a solution to global development challenges. In a green economy, economic growth and development are pursued in a way that minimizes negative impacts on the environment and enhances social well-being. It focuses on low carbon, efficient use of resources, and social inclusivity (Ahenkan et al., 2018). Healy (2019) indicates that GE presents a "triple-win" solution, using technological advances and eco-innovation to enable continued economic growth while reducing environmental damage.

2.1.3 Green Economy and Sustainable Development

The concepts of green economy (GE) and sustainable development (SD) have received considerable global attention as nations tackle challenges like climate change, biodiversity loss, and poverty (Salifu and Salifu, 2024). While the GE is seen as a transformative model for achieving SD, it's crucial to clarify its connection. Sustainable development, as defined by the 1987 Brundtland Report, is a development that meets current needs without compromising future generations and is built on three pillars: economic, social, and environmental sustainability (Ahenkan & Osei-Kojo, 2014).

The GE operationalizes these pillars by promoting low-carbon, resource-efficient, and socially inclusive growth (UNEP, 2011). Both frameworks share the goal of decoupling economic growth from environmental degradation, ensuring equitable resource distribution, and enhancing social well-being (Salifu & Salifu, 2024). Scholars argue that the GE serves as a pathway to achieving SD goals rather than a replacement (Salifu & Salifu, 2024; Ahenkan et al., 2018). Policies in the green economy function as implementation vehicles for the SDGs, addressing their

interconnectedness (Barbier & Burgess, 2019; Sachs et al., 2019). While SD offers a broad vision, GE provides actionable strategies to realize this vision, indicating their complementary relationship (Ahenkan et al., 2018; Salifu & Salifu, 2024). As discussed below, the green economy presents major opportunities to enhance sustainability.

2.1.3.1 Environmental Conservation and Preservation

The green economy plays a pivotal role in environmental conservation by promoting sustainable resource management, reducing pollution, and mitigating climate change. Scholarly research indicates that transitioning to a green economy minimizes ecological degradation through renewable energy adoption, sustainable agriculture, and ecosystem restoration (UNEP, 2011; Salifu & Salifu, 2024; Akalibey, 2020). For instance, investments in renewable energy (solar, wind, and hydropower) reduce reliance on fossil fuels, thereby lowering carbon emissions (IPCC, 2018). Additionally, sustainable land-use practices, such as agroforestry and conservation agriculture, enhance soil fertility and biodiversity while sequestering carbon (Angelsen, 2017). Furthermore, green policies such as REDD+ (Reducing Emissions from Deforestation and Forest Degradation) have been shown to protect forests while supporting local livelihoods (Angelsen, 2017). Studies in sub-Saharan Africa demonstrate that community-based forest management enhances conservation efforts by incentivizing sustainable harvesting (Duguma et al., 2018). These practices align with Sustainable Development Goal (SDG) 13 (Climate Action) and SDG 15 (Life on Land), ensuring long-term ecological balance while supporting economic growth.

2.1.3.2 Creation of Green Employment Opportunities

Green jobs are rapidly growing and resilient in the transition to a green economy (World Economic Forum, 2023). Research shows that a green economy promotes economic diversification, job

creation, and sustainable practices (Salifu & Salifu, 2024). The ILO (2018) estimates that adopting green practices could create around 24 million jobs globally by 2030, especially in renewable energy and sustainable agriculture. In the US, green jobs are projected to make up 14% of the total workforce, with over 100,000 clean energy jobs created since 2022 (World Economic Forum, 2023). The EU's efforts to enhance energy efficiency in buildings could generate 160,000 jobs in the heating sector by 2030. Various studies indicate that green economy policies in Africa will be key for job creation, with Ethiopia targeting 60 million additional jobs by 2035 and Kenya lifting 3.1 million people from poverty through green investments. Senegal's investment in solar and wind is expected to add 7,600 to 30,000 jobs by 2035 (UNEP, 2015).

Additionally, Ghana's National Green Jobs Strategy aims to create decent jobs across sectors like agriculture, waste management, and renewable energy by 2025, aligning with its sustainable development goals (Ministry of Employment and Labour Relations, 2021). These employment opportunities contribute to SDG 8 (Decent Work and Economic Growth) by ensuring that economic development does not come at the expense of environmental sustainability. Moreover, green jobs often require upskilling and vocational training, which enhances human capital and reduces inequalities (ILO, 2018).

2.1.3.3 Promoting Inclusivity and Equity

The social impact of the green economy is equally substantial, as it supports inclusivity and reduces inequalities (Haase et al., 2017). According to Haase et al. (2015), promoting the well-being of people is another significant outcome of green economy policies, especially through improved environment, secure employment, and safe working conditions, creating green businesses for marginalized workers in the informal sectors and communities. The green economy enhances social equity by ensuring that marginalized groups, including women, youth, and rural

communities, benefit from sustainable development initiatives. Research shows that community-based natural resource management (CBNRM) empowers local populations by granting them ownership and decision-making power over environmental resources (Haase et al., 2015). Countries like Brazil have integrated social inclusion within their green policies, particularly through programs that empower smallholder farmers with climate-smart agricultural practices. This approach has not only improved food security in rural communities but also supported poverty alleviation and equity, showing the potential of the green economy to enhance social welfare (Oduk, 2015).

Additionally, green financing mechanisms such as microcredit for clean energy adoption enable low-income households to access solar panels and efficient cookstoves, reducing energy poverty (Barbier, 2010). Such interventions align with SDG 5 (Gender Equality) and SDG 10 (Reduced Inequalities).

These aforementioned opportunities highlight why green economy policy implementation is pertinent, particularly for developing countries like Ghana.

2.1.5 Ghana's Efforts Toward the Implementation of Green Economy Policies

Empirical studies on GE policy implementation indicate that GE policies focus on various critical areas, including low-carbon initiatives, resource efficiency, clean energy adoption, green technologies, social inclusivity, sustainable agriculture, and waste management (Agyekum, 2016; Ali et al., 2021).

Ghana has implemented several policies to integrate green economy principles and promote sustainable development. Key frameworks include the Renewable Energy Act (2011) and the National Climate Change Policy (2014), which support the transition to a low-carbon economy.

The Renewable Energy Act encourages the use of renewable energy by providing incentives for solar, wind, and biomass projects, fostering participation from both private and public sectors. According to Darko et al. (2018), the implementation of the Renewable Energy Act has led to moderate growth in solar energy installations, particularly in rural areas, enhancing electricity access and reducing dependence on fossil fuels. Despite these gains, however, achieving the ambitious goal of a 10% renewable energy mix by 2030 remains challenging, as the sector grapples with high upfront costs, limited local expertise, and gaps in policy enforcement (Darko et al., 2018).

In addition to the energy policy, Ghana has made strides in waste management, aligning with green economy goals to reduce environmental pollution. The National Plastics Management Policy (2020), for instance, aims to reduce plastic waste by 50% by 2025, emphasizing recycling and public awareness campaigns. Tahiru et al. (2024) observe that while there has been a significant push to encourage recycling and reduce plastic pollution, waste collection systems remain inefficient, particularly in densely populated urban areas. The lack of adequate waste processing facilities and limited public-private partnerships hinder policy effectiveness, with substantial volumes of waste still ending up in landfills (Tahiru et al., 2024).

2.2 The Role of Institutional Collaboration in the Public Policy Process

Institutional collaboration involves formal or informal partnerships among organizations such as government agencies, NGOs, private firms, and academic institutions to achieve shared goals (Thomson & Perry, 2006; Lundin, 2007; Emerson et al., 2012). Ansell and Gash (2008) describe it as a governing arrangement where public agencies engage non-state stakeholders in a consensus-oriented decision-making process to implement public policy or manage programs. Bryson et al.

(2006) emphasize the importance of cooperation, resource sharing, and stakeholder engagement to achieve outcomes that individual sectors cannot accomplish alone. The need for institutional collaboration arises from complex societal challenges that require pooled resources and coordinated action across sectors (Gray, 1999; Ansell & Gash, 2018; Bryson et al., 2006; Gazley & Guo, 2020). Its scope includes project implementation, knowledge exchange, and resource sharing, typically without redistributing decision-making power. Unlike collaborative governance, which emphasizes shared decision-making, institutional collaboration often allows organizations to retain autonomy while coordinating efforts (Thomson & Perry, 2006; Proven & Lamire, 2012). The concept emerged prominently in the late 20th century as globalization and interdisciplinary approaches gained traction. Early examples include post-World War II international development programs, where multilateral agencies like the United Nations collaborated with national governments to rebuild infrastructure (Ostrom, 1990; Proven & Kenis, 2008). In the 1980s, the rise of neoliberalism further institutionalized partnerships between public and private sectors, particularly in service delivery (Agranoff, 2007). By the 2000s, institutional collaboration became central to achieving the Millennium Development Goals (MDGs), laying the groundwork for later Sustainable Development Goals (SDGs) (Sachs, 2012). Currently, organizations like the United Nations Environment Programme (UNEP) and the World Bank advocate for institutional collaboration to align national to local GE policies and global sustainability targets.

In contemporary public administration and policy studies, the concept of "wicked social problems" has emerged as a critical framework for understanding the most complex and intractable challenges facing societies. Building on Rittel and Webber's (1973) foundational work ("Dilemmas in a

General Theory of Planning"), Head and Alford (2015) provide a comprehensive examination of these problems in their work "Wicked Problems: Implications for Public Policy and Management." Their analysis offers crucial insights into why traditional policy approaches often fail to address such issues and how alternative governance strategies like institutional collaboration might prove more effective.

Head and Alford define wicked problems as social or policy challenges marked by complexity, uncertainty, and value conflict. Unlike "tame" problems with clear solutions, wicked problems resist straightforward resolution due to their interconnected nature and differing stakeholder perspectives. Key features of wicked problems include undefined formulations, no clear stopping rules, and potential unintended consequences from interventions. Wicked problems, such as climate change, poverty reduction, and public health crises, arise from scientific uncertainty intersecting with economic and political factors. Addressing these issues necessitates ongoing management and adaptation, unlike traditional bureaucratic challenges. Scholars like Head and Alford (2015) and Klijn et al. (2025) advocate for collaborative governance that involves diverse stakeholders in dialogue and experimentation. This approach emphasizes learning, incremental adjustments, and integrating various knowledge forms, promoting innovative solutions by utilizing government, NGOs, the private sector, and academia. A key approach to institutional collaboration is the "collective" strategy, where institutions work together rather than in competition.

2.2.1 Improving Policy Execution through Collaborative Policy Design

Since the 1970s, there has been a growing emphasis on bridging the gap between public policy design and implementation. Scholars have demonstrated that this gap can only be effectively addressed through collaborative approaches to policy design and implementation (Gray, 1999; Ansell and Gash, 2018; Ansell et al., 2017; Bryson et al., 2006; Gazley & Guo, 2020). In the words

of Ansell et al. (2017), "…to improve policy execution we must go one step further and consider how policies can be more effectively designed by connecting actors vertically and horizontally in a process of collaboration and joint deliberation." This approach ensures that policies are not only theoretically sound but also practically feasible, as it integrates diverse perspectives, local knowledge, and implementation challenges early in the design phase.

Institutional collaboration is crucial for effective policy design, as it aligns goals, reduces redundancies, and fosters synergies across sectors. In today's interconnected policy landscape, addressing cross-sectoral challenges requires concerted efforts among institutions to ensure that policies are holistic, incorporating diverse perspectives (Bjärstig et al., 2024; Costumato, 2021; O'Leary & Vij, 2012). This is particularly important in integrating environmental sustainability with industrial development, as highlighted by the United Nations Environment Programme (UNEP) in its Green Economy Initiative, which stresses the need for effective collaboration to align national policies with international sustainability targets (UNEP, 2011).

South Korea's green energy transition exemplifies the significance of this collaboration. Kim and Thurbon (2015) note that coordination between the Ministry of Trade, Industry, and Energy (MOTIE) and the Ministry of Environment was essential for implementing the Green New Deal. Through structured dialogues, these ministries aligned their goals, allowing for policies that effectively balanced industrial development with environmental protection. Additionally, collaboration is vital in sectors like agriculture, where coordination among relevant ministries can address food security, water conservation, and climate resilience. This collaborative approach

helps identify synergies and trade-offs, ensuring policies are effective and equitable (Kim & Thurbon, 2015; Bjärstig et al., 2024).

2.2.2 The Role of Institutional Collaboration in Policy Implementation and Opportunities

Over the past one and a half decades, institutional collaboration has emerged as a critical mechanism for effective policy implementation, particularly in addressing complex public challenges (wicked social problems). McGuire (2006) notes that early research on policy implementation acknowledged the value of institutional collaboration.

Bjärstig et al. (2024) highlight that the need for institutional collaboration is to ensure that policy implementation is adaptive and responsive to emerging challenges. Scholarly research demonstrates that such collaborations during the implementation phase enhance policy effectiveness by overcoming resource constraints, improving coordination, and fostering innovation (Bryson et al., 2006). In the words of Ansell et al. (2017), "Multi-actor collaboration through joint deliberations will not only help to convey valuable knowledge about the nature and character of the problem and the kinds of solutions likely to work on the ground. It will also spur the development of innovative policy solutions that can break policy deadlocks and build joint ownership for the realization of these solutions."

One key benefit of institutional collaboration in policy implementation is its ability to address resource gaps. That is, the ability to share and maximize limited resources such as funding, time, technical and logistical support, administrative and organizational assistance, requisite skills for implementation, and needed expertise, among others, is one advantage of collaborative policy implementation (Thomson and Perry 2006). Through this collaborative effort, these resources are leveraged and redistributed as shared resources to affect the common goals of the collaborative policy implementation.

Provan and Lemaire (2012) found that interorganizational networks help pool financial, technical, and human resources, particularly in underfunded sectors like environmental management. For example, partnerships between municipal governments and NGOs in waste management programs have improved recycling rates in resource-scarce regions by combining public oversight with private sector efficiency (Gazley & Guo, 2020). Similarly, Bryson et al. (2006) emphasize that collaborations mitigate redundancies, ensuring optimal use of limited resources.

Collaboration also enhances policy coherence and adaptability. Koontz and Thomas (2006) demonstrated that multi-stakeholder involvement in water governance led to more flexible and context-sensitive policies, as diverse perspectives identified unintended consequences early. Provan and Kenis (2008) further highlight that networked governance structures, such as those in climate adaptation programs, enable rapid information sharing and iterative learning, crucial for managing unpredictable policy environments.

Mutual accountability is another crucial outcome of institutional collaboration during implementation. The literature demonstrates that when institutions work together, they hold each other accountable for delivering on their respective responsibilities. This accountability ensures that implementation stays on track and that institutions address any challenges collaboratively. It also fosters transparency, as institutions are required to share information, progress reports, and outcomes (Bjärstig et al., 2024).

However, institutional collaboration is not without challenges. Power imbalances, conflicting priorities, and trust deficits often hinder effectiveness (Provan & Lemaire, 2012). For instance, Gazley and Guo (2020) found that NGOs frequently face marginalization in partnerships with dominant government agencies, undermining equitable decision-making. To address this, Provan

and Kenis (2008) recommend clear governance protocols and neutral "brokers" to mediate conflicts. Other scholars suggest that effective communication practices can enhance the impact of institutional collaborations by shaping public perception and member perspectives, as well as providing accounts of policy implementation costs, outcomes, outputs, and challenges (Bryson et al., 2006; Thomson and Perry, 2006).

2.3 Challenges to Green Economy Transition and Policy Implementation

A review of the literature reveals that policy implementation remains fraught with numerous challenges that often undermine governance effectiveness. Scholars across various disciplines have empirically documented these barriers, providing critical insights into why well-designed policies frequently fail at the execution stage. The literature highlights financial constraints as one of the most persistent obstacles. As Ameyaw et al. (2016) demonstrate in their study of renewable energy policies, inadequate funding and budget inconsistencies plague implementation efforts, particularly in developing contexts. This finding is reinforced by Piabuo et al. (2021), whose empirical review of climate adaptation projects in Sub-Saharan Africa found that over 60% of initiatives underperformed due to chronic funding shortfalls and unsustainable donor dependency. While financial constraints are widely cited as a dominant barrier to policy implementation, the literature reveals an implicit debate regarding whether funding shortages constitute a root cause of implementation failure or merely reflect deeper institutional and governance weaknesses that undermine resource mobilization and utilization.

The literature further emphasizes how institutional weaknesses compound these financial challenges. Mbow's (2020) systematic analysis of environmental governance reveals that bureaucratic inefficiencies and poor inter-agency coordination frequently derail policy execution. This aligns with Crosby's (1996) earlier theoretical work, which posited that implementation gaps

often emerge from fragmented institutional architectures and weak monitoring systems. The empirical evidence suggests these structural deficiencies are particularly acute in cross-sectoral policies where jurisdictional overlaps occur. These studies suggest that institutional fragmentation and coordination failures do not operate independently of financial constraints but instead interact with them, reinforcing implementation bottlenecks in complex policy domains such as green economy transitions.

An examination of the literature also brings to light the significant role of political and social factors. Piabuo et al.'s (2021) comprehensive review demonstrates how vested interests and community resistance can distort or block policy implementation. These findings echo Ameyaw et al.'s (2016) case studies showing how a lack of stakeholder engagement leads to low policy compliance. The literature consistently emphasizes that successful implementation requires navigating complex political economies and building societal consensus. However, a conceptual tension emerges in the literature regarding the relative weight of political resistance versus administrative incapacity, with some scholars emphasizing power relations and vested interests as primary obstacles, while others frame implementation failure largely as a technical and managerial problem.

In addition, the literature converges on capacity constraints as another critical barrier to effective policy implementation. Mbow (2020) demonstrates through African case studies how the lack of technical expertise and trained personnel undermines environmental policies, particularly in local agencies where staff often lack skills in green technologies like climate-smart agriculture. This shortage forces reliance on unsustainable external support and leads to poor monitoring of policy compliance. Crosby (1996) complements this view with his concept of "implementation readiness," arguing that policies fail when institutions lack the structural, procedural, and human

resource capacities needed for execution. He identifies chronic resource deficits, inefficient workflows, and unmotivated staff as key barriers that prevent policies from moving beyond the planning stage.

Ameyaw et al. (2016) provide concrete evidence of these challenges in Ghana's forestry sector, where inadequate training of frontline forestry officers has severely hampered governance. Their study reveals how untrained staff struggle with modern forest management techniques, leading to ineffective enforcement of logging regulations and poor community engagement. This capacity gap creates space for illegal activities while undermining sustainable forest initiatives. Similarly, Piabuo et al. (2021) examine timber-producing countries in the Congo Basin and Asia, demonstrating how institutional capacity deficits directly enable illegal logging operations. Their work shows that weak technical capacity in monitoring and enforcement systems allows destructive practices to persist despite existing policies. The study particularly highlights how under-resourced forestry departments lack the personnel and tools needed for effective surveillance of vast forest areas. These studies indicate that capacity constraints extend beyond human resource deficiencies to encompass organisational readiness, enforcement capability, and institutional learning. The literature, therefore, converges on the view that capacity is a systemic attribute of governance systems rather than a narrow issue of skills or staffing levels alone.

Building on the broader policy implementation literature, scholars of the green economy have adapted these explanations to examine the specific structural, political, and socio-economic challenges associated with green transitions. Synthesizing these scholarly perspectives reveals that policy implementation challenges are multidimensional and interrelated. Notwithstanding, the literature on GE also draws attention to these challenges in the green economy transition. Scholars such as Akalibey (2020), Chukwu (2022), Ali et al. (2021), Gao et al., (2022), Adjei et

al. (2024), Imasiku et al. (2021), and Mahai et al. (2021) found out that the key challenges in the GE transition process include inadequate resources (funds, human and technological capacity), lack of the necessary political recognition and support, poor institutional coordination among key stakeholders, lack of climate-sensitive budgets, inadequate funding for green technology innovations, inadequate long-term policies for green strategies, inadequate policy enforcement, lack of public awareness regarding environmental issues, bureaucratic inefficiencies, and outdated infrastructure. Terzić (2023) indicated that the challenges in transitioning to a green economy are always the same as those facing the country's economy: extreme poverty, lack of knowledge, insufficient power generation, insufficient building infrastructure, and the ability to maintain the overall welfare of people.

In addition to the above challenges, other scholars have identified unsustainable human activities such as oil exploration and exploitation, uncontrolled slash-and-burn farming approaches, logging, urbanization, and illegal mining activities as the barriers to GE transition in developing countries (Piabuo et al., 2021; Iordăchescu & Vasile, 2023; Dekiawati, 2022; Nazarova et al., 2021; Yiridomoh, 2021; Obiri-Yeboah et al., 2021; Mensah & Tuokuu, 2023; Darko et al., 2023). As Ameyaw et al. (2016) demonstrate in their analysis of Ghana's forest governance, illegal logging and weak enforcement mechanisms undermine sustainable forest management policies, creating gaps between policy intentions and outcomes. This finding is reinforced by Piabuo et al. (2021), whose empirical study of timber-producing countries shows how illegal logging directly contributes to carbon emissions and governance failures in the Congo Basin and Southeast Asia. In line with this, Dianjaya and Epira (2020) explore Indonesia's green economy implementation with a focus on greenhouse gas emission reduction and find out that Indonesia faces significant barriers in meeting its emission targets, particularly due to high levels of deforestation, reliance on fossil fuels, and agricultural practices that contribute to emissions.

In the mining sector, empirical evidence paints a particularly concerning picture. Yiridomoh's (2021) study of northwestern Ghana reveals how illegal gold mining operations directly contradict climate-smart agriculture initiatives, polluting water sources and degrading arable land. This aligns with Obiri-Yeboah et al.'s (2021) findings on heavy metal contamination in Ghana's Bonsa River, demonstrating the health and environmental consequences of unregulated mining activities.

Urbanization pressures present another significant challenge. As Crosby (1996) theorized in his seminal work on policy implementation, competing land-use demands often derail environmental initiatives. Mensah and Tuokuu (2023) provide contemporary evidence of this phenomenon, showing how informal miners in Ghana persistently return to prohibited sites, undermining water quality protection efforts. Darko et al. (2023) further quantify these impacts, demonstrating measurable deterioration in surface water and sediment quality due to small-scale illegal mining.

2.4 Theoretical Framework and Conceptual Framework

This study is guided by Collaborative Governance Theory (CGT). The theory emphasizes joint decision-making and multi-stakeholder partnerships in the design, implementation, and monitoring of public policy. Collaborative governance is defined by Ansell and Gash (2008) as a governing arrangement where one or more public agencies engage non-state stakeholders in a collective, consensus-oriented, and deliberative process aimed at making or implementing public policy. This theory has become increasingly important for understanding the dynamics of policy implementation in complex, resource-constrained environments such as green economy transitions.

The selection of Collaborative Governance Theory over alternative public policy and governance theories is informed by the multi-actor, cross-sectoral, and implementation-oriented nature of green economy policy processes. Unlike hierarchical governance models, which emphasise command-and-control mechanisms or market-based approaches that prioritize private-sector

incentives, Collaborative Governance Theory explicitly accounts for interdependence among public institutions, non-state actors, and local communities in policy implementation. Given that green economy policies in Ghana are implemented through multiple public agencies operating alongside civil society organizations, private actors, and community stakeholders, a collaborative governance lens provides a more appropriate and analytically robust framework for understanding policy coordination, shared decision-making, and implementation outcomes.

Collaborative Governance Theory emerged in response to the limitations of hierarchical, top-down governance models. Scholars such as Emerson et al. (2012) extended the framework to include both formal and informal arrangements across the public, private, and civil society sectors. Formal arrangements include structured mechanisms such as legal mandates, institutional frameworks, interagency committees, funding protocols, and policy instruments that guide coordination and accountability across sectors. These provide the legal and procedural foundation for implementing green economy policies. In contrast, informal arrangements encompass social networks, interpersonal relationships, shared norms, unwritten rules, and local knowledge systems. These foster trust, adaptability, and innovation, enabling actors from public, private, and civil society sectors to engage more effectively. To Emerson et al. (2012), these arrangements create a holistic governance environment that supports joint problem-solving and flexible policy adaptation and implementation. In the context of green economy implementation in Ghana's public sector, leveraging both formal and informal mechanisms is essential for ensuring stakeholder cooperation, strengthening institutional capacity, and overcoming complex environmental, economic, and social challenges.

The theory draws from earlier works in network governance, intergovernmental collaboration, participatory democracy, and public policy implementation (McGuire, 2006; Agranoff & McGuire,

2003; Sirianni, 2009). It situates collaboration as not only a governance approach but also a mechanism for achieving improved policy outcomes through shared resources, knowledge, and accountability. Central to CGT is the idea that effective policy implementation in the public sector increasingly depends on cross-sectoral coordination, stakeholder engagement, and institutional trust. According to Emerson et al. (2012), collaboration in policy implementation is sustained by three interdependent elements: shared motivation (trust and mutual understanding), capacity for joint action (resources, knowledge, expertise), and principled engagement (inclusive dialogue and decision-making). These mechanisms facilitate collective ownership and reduce implementation gaps often caused by institutional fragmentation and limited administrative capacity.

In this study, the core components of Collaborative Governance Theory provide the analytical structure for examining green economy policy implementation. Specifically, principled engagement informs the assessment of how public sector institutions and stakeholders interact in planning and decision-making processes; shared motivation guides the analysis of trust, commitment, and alignment of goals among institutions; and capacity for joint action frames the evaluation of resource sharing, technical expertise, and institutional arrangements supporting policy execution. These dimensions are used to organise the analysis of empirical data and to interpret how collaborative processes either facilitate or constrain effective green economy policy implementation in the agriculture, forestry, and waste sectors.

This theory is particularly relevant to this study because the implementation of green economy policies involves multiple actors, diverse mandates, and competing priorities (UNEP, 2011), a typical setting for collaborative governance. It provides a suitable analytical lens for obtaining the objectives of the study, which examines how GE policies are implemented in the waste, agriculture, and forestry sectors, and how institutional collaboration facilitates or hinders the implementation process. It also helps assess the institutional arrangements that enable policy

coherence, the coordination of overlapping mandates, and the pooling of technical and financial resources. By using CGT, this study explores how collaborative structures enhance or limit effective green policy implementation and how partnerships between public institutions, NGOs, private actors, and local communities promote shared accountability, innovation, and adaptive policy responses in Ghana's Bono Region. Accordingly, Collaborative Governance Theory serves not only as a conceptual guide but also as an operational analytical lens through which institutional interactions, implementation challenges, and policy outcomes are systematically examined in this study.

2.5 Conceptual Framework

The analytical framework for the study is shown in Figure 1 below and was created following the objectives of the research as well as the literature review. The framework demonstrates how a component of the collaborative governance framework was applied in the study by the researcher by illustrating the dynamic interplay between green economy policies, collaborative mechanisms, institutional trust, and their role in enabling effective policy implementation within public sector institutions. The challenges that can impede both green economy policy implementation and institutional collaboration were examined according to the Collaborative Governance Theory and the literature, as indicated in the conceptual framework.

The framework begins with the introduction of various green policies, including low-carbon policies, resource efficiency, social inclusivity, agricultural and afforestation policies, and waste management initiatives. These policies are funneled through both formal and informal structures that govern institutional interactions in the collaborative governance framework (CGF).

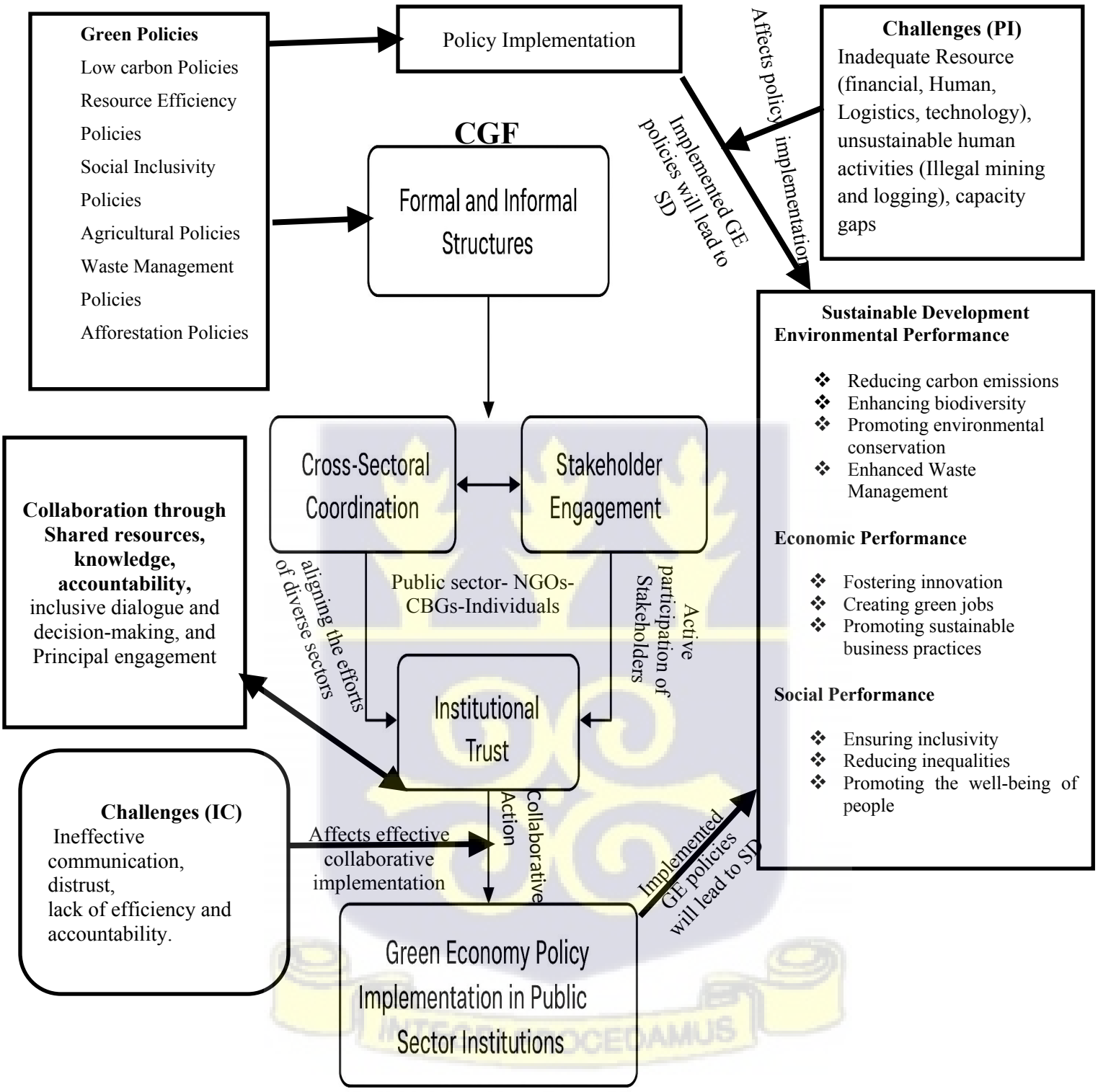
From these structures, two critical pillars emerge: cross-sectoral coordination and stakeholder engagement. Cross-sectoral coordination involves aligning the efforts of diverse sectors, such as agriculture, forestry, and waste, while stakeholder engagement entails the active participation of

NGOs, community-based groups (CBGs), and the private sector in the policy process. Together, they foster institutional trust, which serves as the bedrock for policy success. Cross-sectoral collaboration and stakeholder engagement will lead to the establishment of institutional frameworks, leadership, knowledge, resources, accountability, and inclusive dialogue, enabling collaborative action through trust.

Collaborative action is the step taken by collaborating institutions that will lead to successful GE policy implementation. However, it also acknowledges the presence of challenges, including ineffective communication, distrust, and a lack of efficiency and accountability, which can hinder institutional collaboration (IC) and undermine trust, thereby affecting effective collaborative policy implementation.

Additional barriers identified include inadequate financial, human, and logistical resources; limited access to technology; and unsustainable human activities like illegal mining and logging. Capacity gaps further complicate the implementation process. These challenges are seen as the general policy implementation (PI) challenges to public sector institutions. The ultimate goal of the framework is to realize green economy policy implementation that contributes to sustainable development. This is captured in three interlinked dimensions: environmental, economic, and social performance. Environmentally, green policies aim to reduce carbon emissions, enhance biodiversity, conserve natural resources, and improve waste management. Economically, they promote innovation, job creation, and sustainable business practices. Socially, they strive for inclusivity, reduced inequality, and the promotion of community well-being.

Figure 1: Conceptual Framework



Source: Author's Construct, (2025)

2.4 Summary of Chapter

The chapter provides a comprehensive review of the literature related to the implementation of GE policies in Ghana. The collaborative governance theory was employed to analyze how effective collaboration, stakeholder collaboration, cross-sectoral coordination, trust, and the integration of both policy and community-driven initiatives lead to achieving long-term green development outcomes.

The review explores the historical origin and evolution of the green economy model, emphasizing its emergence as a practical model for operationalizing sustainable development. The chapter looks at the role of institutional collaboration in designing and implementing GE policies. Key opportunities associated with green economy policies were highlighted, including job creation, resource efficiency, and climate resilience. Case studies of successful GE policies in countries like Kenya and South Africa are examined to draw lessons relevant to Ghana's context. It was also found that Ghana has inculcated green principles into its national strategies.

The chapter also identifies significant challenges in policy implementation, including technological gaps, inadequate institutional capacity, funding limitations, and socio-political resistance. The next chapter discusses the methodology that was employed for the study.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

The study explores the implementation of GE policies in Ghana's public sector institutions in the Bono region. The approach, procedures, and processes that the researcher uses for the research are presented and explained by the methodology. The research paradigm, research design, research approach, sampling procedures, sample size, study area, data sources, data collection instrument, method for data analysis, ethical issues, and the limitations of the study were the subcategories under the methodology.

3.1 Research Paradigm

The research paradigm encompasses assumptions about how research issues should be studied (Kusi, 2012; Cohen et al., 2007; Henn et al., 2006). Key paradigms include positivism, interpretivism, and critical. This study adopts an interpretive paradigm, which seeks to understand subjective meanings and experiences within social contexts. Unlike positivism, which aims for objective truths, interpretivism focuses on the complexity of human behavior and how individuals derive meaning from their interactions and environments (Creswell & Poth, 2018). It asserts that social reality is co-created through meaningful interactions between researchers and participants (Kusi, 2012). This paradigm is appropriate for exploring the implementation of green economy policies in the selected public sector in Ghana, challenges, and the role of institutional collaboration, because it provides a framework for understanding the lived experiences, perceptions, and opinions of key stakeholders involved in GE policy implementation processes. This helps the researcher to delve into the objective realities of policy implementers, public officials, and practitioners within the waste, agriculture, and forestry sectors, whose experiences are shaped by the political, social, and economic context of their sector. Since GE is perceived

differently by various individuals, governments, and businessmen, the experiences of stakeholders within these selected sectors on the implementation of GE policy, the challenges, and the role of institutional collaboration may be different. This divergence calls for the use of the interpretive paradigm.

Additionally, the interpretive paradigm is compatible with the qualitative approach (Kusi, 2012), where face-to-face interviews are utilized to collect data from participants' experiences and interpretations. Moreover, interviews and qualitative studies are inexplicably connected. This is true in the words of Bessey (1999: 43): "If you are working within the interpretive paradigm, you have to collect data verbally." Hence, the interpretive paradigm is the best for achieving the objectives of this study.

3.2 The Research Approach

Traditionally, a distinction is made between two kinds of research approaches: qualitative and quantitative research approaches (Kusi, 2012). While both methods share common goals of gathering data, they differ significantly in their philosophy, design, and application. Quantitative research is confirmatory and predictive, emphasizing numbers and patterns to test hypotheses and establish cause-and-effect relationships within the positivist paradigm (Kusi, 2012). In contrast, qualitative research is exploratory and descriptive, aimed at understanding the meaning of phenomena in natural settings, following the interpretive paradigm (Kusi, 2012). With the purpose of the study's objectives and the adoption of the interpretive paradigm, this study is guided by the qualitative research approach. This approach allows the researcher to explore the lived experiences and perspectives of key stakeholders in the selected public sectors, providing in-depth insights into the various GE policies implemented, the challenges, and the role of institutional collaboration in the implementation process. This approach is best suited for addressing the research objectives, as it emphasizes understanding the meanings and interpretations that participants attach to their

experiences, aligning well with the interpretive paradigm. It is also shown by scholars such as Kusi (2012) and Cohen et al. (2007) that qualitative research is good for both exploratory and descriptive studies, and this research is not an exception.

3.3 Research Design

This study adopts a case study design utilizing the descriptive method within a qualitative framework. A case study design, according to Gall et al. (2007:447), "is the in-depth study of one or more instances of a phenomenon in its real-life context that reflects the perspective of the participants involved in the phenomenon." The case study design is appropriate for the study as it allows for an in-depth exploration of the specific context of GE policy implementation across the selected public sectors: waste, agriculture, and forestry sectors within the Bono region. This is especially important as the GE is a complicated concept, and implementation varies across different sectors and regions. Also, the descriptive method provides a clear and comprehensive account of the existing GE frameworks and their implementation in the targeted sectors.

3.4 The Study Area

Data was collected from the public sectors, including waste, agriculture, and forestry, in the Bono region of Ghana. Located in the country's middle belt, Bono, which became an independent region in 2018, has a population of about 1.2 million, with over 60% engaged in agriculture (Ghana Statistical Service, 2021). The region is a key contributor to Ghana's agricultural sector, particularly in the production of cashew nuts, accounting for approximately 55% of the nation's total output. Bono is also home to several significant forest reserves, including the Afram Headwaters Forest Reserve, Bia Tano Forest Reserve, and the Bonsam Bepo Forest Reserve, but increasing farmland demand has led to deforestation, soil fertility loss, and greater climate vulnerability (MoFA & SRID, 2022). The Forestry Commission of Ghana reported that the region loses about 1,500 hectares of forest cover annually, threatening ecological integrity.

The Bono Region was chosen for this study due to its challenges in balancing agricultural productivity with environmental sustainability. Recognized for its effective waste management, especially in Sunyani, Ghana's cleanest city in 2007, Bono's green waste practices provide important insights into promoting economic growth while preserving the environment.

3.5 Unit of Analysis

The unit of analysis for this study includes three selected public sectors: waste, agriculture, and forestry within the Bono region of Ghana. These sectors were selected based on their relevance to the research objectives and their potential for GE policy implementation. They were also selected due to the global attention on waste management, clean, smart, green cities, food security, and sustainable agriculture practices, and the issues of afforestation and reafforestation for carbon sequestration. To sum up, they were selected because they are the key sectors mandated by the intended nationally determined contributions (GH-INDCs, 2015) to drive Ghana towards a GE and sustainability.

3.6 Profile of the Study Sectors

The study focuses on three critical public sectors that are mandated for greening the Ghanaian economy (GINDCs):

3.6.1 Waste Sector

The environmental sector in Ghana, especially in waste management, is crucial for tackling urbanization and industrialization issues. It includes waste collection, disposal, recycling, and conservation, aiming to reduce environmental degradation. Oversight is primarily from the Ministry of Sanitation and Natural Resources and the Environmental Protection Agency (EPA), which establishes relevant regulations.

Various stakeholders, including waste management companies, local authorities, and civic organizations, collaborate to promote eco-friendly practices such as composting and plastic

recycling. Ghana's Nationally Determined Contributions (NDCs) under the Paris Agreement require the waste sector to implement measures that lower greenhouse gas emissions and support sustainability. Efforts include expanding waste-to-energy initiatives and recycling programs while emphasizing circular economy principles to reintroduce waste materials into production and reduce plastic pollution. The places the waste sector at the pivotal point of studying green economy policy implementation.

3.6.2 The Agriculture Sector

The agriculture sector in Ghana is crucial to the national economy, providing significant employment and contributing to GDP. The Ministry of Food and Agriculture oversees its growth by developing policies, coordinating initiatives, and assessing projects. It aims to promote sustainable agribusiness through support services and research. Key organizations under the ministry include the Veterinary Council and the Ghana Irrigation Development Authority.

As part of Ghana's Nationally Determined Contributions (NDCs) to the Paris Agreement, the agricultural sector is required to adopt climate-smart practices. This includes reducing greenhouse gas emissions, enhancing carbon sinks, and promoting resilient farming techniques. The NDCs also mandate improved resource efficiency and soil health to ensure long-term agricultural productivity, contributing to a green economy and food security. This study focuses on the food and agriculture sector in the Bono region.

3.6.3 The Forestry Sector

The forestry sector in Ghana is crucial for environmental sustainability, economic growth, and social well-being. It helps conserve biodiversity, regulate water cycles, and sequester carbon. Managed by the Ministry of Lands and Natural Resources and the Forestry Commission, the sector involves various stakeholders, including government, NGOs, and local communities, engaged in timber production, ecotourism, and sustainable forest management.

Established to promote sustainable forest use, the sector contributes to Ghana's green economy through practices like afforestation and reforestation, which combat deforestation and mitigate climate change. Forest resources provide livelihoods, foster biodiversity, and serve as carbon sinks, aligning with global climate goals. Under the Paris Agreement's Nationally Determined Contributions (NDCs), Ghana's forestry sector aims to enhance carbon stocks and reduce emissions from deforestation and degradation. Strategies include sustainable land management and agroforestry, supporting climate resilience, and creating green jobs while advancing the green economy. The study focused on the Forest Service Division in the Bono region.

3.7 The Target Population

According to Cohen et al. (2007), the target population is a group of people or participants with specific attributes of interest and relevance from which a sample is selected for generalization. This study's target population comprises key stakeholders who play vital roles in the implementation and oversight of GE policies in the selected sectors. These include GE projects and policy implementers who are public officials from the institutions in the waste, agriculture, and forestry sectors.

3.8 Sampling Techniques and Procedure

The sampling procedure for this study followed a deliberate and sequential process consistent with the qualitative case study design and the interpretive research paradigm. The procedure began with the identification of key public sector institutions responsible for the implementation and oversight of green economy policies within the waste, agriculture, and forestry sectors in the Bono Region. These institutions were selected based on their statutory mandates under Ghana's Nationally Determined Contributions (NDCs) and their direct involvement in the green economy, related programmes, and interventions. Following the identification of relevant institutions, purposive

sampling was employed to select respondents who possessed expert knowledge and practical experience in the formulation, implementation, or monitoring of green economy policies. Initial contact was made through the Bono Regional Coordinating Council, which facilitated access to sector-specific agencies and departments. This ensured that participants selected for the study were information-rich and directly relevant to the research objectives. Subsequently, snowball sampling was applied to identify additional key informants within and across institutions. Participants who had already been interviewed were asked to recommend other officials with relevant expertise and involvement in green economy policy implementation. This approach was particularly useful given the hierarchical structure of public institutions and the limited accessibility of senior officials.

3.8.1 Purposive sampling

Purposive sampling is a non-probability sampling technique where researchers deliberately select participants based on specific characteristics, expertise, or experiences relevant to the study (Shamsudin et al., 2024). Unlike random sampling, purposive sampling ensures that only individuals with relevant knowledge contribute to the research, making it particularly useful for qualitative studies that seek in-depth insights. This sampling technique allows researchers to target participants who have direct experience with the subject matter, thereby improving the accuracy and depth of data collected. It is commonly used in policy analysis, case studies, and exploratory research where an in-depth understanding is required (Wang, 2024).

There are several types of purposive sampling, but for this study and its objectives, the study adopts expert sampling. Expert sampling is appropriate as the research seeks insights from policymakers, public officials, and institutional stakeholders directly involved in green economy policy implementation in the Bono Region. These individuals possess first-hand knowledge of policy implementation, challenges, and institutional collaboration, making them ideal respondents. Given

that the green economy is a relatively new concept in Ghana, it is essential to engage professionals who actively contribute to its implementation and possess privileged information regarding its policies, their implementation, challenges, and institutional collaborations.

3.8.2 Snowball Sampling

To reach the agencies within the selected public sectors, snowball sampling was employed, a non-probability sampling technique useful for identifying hard-to-locate participants (Adeoye, 2023). This method allows knowledgeable study participants to refer the researcher to relevant individuals, ensuring the inclusion of key informants (Wang, 2024; Shamsudin et al., 2024; Adeoye, 2023). Snowball sampling was particularly effective in this study due to limited initial access to officials within the hierarchical public institutions. Referrals from established respondents helped the researcher engage relevant stakeholders involved in green economy policy implementation across the Bono Region.

The complexity of green economy policy, involving multiple agencies, made it challenging to identify all potential respondents beforehand. For example, upon arriving in Sunyani, the Regional The Coordinating Council (RCC) served as the initial contact, directing the researcher to various public sector institutions. A respondent from the Environmental Protection Agency (EPA) guided the researcher to key informants in agriculture, while another from the Ministry of Environmental Sanitation and Health provided connections to the waste management department. Directors and officials consistently recommended relevant experts, ensuring the inclusion of those with the best knowledge on green economy policy implementation.

3.9 Sample Size

This study used a total of thirteen (13) participants from key public sector institutions in the Bono Region, selected through purposive and snowball sampling techniques. The choice of this sample

size is justified within the context of qualitative research, which prioritizes depth over breadth and seeks to understand the complexity of social phenomena through rich, detailed accounts from knowledgeable individuals.

According to Guest, Bunce, and Johnson (2006), data saturation, the point at which no new information or themes are observed in the data, often occurs within the first 12 interviews in homogeneous study populations. Similarly, Creswell and Poth (2018) recommend a sample size ranging from 5 to 25 participants for qualitative case study research, depending on the purpose of the study and the richness of data gathered. Given that this research adopts an interpretive paradigm and a case study design, the selection of 13 participants is both methodologically sound and sufficient to provide in-depth insights into green economy (GE) policy implementation within the selected public sector institutions. Moreover, participants were carefully chosen based on their roles, experience, and involvement in the design, implementation, or oversight of GE-related policies and programs in the agriculture, forestry, and waste sectors. This ensured that the data collected reflected diverse but relevant perspectives aligned with the study's objectives.

Table 3.1: Categories of Respondents Across the Selected Sectors

Sectors	**Job Description**	**Division/ Department**	**Sample Size/ Number of Respondents**
Environmental Protection Agency (EPA)	Assistant Program Officer		2

Ministry of Food and Agriculture (MoFA)	Regional Director of Agriculture & Head of the Regional Extension Unit & Head Nursery and Planting Unit	Agric Department & The Extension Unit at the Department of Food and Agriculture & Nursery and Planting Unit	4
Ministry of Environmental Health and Sanitation	environmental health officers & Assistant Environmental Health Analyst.	Environmental Health, Waste, and Sanitation Department	4
Forestry service Division under the forestry commission	Mapping officer & District manager	Department of Forestry & Forest Services Division, Bono region	3
Total Size			13

3.10 Sources of Data

This study will utilize both primary and secondary sources of data to provide a comprehensive understanding of green economy policy implementation in the public sectors of Ghana. Primary data was collected through in-depth, semi-structured interviews with key stakeholders, including policy and program implementers, and other stakeholders for this study. This provided firsthand insight into the opportunities and challenges in implementing green economy policies, particularly in the sectors of waste, forestry, and agriculture.

Also, the secondary data complements the primary data, providing context and supporting evidence. This includes policy documents, reports from government ministries such as the Ministry

of Environment, Science, Technology, and Innovation (MESTI) and the Ministry of Food and Agriculture (MoFA), as well as publications from international organizations like the United Nations Environmental Programme (UNEP). Additionally, academic literature related to green economy initiatives in Ghana was reviewed to support the analysis and ensure that the study is grounded in existing research. This enhanced a robust exploration of the topic under study.

3.11 Data Collection Method and Instrument

The primary data collection method for this study is semi-structured interviews. This method is particularly suitable for qualitative research adopting an interpretive paradigm, as it allows the researcher to explore specific themes while offering flexibility to probe further into the participants' responses (Kusi, 2012; Cohen et al., 2007). It provides a balance between structure and openness, enabling a detailed exploration of phenomena from the perspectives of the respondents (Kusi, 2012). This helps the researcher to gain in-depth knowledge of the participants' experiences and views on the topic.

The interview guide serves as the data collection instrument, designed to cover key areas of inquiry related to the research objectives. The guide includes open-ended questions on topics such as GE policy implementation, the role of institutional collaboration, and challenges faced by the sector, promoting a green economy geared toward sustainable development. The use of an interview guide, according to Kusi (2012), ensures consistency across interviews and allows for adaptability based on the responses of participants. This instrument is appropriate as it aligns with the descriptive and interpretive nature of the research, ensuring that critical information is gathered while giving participants the freedom to express their views in detail.

3.12 Data Collection Procedures

Data collection was conducted over four weeks. The researcher personally conducted all interviews to maintain consistency and build rapport with participants. Each interview lasted

between 30 and 45 minutes and was audio-recorded with participants' consent. Interviews were transcribed verbatim to ensure accuracy. Data collection was concluded when thematic saturation was reached, as subsequent interviews yielded no substantively new themes relevant to the study objectives. Before the interviews, participants were briefed on the study's purpose and confidentiality measures. Ethical approval was obtained, and informed consent was secured from all participants. No research assistants were used to preserve the integrity and confidentiality of the data collection process.

3.13 Data Analysis

The data collected from the interview were analyzed using thematic analysis, following Braun and Clarke's six-step approach (2022). Thematic analysis is particularly suitable for this research because it enables the identification, analysis, and reporting of patterns or themes within the qualitative data, offering a flexible and insightful way to capture the perspectives of various stakeholders involved in green economy policy and implementation.

The first step identified by Braun and Clarke in the thematic analysis includes formalization with the data, which involves thoroughly reviewing interview transcripts and notes to immerse oneself in the content. This ensures the researcher understands the depth of the data. The next step is generating initial codes, where key elements of the data are systematically identified. Searching for a theme follows, as codes are grouped into broader patterns that reflect an important aspect of the research questions. Themes are then reviewed to ensure they accurately represent the data and are coherent and distinctive. In the next step, themes are defined and named to capture the essence of each theme concisely. Finally, the report is produced, linking the themes of the research to objectives and offering an interpretation of the findings. The above steps, as identified by Braun and Clarke, were directly followed by the researcher to match the relevant data collected to the research objectives while ignoring data considered irrelevant to the study. The classification of the

teams from the data collected was based on the terms in the interview guide. The primary data was used to confirm and contradict the literature on the green economy and sustainability.

3.13.1 Coding and Analytical Procedures

The coding process followed an inductive thematic approach, allowing themes to emerge directly from the data rather than being imposed a priori. Interview transcripts were read repeatedly to identify meaningful units of analysis, which were assigned initial codes reflecting participants' experiences, perceptions, and institutional practices related to green economy policy implementation. These initial codes were then compared across transcripts to identify patterns, similarities, and differences. Related codes were grouped into broader categories, which were refined into themes aligned with the research objectives. Throughout this process, themes were continuously reviewed against the raw data to ensure they accurately reflected participants' accounts and were not the result of researcher presuppositions.

3.13.2 Trustworthiness of the Study

To enhance the trustworthiness of the qualitative analysis, established criteria of credibility, dependability, and confirmability were applied. Credibility was ensured through prolonged engagement with participants and repeated review of interview transcripts to verify the consistency of emerging themes. Dependability was strengthened by maintaining a clear audit trail documenting the stages of data collection, coding, and theme development. Confirmability was addressed by grounding interpretations in verbatim interview excerpts and systematically linking findings to raw data and relevant literature. These measures ensured that the analytical process was transparent, systematic, and replicable.

3.14 Ethical Consideration

Ethical approval for the study was obtained in accordance with the University of Ghana's research ethics guidelines before data collection. Informed consent was obtained from all participants before interviews were conducted, with participants signing consent forms outlining the purpose of the study, confidentiality assurances, and their right to withdraw at any stage. Also, ethics regarding environmental justice and public health safety in the environmental sector (waste), as well as ethics regarding animals, sustainable practices, and rural community impact in the agricultural sector, were considered and observed. Interviews were audio-recorded with participants' permission, and all recordings and transcripts were securely stored on password-protected devices accessible only to the researcher. To ensure anonymity, participants were assigned codes rather than identifiable names, and no institutional or personal identifiers were disclosed in the reporting of findings.

3.15 Limitations of the Study

This study faced several limitations that impacted data collection and execution. Key challenges included time and resource constraints, which limited the scope of data collection and analysis, and financial limitations, as the research was self-sponsored, restricting field visits and follow-up interviews.

Another significant issue was the availability of respondents. Many key informants were unavailable due to their workload, forcing reliance on accessible participants. Interview sessions were often disrupted, leading to last-minute rescheduling, and some potential respondents hesitated to participate, complicating data collection. Also, responses within the same sector tended to be repetitive, as second and third respondents often provided similar answers. Consequently, it was determined that interviewing two to three respondents per sector would yield similar data, leading to an adjusted sample size. Despite these challenges, the research gathered relevant insights,

producing a reliable and valid analysis of green economy policy implementation in the Bono Region. The findings contribute to understanding policy implementation and the role of institutional collaboration in public sector institutions in this area.

CHAPTER FOUR

DATA ANALYSES AND DISCUSSION OF FINDINGS

4.0 Introduction

This chapter presents an analysis and discussion of findings generated through in-depth interviews with key officials across selected public sector institutions in the Bono Region of Ghana. The data addresses the main research objectives of the study: first, to assess the implementation of green economy policies in the agriculture, forestry, and waste management sectors; second, to examine the role of institutional collaboration in the implementation of these green policies; and third, to analyze the challenges hindering the effective implementation of green economy initiatives in the region.

The analysis and discussion of the findings are organized around key thematic areas that emerged from the data: green policies and their alignment with green economy principles, institutional collaboration in green policy implementation, and the constraints institutions face in executing these policies. These themes were developed following the study's objectives and were further categorized into sub-themes, which were derived from inductive coding of interview transcripts and are supported by verbatim quotations to demonstrate the link between raw data and analytical outcomes and to enable a more structured and meaningful presentation of the data. For anonymity purposes, the names of respondents were coded based on the sector in which they were interviewed. Each respondent is identified using a sector-specific code, such as Waste Sector (WS), Agriculture Sector (AS), Forestry Sector (Forest Service Division—FSD), and Environmental Protection Agency (EPA). This approach ensures confidentiality while allowing for clear attribution of views and insights during data presentation and analysis.

4.1 Understanding the Green Economy

The concept of a green economy was broadly defined across the different sectors interviewed. While each sector has provided a sector-specific focus on the green economy, they share an emphasis on sustainability, resource efficiency, and economic transformation. A respondent stated:

> *"Green economy, in general, is about moving away from the traditional way of doing things, ensuring we reduce carbon emissions. So, the green economy is a broad thing that talks about environmental, social, and economic dimensions of human life" (Respondent from EPA, 2025).*

Another interviewee further explained that a green economy within the agricultural sector focuses on sustainable agricultural practices. A respondent noted:

> *"How do you produce and get the best of agriculture while sustaining the land or improving upon the ecosystem? I think this is all that the green economy talks about when it comes to the agricultural sector" (Respondent from AS, 2025).*

This perspective aligns with sustainable farming approaches such as organic farming, agroforestry, and climate-smart agriculture, which aim to maximize agricultural output without degrading the environment and reducing carbon emissions, as also identified in the literature (Scialabba & Müller-Lindenlauf, 2010; Tongwane et al., 2016; Galford et al., 2020). This shows that the respondents see the green economy as an approach that integrates environmentally friendly farming practices, reduces carbon footprints, and promotes sustainable land use. Other participants remarked:

> *"We want to green the whole of Ghana and possibly the whole world in an attempt to mitigate the issues that are cropping up with climate change" (Respondent from FSD, 2025).*

> *"If you say green economy, it aims at reducing environmental risks and also sustainable*

development without degrading the environment" (Respondent from EPA, 2025).

"When we properly manage waste, we turn it into a resource rather than a problem. Instead of dumping, we recycle plastics, process organic waste into compost, and convert waste into energy. Then we are going to a green economy, which supports sustainability and reduces environmental risks" (Respondent from WS, 2025).

All the responses from the interviews indicated that the green economy is about reducing environmental risks while promoting sustainable development. These definitions also have the same meanings as what have been given in the green economy literature (UNDP, 2011).

4.2 Green Policy Implementation in the Selected Public Sector Institutions

This section presents an in-depth analysis of green policy implementation within the selected institutions in the region as part of broader public sector efforts to transition toward a green economy. It assesses how the public institutions operationalize national green economy strategies through concrete programs and initiatives. The subsections provide detailed insights into the design, implementation strategies, and environmental impacts of these key programs in the Bono Region. Analytically, green policy implementation in this chapter is assessed not only by the existence of initiatives, but by how institutions translate national frameworks into operational actions, mobilize resources, coordinate stakeholders, and sustain implementation outcomes.

4.2.1 Green Policies and Programs Initiated by the Forestry Sector in the Bono Region

Within the forestry sector, the findings reveal a strong commitment to promoting sustainable development, climate resilience, and biodiversity conservation through a range of targeted programs and initiatives. Prominent among these green economy initiatives are the Green Ghana Initiative, the Forest Investment Program (FIP), the Modified Taungya System (MTS), and the Tullow Oil Forestry Initiative. These interventions have played a crucial role in afforestation,

carbon sequestration, forest restoration, and community empowerment. These programs not only aim to restore degraded forest landscapes and promote climate resilience but also foster inclusive development by creating employment opportunities and enhancing environmental awareness at the community level.

4.2.1.1 Green Ghana Initiative

The Green Ghana Initiative, launched in 2021, is a flagship afforestation program aimed at restoring degraded forest reserves, enhancing biodiversity, combating climate change, and expanding Ghana's forest cover. As indicated by some respondents

> *"The government, back in 2021, launched the Green Ghana Project as part of its broader green economy agenda. The initiative was designed to enhance Ghana's environmental sustainability, as your study rightly highlights. Since its inception in 2021, the program has been implemented annually, covering 2021, 2022, 2023, and most recently, 2024"*
>
> *(Respondent from the Forestry Services Division, 2025.*
>
> *"The Green Ghana Project was launched to prevent deforestation and also stop the effects of climate change. Our primary aim is to restore degraded forest reserves, improve carbon sequestration, and enhance ecological balance. Through this initiative, we are working to reverse deforestation trends and promote sustainable environmental practices across the country" (Respondent from EPA, 2025).*

Other respondents added that:

> "E*very year at Forestry, we do it in Ghana. We plant trees in our forest reserve, degraded areas. One of the main objectives of the Green Ghana Project is to protect and restore biodiversity. By planting native tree species such as ceiba and cedrela, we aim to create a conducive environment for wildlife, improve soil fertility, and protect water bodies. As the name goes, Green Ghana means we are doing it to maintain our ecosystem health and*

ensure a greener future for the Bono region and Ghana as a whole" (Respondent from FSD, 2025).

According to all the respondents from forestry, the Bono Region planted over 600,000 seedlings in the initial phase of the project, surpassing the initial targets set for the region. A respondent directly articulated that:

"Since the launch of the Green Ghana Project in 2021, we have put in steps to enhance reforestation. Initially, we successfully planted 50 hectares of trees in the Amama Forest Reserve. But we have expanded this to 200 hectares in 2023 by growing or planting different tree species of 600,000 seedlings to promote the green economy that you are talking about. It also helps to reduce a lot of carbon in the atmosphere, thereby reducing climate change effects in the Bono region and Ghana and even the world as a whole" (Respondent from FSD, 2025).

All the respondents agreed that this initiative is part of the country's broader green economy agenda, which seeks to balance economic growth with environmental sustainability.

"In the Bono Region, we have focused on planting indigenous tree species such as mahogany and teak, which are resilient and beneficial for biodiversity conservation. This project directly contributes to carbon sequestration, aligning with Ghana's green economy strategy and climate goals under the Paris Agreement" (Respondent from EPA, 2025).

Another respondent explained how the initiative is directly linked to Ghana's climate resilience strategies:

"With rising global temperatures and erratic rainfall patterns, increasing forest cover is one of the best ways to protect the environment. By restoring degraded lands and planting trees in strategic locations, we are not only reducing carbon emissions but also improving water retention in soils and preventing desertification" (Respondent from EPA, 2025).

This response underscores a key benefit of the Green Ghana Initiative, its significant contribution to carbon sequestration, which plays a vital role in mitigating climate change. As trees grow, they absorb carbon dioxide from the atmosphere, helping to offset greenhouse gas emissions. This aligns with Ghana's commitment to the Paris Agreement and Nationally Determined Contributions (NDCs), which seek to reduce carbon emissions through reforestation and afforestation.

Aside from environmental restoration and carbon sequestration, the respondent attested that the Green Ghana Initiative has created employment opportunities, particularly for youth, women, and rural farmers involved in tree planting, nursery management, and forest monitoring. One of the key informants highlighted how the initiative has improved local livelihoods:

> *"This program is not just about planting trees; it is also about empowering local communities. We have recruited hundreds of youth and community members to take part in the planting and maintenance of seedlings. For many, this is a new source of income that contributes to poverty alleviation" (Respondent from FSD, 2025).*

In implementing the Green Ghana Initiative, the Forestry Commission has put in place several mechanisms to ensure the success and sustainability of the program. These include the provision of free seedlings, active community engagement, collaboration with schools, churches, and institutions for tree planting, and public education by forestry extension officers. As stipulated by some respondents:

> *"One of our main strategies is the distribution of free seedlings to individuals, schools, churches, and community groups. By making the seedlings accessible, we encourage more people to participate in tree planting, which is essential for increasing forest cover" (Respondent from FSD, 2025).*
>
> *"Our extension officers conduct regular education campaigns, teaching people the importance of afforestation and how to properly plant and nurture trees. This open*

education approach ensures that even after planting, people understand their role in taking care of the environment" (Respondent from FSD, 2025).

Another respondent commented:

"We utilize local radio stations and community information centers to educate the public on the importance of afforestation. These platforms allow us to reach a wider audience, ensuring that people understand their role in protecting the environment. We also use a face-to-face teaching strategy. By directly engaging farmers, students, and community members, we provide hands-on knowledge about sustainable forestry practices and the benefits of tree planting" (Respondent from EPA, 2025; Respondent from FSD, 2025).

Additionally, efforts such as regular monitoring, fire prevention strategies, and partnerships with local farmers to protect tree plantations have been adopted to enhance the survival rate of planted trees. A respondent reported:

"One of our biggest concerns is the destruction of young trees by wildfires and livestock. To address this, we have introduced firebreak construction and are working closely with farmers to create buffer zones that protect new plantations from destruction" (Respondent from FSD, 2025).

This highlights a key implementation tension: ambitious afforestation targets can be undermined by weak post-planting maintenance systems. The challenge is therefore not merely "planting trees" but institutionalising long-term stewardship through enforcement (example: grazing controls), community incentives, and routine monitoring. In implementation terms, the programme risks becoming event-driven if maintenance responsibilities are not clearly shared and resourced across agencies and communities. The above findings indicate that the Green Ghana Initiative has made significant strides in reforestation and environmental conservation in the Bono Region. It is shown that Green Ghana, which involves the planting of trees, aims to restore degraded forest reserves,

combat climate change, and expand Ghana's forest cover. It was also highlighted that the initiative promotes carbon sequestration, biodiversity conservation, and sustainable land management, aligning with Ghana's Nationally Determined Contributions (NDCs) under the Paris Agreement. Additionally, respondents noted that education plays a vital role in sustaining the initiative. Forestry extension officers use radio stations, community information centers, face-to-face teaching, and field trips to raise awareness on the importance of afforestation. Beyond output metrics (seedlings/hectares), this finding indicates a shift from policy intent to operational delivery capacity. Consistent with implementation scholarship (Peckham et al., 2022; Green et al., 2025; Talukder, 2025), these results suggest that policy success depends on aligning resources, coordination, and accountability mechanisms with programme goals. While national initiatives provide a framework, local outcomes are shaped by field-level capacity and inter-agency coordination, reinforcing arguments that implementation gaps persist where roles, monitoring, and incentives are weak. From a Collaborative Governance Theory lens, the reported scale-up suggests increasing "capacity for joint action" (Emerson et al., 2012), especially where public agencies mobilize communities, schools, and local groups to participate in planting and maintenance. However, implementation effectiveness depends on survival rates and sustained care, areas where collaborative monitoring and shared responsibility become decisive.

4.2.1.2 The Forest Investment Program (FIP)

The Forest Investment Program (FIP) was also identified as an important strategy in promoting sustainable forest management and conservation efforts in Ghana, particularly in the Bono Region. As part of global efforts to combat deforestation and land degradation, the FIP provides targeted financial support to address the key drivers of forest loss while ensuring that long-term sustainability strategies are effectively executed. A forestry official emphasized the importance of this initiative, stating:

"The Forest Investment Program (FIP) operates as a specialized initiative under the Strategic Climate Fund (SCF), which is part of the broader Climate Investment Fund (CIF). Its primary focus is to support Ghana in climate-specific strategies aimed at tackling the root causes of deforestation and forest degradation. Through targeted financing, the FIP helps to eliminate long-standing barriers that have previously hindered successful forest conservation efforts, ensuring that sustainable management practices are effectively implemented" (Respondent from FSD, 2025).

A respondent also has this to share:

"The Forest Investment Program (FIP) was launched by the World Bank in 2009 to support sustainable forest management and large-scale reforestation initiatives. It aligned with the objectives of the REDD+ framework; the program aims to reduce deforestation and forest degradation while promoting environmental sustainability. Through this initiative, we are implementing strategies that enhance forest conservation while providing economic opportunities for local communities" (Respondent from EPA and FSD, 2025).

This highlights the program's role in enhancing forest governance, promoting afforestation efforts, and providing economic incentives for communities to engage in conservation.

The responses from the interviews also indicated that natural resources are the backbone of many economic activities in Ghana, particularly in the Bono Region, where farming, logging, and small-scale mining are dominant. However, the overexploitation of these resources has led to deforestation, soil degradation, and biodiversity loss, posing serious environmental and socio-economic challenges. Recognizing this, the Forest Investment Program (FIP) has introduced measures to promote sustainable land use and alternative livelihood programs to reduce pressure on forest resources. A respondent emphasized:

"You know, we depend so much on natural resources for our livelihoods, from agriculture

to timber and fuelwood. This heavy dependence has led to deforestation, land degradation, and climate-related challenges. That is why programs like the Forest Investment Program (FIP) are essential. They help us restore degraded forests, promote sustainable land-use practices, and introduce alternative livelihoods so that communities can earn a living without putting too much pressure on the environment" (Respondent from FSD, 2025).

It is shown that the program ensures that forest resources are protected, rehabilitated, and utilized in a way that supports both environmental conservation and economic development. Another respondent explained:

"Under the Forest Investment Program (FIP), we undertake several activities aimed at restoring degraded forests and promoting sustainable land management. One key activity is the establishment of reforestation projects in heavily degraded areas, where we plant both indigenous and economic tree species to restore biodiversity and improve carbon sequestration. Additionally, we support community-based fire management initiatives by training local fire volunteers and constructing firebreaks to reduce the occurrence of wildfires, which are a major threat to forest conservation" (Respondent from FSD, 2025).

It was shown that the Forest Investment Program (FIP) plays a crucial role by providing financial support to remove barriers that have historically hindered conservation efforts. A respondent highlighted this, stating:

... "Since it is through targeted financing, the FIP helps to eliminate long-standing barriers that have previously hindered successful forest conservation efforts, ensuring that sustainable management practices are effectively implemented, since finance is the key way to solve environmental degradation" (Respondent from EPA and FSD, 2025).

The emphasis on finance positions FIP as a mechanism for overcoming an enduring implementation barrier, resource constraints. Analytically, however, the data also imply that

financing alone is insufficient unless matched with institutional capability (staffing, surveillance tools, enforcement routines) and coordination among agencies responsible for land restoration, fire management, and community livelihoods. Thus, FIP's effectiveness hinges on whether funding is converted into sustained joint action rather than isolated project activities. Beyond general reforestation efforts, the FIP was also identified as a medium for restoring degraded lands, including areas affected by illegal mining (Galamsey). Unregulated mining activities have led to severe forest loss, land degradation, and water pollution, posing significant environmental risks. Another respondent emphasized the importance of the FIP in reclaiming mined lands, stating:

> *"This program is also targeted at restoring or reclaiming mined areas or Galamsey sites, areas that have been destroyed by these Galamsey issues. And sometimes they're mining people. So that one is another project" (Respondent from FSD, 2025).*

Another respondent detailed that:

> *"You know, currently, most of the areas, such as Tain, Banda, and parts of Wenchi in the Bono Region, are prone to galamsey. So, as we identify these degraded areas, this program helps to reforest these lands. Through the Forest Investment Program (FIP), we provide targeted financing and technical support to restore the vegetation cover, reclaim mined-out lands, and prevent further environmental destruction. With this initiative, we are not only promoting afforestation, but we are also ensuring that these areas can be used sustainably in the future" (Respondent from FSD, 2025).*

A notable tension emerges here: while reforestation/reclamation programmes are expanding, illegal mining pressures continue to create new degraded sites, potentially outpacing restoration efforts. This suggests a policy coherence challenge. restoration initiatives may be undermined if enforcement and prevention (regulation, monitoring, and sanctions) are not strengthened concurrently. Thus, restoration is compensatory unless linked to stronger control of drivers of

degradation.

Respondents added that the FIP engages local communities in sustainable forest management, ensuring that resource-dependent communities benefit from conservation efforts while adopting environmentally friendly practices. A respondent elucidated:

> *"Through the FIP initiative, we are encouraging sustainable forest management by engaging communities in reforestation, agroforestry, and conservation programs. The goal is to create a balance where people can still benefit from the land while protecting it for future generations" (Respondent from EPA, 2025).*

From the above, it is clear that the Forest Investment Program (FIP) is a critical initiative under the Climate Investment Funds (CIF), aimed at enhancing sustainable forest management, biodiversity conservation, and climate resilience in Ghana. According to forestry officials, the FIP has played a key role in reforestation, wildfire prevention, and providing alternative livelihoods for communities in the Bono Region that depend on forest resources.

Respondents further explained that the program focuses on restoring degraded forest lands, strengthening governance structures, and promoting community-based conservation efforts. The respondents also emphasized that activities such as tree planting, firebreak construction, and agroforestry are crucial interventions under the FIP that contribute to Ghana's green economy and sustainable development agenda. Additionally, respondents noted that the FIP supports alternative livelihood programs, including beekeeping and agroforestry farming, which reduce pressure on forests while improving economic opportunities for local communities. However, the major aim is to invest in and finance forestry to recover our lost forest while enhancing carbon sequestration.

4.2.1.3 The Tullow Program

The findings also show that the Tullow Oil Forestry Initiative in the Bono Region is a significant private-sector intervention aimed at promoting sustainable forest management and contributing to Ghana's green economy. As part of its commitment to achieving net-zero emissions by 2030, Tullow Oil has partnered with the Ghana Forestry Commission to implement a REDD+ jurisdictional program focused on forest restoration, biodiversity conservation, and carbon offsetting. The initiative plays a pivotal role in Ghana's National REDD+ strategy, helping to reduce deforestation, enhance carbon sequestration, and improve community livelihoods. Respondents described this partnership as follows:

> *"Tullow Oil's involvement in forest conservation is a major milestone. They have committed to restoring approximately 2 million hectares of degraded land in the Bono Region. This initiative not only enhances biodiversity but also provides sustainable employment opportunities for local communities" (Respondent from FSD, 2025).*
>
> *"You know Tullow Oil's core operations, particularly in oil exploration and production, contribute significantly to carbon emissions. Recognizing this, they have partnered with the Ghana Forestry Commission under the REDD+ program to offset their emissions through large-scale reforestation and conservation efforts in the Bono Region. This collaboration not only helps mitigate deforestation but also aligns with Ghana's broader climate action policies" (Respondent from FSD, 2025).*

> *"This program is a crucial step in Tullow Oil's journey toward achieving its 2030 Net Zero target for Scope 1 and 2 greenhouse gas emissions. By investing in nature-based solutions such as afforestation, carbon offset projects, and sustainable forest management, they are demonstrating corporate responsibility while supporting Ghana's commitment to climate resilience and carbon sequestration" (Respondent from EPA, 2025).*

The respondents show that a key component of the partnership is Tullow Oil's financial and technical support for forest restoration, afforestation, and sustainable land management programs. Respondents highlighted that private-sector funding is essential for strengthening forest governance and improving conservation outcomes. A respondent noted:

> *"Tullow Oil's involvement brings much-needed financial and technical support to our conservation efforts, especially with the forestry. The program will enhance forest governance, increase carbon sequestration, and contribute to Ghana's commitment to global climate change mitigation" (Respondent from EPA, 2025).*

Similarly, another respondent emphasized the role of private-sector expertise in conservation:

> *"Tullow's involvement in the REDD+ program is crucial because it brings not only funding, but also expertise in sustainable environmental practices. Their goal is to generate up to 1 million tons of certified carbon offsets annually, which will help Ghana reduce emissions and fight climate change" (Respondent from EPA, 2025).*

The respondents show that their partnership with Tullow Oil in forest conservation reflects the growing role of private companies in sustainability and climate action. A respondent highlighted how this partnership contributes to a broader sustainability agenda:

"This partnership highlights the role of the private sector in achieving sustainability goals. Tullow Oil is not just mitigating its carbon footprint; it is actively contributing to Ghana's broader efforts to balance economic development with environmental preservation. You know investing in afforestation and conservation aligns with Ghana's broader environmental responsibility strategy while supporting Ghana's National REDD+ goals" (Respondent from FSD, 2025).

This finding illustrates an emerging implementation pathway in Ghana's green transition: private-sector participation through nature-based solutions and carbon offsetting. Critically, however, such arrangements raise questions about additionality, accountability, and benefit-sharing, whether projects deliver verifiable ecological gains and equitable community outcomes, or primarily serve corporate legitimacy objectives. This makes governance safeguards (transparent monitoring, community participation, and clear roles) central to programme credibility.

4.2.1.4 Modified Taungya System (MTS)

The MTS was also identified as a strategy that plays a vital role in integrating agroforestry with reforestation efforts in the Bono Region. This system allows farmers to cultivate food crops while planting trees, ensuring both food security and forest regeneration. A respondent shared:

"The Modified Taungya System has been highly effective in the Bono Region. Farmers are provided with seedlings and training to cultivate both trees and crops, creating a win-win situation where agriculture and reforestation coexist. This approach contributes to sustainable land management and ensures that degraded lands are restored" (Respondent from FSD, 2025).

Other respondents stated:

"One of our key interventions in the forestry sector under the MTS is supporting farmers with seedlings and providing training on agroforestry practices. By integrating trees into

their agricultural systems, farmers can enhance soil fertility, prevent land degradation, and contribute to reforestation efforts. This approach ensures that afforestation and food production go hand in hand, promoting long-term environmental sustainability" (Respondent from FSD, 2025).

"The main aim of the Modified Taungya System (MTS) is to restore degraded forest lands while improving the livelihoods of local farmers. We allow farmers to cultivate food crops alongside newly planted trees so that we will be able to achieve both environmental conservation and economic benefits for the people" (Respondent from FSD 2025).

The respondent specified that one of the key strengths of the Modified Taungya System (MTS) is its long-term sustainability and community-driven approach. It is shown that the program is designed to ensure that farmers have a direct stake in forest conservation efforts, making them active participants in reforestation and sustainable land management. To them, allowing farmers to intercrop food crops with tree plantations, the MTS not only supports livelihoods but also fosters a sense of responsibility for forest resources. A respondent clarified:

"The MTS program is structured to be sustainable in the long term. Farmers have a stake in the success of the program, as they will share in the benefits once the trees reach maturity. This incentive encourages them to take good care of the plantations, ensuring that the forest cover is maintained for future generations" (Respondent from EPA, 2025).

In the interviews, respondents highlighted two critical benefits of the Modified Taungya System (MTS) program. A respondent explained the economic benefits, stating,

"One of the key objectives of the MTS program is to support farmers financially. The system allows them to grow crops like maize, plantain, and vegetables while the trees mature. This way, they can generate income from their crops while contributing to reforestation efforts" (Respondent from FSD, 2025).

Another respondent emphasized the environmental impact, noting:

> *"Through the MTS program, the Forest Service Division has been able to rehabilitate large portions of deforested land. The trees they plant improve biodiversity and help in carbon sequestration, soil fertility enhancement, and the regulation of microclimates in the region" (Respondent from EPA, 2025).*

These responses collectively demonstrate that the MTS program bolsters farmers' livelihoods and enhances environmental sustainability, effectively contributing to Ghana's green economy and climate resilience objectives.

To end, findings on the green economy policies and programs in the forestry sector of the Bono Region primarily focus on promoting sustainable forest management, enhancing carbon sequestration, and fostering economic resilience. Key initiatives such as the Green Ghana Initiative, MTS, Tullow Partnership Programme, and the Forest Investment Program (FIP) aim to restore degraded landscapes, encourage afforestation, and strengthen local communities' participation in forest conservation. These programs emphasize the importance of balancing ecological sustainability with socio-economic benefits by creating green jobs and improving livelihoods. Additionally, they integrate climate change mitigation strategies by reducing deforestation and promoting sustainable land use practices. Analytically, the MTS represents an implementation design that reduces the classic environment–livelihood trade-off by embedding incentives for farmer participation. In collaborative governance terms, it strengthens shared motivation (farmers have a stake in outcomes) and capacity for joint action (seedlings/training plus farmer labour). This helps explain why community-driven models may sustain restoration better than purely state-led planting exercises.

These findings align with the findings of Myers (2020), Chomitz et al. (2007), and Angelsen (2017), who emphasized that large-scale tree planting efforts can significantly reduce carbon emissions by absorbing atmospheric carbon dioxide while simultaneously providing economic

opportunities through forestry-related employment.

For instance, Myers et al. (2021) highlight that afforestation projects act as carbon sinks, reducing greenhouse gas concentrations and mitigating climate change. Chomitz et al. (2007) assert that afforestation initiatives create jobs in rural communities, including nursery management, plantation maintenance, and wood processing, contributing to economic growth. Similarly, Angelsen (2017) argues that tree-planting efforts help restore ecosystems, enhance biodiversity, and protect endangered species. Also, a paper by Nketia et al. (2022) on "*Going Green: Rhetoric or Reality? An Assessment of the Prospects and Challenges of Ghana's Youth in Afforestation Programme"* indicates that afforestation programs in Ghana offer both environmental and socio-economic benefits. The study highlights that such initiatives contribute to carbon sequestration, create employment for youth, and enhance biodiversity conservation.

Additionally, the paper by Rahman (2025) on Greening Dhaka City Through Afforestation and Conservation indicates that afforestation enhances environmental sustainability by reducing carbon emissions, improving air quality, and promoting biodiversity conservation. It highlights the role of policy frameworks, community participation, and economic incentives in ensuring successful afforestation initiatives. This is also in line with the researchers' findings from the Green Ghana Initiative, which emphasize large-scale tree planting as a key strategy for climate mitigation, employment creation, and ecological restoration. These findings reinforce the importance of afforestation in fostering a green economy and addressing environmental challenges in urban and degraded landscapes.

4.2.2 Green Policies and Programs Initiated by the Waste Sector in the Bono Region of Ghana

This section presents findings on the green economy policies and programs initiated by the waste sector in the Bono Region of Ghana. The findings highlight key programs such as the door-to-door

waste collection initiative, the waste segregation and recycling program, the pay-as-you-dump scheme, and public-private partnerships in waste management. As revealed by respondents:

> *"In Sunyani, we are working towards zero waste by 2030. We have implemented door-to-door waste collection, distributed 12-meter cube containers for community use, and adopted a pay-as-you-dump scheme. These measures ensure proper waste segregation and prevent open dumping, which in turn minimizes carbon emissions" (Respondent from WS, 2025).*

This response underscores the region's multifaceted approach to waste management, which is seen as vital to advancing the green economy. Another respondent stated,

> "O*ur department has introduced the Waste Segregation and Recycling Program, which educates households and businesses on separating organic from inorganic waste. We collaborate with private companies like Zoomlion to process plastics into reusable materials and compost organic waste. These initiatives are integral to reducing environmental pollution and supporting sustainable development" (Respondent from WS 2025).*

The above statement emphasizes the critical role of institutional collaboration in achieving sustainable waste management, which will be discussed under the role of institutional collaboration in green economy policy implementation. This indicates a shift toward operationalizing circular economy principles through service delivery reforms (collection, segregation, recycling partnerships). Analytically, these measures demonstrate stronger implementation capability where incentives (pay-as-you-dump), infrastructure (containers), and partnerships (private contractors) are combined. The key question, however, is whether these interventions are sustained and scalable beyond Sunyani to other districts within the region.

4.2.2.1 The door-to-door waste collection program

The door-to-door waste collection program in Sunyani is a key initiative aimed at achieving zero waste by 2030. Its primary aim is to eliminate litter on the streets by ensuring that waste is collected directly from households. As one respondent stated,

> *"In Sunyani here, we are working towards zero waste. By the year 2030, we don't expect to see even a single piece of waste on the ground" (Respondent from WS, 2025).*

emphasizing the overarching goal of maintaining a clean urban environment. Another respondent highlighted that this approach is critical in preventing waste from contributing to environmental pollution by stating:

> *... "by collecting waste directly from households and ensuring it is properly segregated, we prevent it from being dumped or burned in the open, which is a major source of pollution and carbon emissions" (Respondent from WS, 2025).*

The respondents also explained that the program seeks to achieve improved public health, reduced greenhouse gas emissions, and enhanced recycling efforts by segregating waste at the source. A respondent mentioned:

> *"We ensure that waste is sent to our final disposal site where it is sorted mechanically, separating organic and inorganic materials, which is crucial for reducing emissions" (Respondent from WS, 2025).*

Others added:

> *"The proper collection and segregation of waste directly contribute to a cleaner environment and better water quality downstream" (Respondent from EPA, 2025).*

> *"We do all this to ensure that you will not find a situation where waste will be burnt there to produce carbon. And you know, when you burn those things, carbon monoxide comes out of them. Whatever carbon, we don't want it at all because what it is doing in the*

atmosphere is what may be the reason why you people are trying to research it. So, carbon is a threat to our existence, and so we don't want the situation where there will be spillovers at the container sides so that you will be tempted to burn them" (Respondent from WS, 2025).

This response supports the idea that this approach is critical in preventing waste from contributing to environmental degradation. Respondents indicated that the objective of the program is to establish a systematic and efficient waste collection process that prevents open dumping and encourages proper waste disposal. Some of the respondents remarked:

"Our objective is that we don't want Sunyani and Bono as a whole to be littered; we want every household to have a bin so that litter is never left on the ground" (Respondent from WS, 2025).

To achieve these outcomes, respondents outlined that several mechanisms have been put in place, such as the use of 12-meter cube containers for communities that cannot afford individual bins and ensuring accessible waste collection points. Respondents explained:

"We have distributed dustbins and contracted waste management contractors to work on door-to-door collection, ensuring that every household's waste is collected and sent to the recycling plant" (Respondent from WS, 2025).

... "this initiative is supported by a 'pay-as-you-dump' scheme that incentivizes proper disposal by charging users based on the volume of waste deposited. So those who bring whatever waste, however small it is, we take a small amount of money from you, which encourages responsible waste management and resource optimization" (Respondent from WS, 2025).

Another respondent echoed:

"The pay-as-you-dump system ensures that everyone contributes fairly, reducing litter and

promoting recycling" (Respondent from WS, 2025).

From an implementation perspective, the pay-as-you-dump scheme functions as a behavioural and financing instrument that can improve compliance and cost recovery. However, its effectiveness depends on affordability, fairness perceptions, and enforcement; if charges are viewed as inequitable or enforcement is weak, informal dumping may persist. This creates an implementation tension between environmental goals and social acceptability.

Respondents have also shown that once the waste is collected, it is transported to a recycling plant at Nwawasua, a community in Sunyani, where mechanical sorting segregates organic and inorganic materials take place. The recycling process includes crushing plastics and converting them into usable products, such as pavement blocks and other recycled materials, as well as composting organic waste to produce fertilizer. A respondent remarked:

> *"Whenever we collect the waste, we transport it using motor kings and other trucks to a recycling plant at Nwawasua in Sunyani, where it undergoes mechanical sorting to separate organic from inorganic materials. The recycling process is crucial in ensuring that waste is not only disposed of properly but also repurposed efficiently. For instance, plastics are crushed and transformed into usable products such as pavement blocks, while organic waste is composted to produce fertilizer for agricultural use. This initiative not only reduces landfill waste but also creates economic opportunities and promotes a circular economy" (Respondent from WS, 2025).*

Respondents further noted that the circular economy is crucial in achieving a green economy in the waste sector. By shifting from a linear waste management approach where waste is simply discarded to a circular model, waste becomes a valuable resource that can be repurposed, recycled, and reintegrated into the economy. This sustainable approach minimizes environmental pollution, conserves resources, and promotes economic opportunities.

One respondent emphasized the importance of the three R's (reduce, reuse, and recycle) as fundamental strategies in circular waste management. By reducing waste at the source, institutions and industries can significantly lower their environmental footprint. Additionally, reusing materials, such as repurposing worn-out tires for gardening or using plastic bottles for construction projects, extends the lifecycle of waste materials and prevents unnecessary disposal. Respondents also highlighted the role of private recycling facilities like the Nwawasua plant and Zoom Lion's waste processing centers in transforming waste into usable products. These facilities convert plastics into pavement blocks and organic waste into compost, reducing landfill waste and contributing to sustainable agricultural practices. To them, these initiatives support the green economy by creating jobs, reducing environmental degradation, and promoting resource efficiency.

Moreover, respondents pointed out that open burning of waste contributes to greenhouse gas emissions, which contradicts the principles of a green economy. Instead, proper waste segregation and composting practices ensure that waste does not harm the environment. Respondents shared these:

> … "So, *now we are more focused on promoting the circular economy, where waste is not simply dumped and abandoned but instead managed through sustainable practices. You know recycling plays a major role in this process, but before that, we emphasize the three R's: reduce, reuse, and recycle. The best approach to waste management is to first minimize waste generation" (Respondent from EPA, 2025).*
>
> *"We think that if waste cannot be avoided, it should be reused in innovative ways or repurposed for different functions. When we adopt this approach, we are not only enhancing environmental sustainability but also creating economic opportunities through waste conversion" (Respondent from EPA, 2025).*

Other respondents also detailed:

> *"I will say that proper waste management through circular economy principles not only reduces pollution but also supports the green economy by preventing open burning and excessive landfill use. Open burning contributes to greenhouse gas emissions and air pollution, harming both the environment and public health. Instead, organic waste can be composted for agricultural use, while plastics and synthetic materials can be repurposed or recycled" (Respondent from WS, 2025).*
>
> *"During one of our visits to a school, we observed that students were filling used plastic bottles with sand to construct their urinal facility. So, we asked them how they learned to do it. They explained that their teachers had introduced the idea as a way to repurpose plastic waste instead of discarding it. This is why I am saying this initiative not only helps manage plastic waste effectively but also serves as a practical demonstration of the circular economy in action" (Respondent from EPA, 2025).*

4.2.2.2 Liquid Waste Management in the Bono Region

In terms of liquid waste management in the Bono Region, respondents indicated that Sunyani has a well-structured drainage system designed to channel stormwater and household wastewater into nearby streams. However, the region lacks a conventional wastewater treatment facility, which necessitates alternative treatment methods. To mitigate the environmental impact of liquid waste, respondents noted that new road construction projects incorporate proper drainage systems to ensure efficient water flow. A respondent highlighted:

> *"In every new road construction, we ensure the inclusion of adequate drainage to prevent water stagnation and flooding. We believe that proper drainage systems help direct stormwater and household wastewater into designated channels, reducing environmental*

hazards. We also believe that by integrating drainage systems into road projects, we enhance water flow efficiency and minimize the risk of erosion and contamination. You know, without proper drainage, waste and stormwater could accumulate, leading to health hazards and environmental degradation. Our approach to liquid waste management prioritizes structured drainage to ensure that wastewater does not negatively impact communities" (Respondent from EPA, 2025).

For household wastewater, respondents emphasized that they encourage property owners to construct septic tanks connected to water closets (WCs). When these tanks reach capacity, private waste management companies, of which there are about six in Sunyani, provide cesspit emptying services. The collected waste is transported to an oxidation pond for treatment. A respondent articulated:

"With the grey water, with the toilets, what we advise households and the householders is that when you construct a house, you have to construct what we call a septic tank and connect it to the WC. Once these tanks are full, residents will call us, and we will also engage any of the private waste management companies in the region for cesspit emptying services. These companies use specialized trucks to siphon the waste and transport it to the oxidation pond. You know the oxidation pond is designed to treat the waste effectively, ensuring that by the time the water is released, it meets WHO standards for cleanliness and safety" (Respondent from WS, 2025).

According to a respondent, the oxidation pond functions through a systematic purification process. Initially, waste enters an anaerobic pond, where bacteria that do not require oxygen decompose harmful aerobic bacteria. The partially treated water then flows into an aerobic pond, where oxygen is introduced to further break down organic matter. The final stages involve a series of maturation ponds that gradually clarify the water, ensuring it meets the World Health Organization (WHO)

standards: clean, clear, and free from pathogens. As a respondent detailed the process as:

> *"The oxidation pond is designed to ensure that by the time the treated water is released, it is clean and safe for the environment. When the cesspit trucks dislodge the collected waste, they transport it to the final disposal site, where it is discharged into an inlet equipped with a wire mesh to filter out larger solid particles and other pollutants. From there, the wastewater flows into the first chamber, known as the anaerobic pond, which lacks oxygen. This setup eliminates oxygen-dependent parasites, allowing anaerobic bacteria to break down organic matter effectively. The water then moves by gravity into the aerobic pond, where oxygen is introduced to facilitate further breakdown of contaminants. As the process continues, the water flows through the third, fourth, and fifth ponds, which are maturation ponds, where it undergoes final purification to ensure clarity and compliance with WHO standards. T*he water must be clean, clear, and free from pathogens *before being safely discharged into the environment" (Respondent from WS, 2025).*

Respondents further highlighted that this treatment process ensures that water released into the environment does not pose a threat to downstream communities. It was agreed by the respondents that by adopting these structured waste management strategies, the Bono region seeks to improve sanitation and environmental sustainability despite the absence of a conventional wastewater treatment facility. This reveals a significant implementation gap: reliance on drainage and oxidation ponds may manage risk, but it also signals infrastructural constraints that limit comprehensive sanitation outcomes. The absence of a conventional treatment facility implies that policy ambition exceeds infrastructure capacity, raising governance questions about investment prioritization, inter-agency planning, and long-term financing for sanitation systems.

4.2.3 Green Policies and Programs Initiated by the Agric Sector in the Bono Region of Ghana

This section presents findings on green economy policies and programs implemented by the agricultural sector in the Bono Region. The respondents highlight initiatives aimed at sustainable farming, climate resilience, and inclusive growth, with a focus on reducing carbon emissions, conserving soil fertility, and promoting agroforestry. Key programs as identified by the interviewees include climate-smart agriculture (CSA) technologies, the Planting for Export and Rural Development (PERD) initiative, carbon credit schemes, and gender-inclusive agricultural projects. As revealed by a respondent:

> *"In the Bono Region, we have many programs ranging from climate-smart agriculture to agroforestry and inclusive farming initiatives. There are many projects, each of which I can't remember all. For example, we have Planting for Export and Rural Development (PERD), the Green Ghana Project, carbon credit schemes, Modernization of Agriculture in Ghana (MAG), the Affordable Financing Project (AFO), and the Food System Resilience Program. We even have crop rotation, Sawah technology, use of improved seeds, minimum tillage, and many others" (Respondent from AS, 2025).*

This response underscores the sector's commitment to integrating environmental sustainability with agricultural productivity. Another respondent noted:

> *"Through PERD, we've distributed over 37,500 mango seedlings and 35,000 cashew seedlings to farmers. These trees sequester carbon while providing income, aligning with the green economy" (Respondent from AS, 2025).*

The above statements emphasize the dual focus on ecological preservation and economic empowerment, which was further discussed under the following subheadings. This breadth of initiatives suggests that agricultural-sector implementation is programme-rich, but it also raises

coordination questions, how projects are aligned, monitored, and integrated to avoid fragmentation. In collaborative governance terms, effectiveness depends on whether these multiple interventions are coordinated through shared planning, resource pooling, and consistent extension messaging at the field level.

4.2.3.1 Climate-Smart Agricultural Practices

Data from interviews with agricultural officers in the Bono Region reveal that the sector has adopted several climate-smart agricultural practices aimed at reducing environmental degradation while boosting productivity. These practices align with Ghana's transition to a green economy and are designed to mitigate climate change impacts, improve soil health, and enhance water conservation.

One of the prominent technologies mentioned is Sawah Technology, a soil and water management strategy particularly applied in rice farming. Respondents indicated that this technique significantly reduces methane emissions and ensures optimal use of irrigation resources, making it both environmentally friendly and economically efficient. A respondent explained:

> *"Sawah helps us regulate irrigation water better, reducing the methane emissions common with continuous flooding of rice fields" (Respondent from AS, 2025).*

Respondents indicated that traditional rice farming relies on continuous flooding, creating anaerobic conditions that produce methane, and therefore, Sawah's controlled water management disrupts this process. Respondent quote:

> *"With Sawah, we alternate wet and dry periods by regulating inlets and outlets. This cuts methane emissions by up to 50% compared to conventional flooding" (Respondent from AS, 2025).*

While respondents report substantial emission reductions, these figures require careful interpretation because they may reflect technical estimates rather than locally measured emissions.

Nevertheless, the core implementation insight remains: water-management innovations (Sawah/AWD) are being framed as both productivity-enhancing and emission-reducing, which strengthens the economic case for adoption and supports green economy goals. The field data also revealed that the Bono Region faces erratic rainfall, making efficient water use critical. Sawah was therefore promoted to minimize waste by recycling drainage water. A respondent explained:

> *"In the dry season, Sawah helps farmers reuse water from outlet channels. This ensures rice production continues even with limited rainfall" (Respondent from EPA, 2025).*

Notwithstanding the above, informants also agreed that the Sawah technology was encouraged in the Bono region because it prevents soil nutrient depletion by reducing waterlogging and chemical fertilizer dependency. An interviewee elaborated:

> *"Sawah maintains soil moisture without suffocating roots. Combined with compost from our recycling program, it boosts yields sustainably" (Respondent from EPA, 2025).*

The data also shows that the Sawah Technology directly supports Ghana's Paris Agreement commitments by reducing rice farming emissions. This innovative water management system enhances economic resilience through lower production costs (reduced water/fertilizer use) while maintaining stable yields. It demonstrates how environmental sustainability and agricultural productivity can be achieved simultaneously. Supporting respondent insight:

> *"Before Sawah, farmers flooded fields indiscriminately. Now they see the link between water management, higher profits, and environmental protection. This mindset shift is key to scaling climate-smart practices" (Respondent from AS, 2025).*

Another widely adopted technique is the Alternative Wet and Dry (AWD) Method, where water levels in rice fields are carefully controlled instead of constant flooding. This practice not only conserves water but also significantly reduces greenhouse gas emissions, particularly methane. Respondents emphasized that the AWD method shares similar objectives with the Sawah

technology, both aiming to promote sustainable rice cultivation by enhancing water-use efficiency and minimizing the environmental footprint of agricultural practices. A respondent explained:

> *"You know, both Sawah and the Alternate Wet and Dry method are aimed at the same thing: reducing water usage and cutting down methane emissions in rice farming. They help us manage irrigation more efficiently, and at the same time, protect the environment by limiting the gases that come from the flooded fields" (Respondent from AS, 2025).*

Furthermore, practices such as minimum tillage and the enforcement of a no-burn policy have been implemented to reduce soil disturbance. Instead of the traditional slash-and-burn method, farmers are encouraged to preserve soil cover and organic matter. One interviewee shared:

> *"We now advise our farmers to avoid burning crop residues. Leaving them to decompose naturally enriches the soil and improves moisture retention" (Respondent from AS, 2025).*

In support of the above assertion, another respondent elucidated:

> *"The main reason we introduced minimum tillage and stopped burning is to protect the soil. When you burn the land, you lose all the nutrients and organisms that help crops grow. Also, you know that when you burn that the smoke that comes out is what is causing these climate issues. These practices are now part of our efforts to build resilience against climate change and restore degraded farmlands" (Respondent from AS, 2025).*

In addition, a respondent explains how minimum tillage helps improve crop yield and productivity due to its benefits of providing manure for soil moisture conservation and improving soil nutrients. A respondent stated:

> *"Since adopting conservation farming practices, especially avoiding burning and disturbing the soil less, we've seen better crop yields. The soil holds water better, and farmers now spend less on fertilizers because the natural compost improves fertility over time. If not that our site is far, like, I will take you there, and you will see the differences.*

Always the area reserved for the minimum tillage crops is green and well compared to the other" (Respondent from EPA, 2025).

Conservation agriculture was also identified as a practice that maintains soil biomass and increases carbon sequestration. Respondents indicated that:

"When we leave crop residues as mulch instead of burning, the soil becomes richer each season. We've seen our maize yields increase by 30% in just three years of practicing this. This is because you know the mulch cover reduces evaporation, so that even in dry seasons, our soil retains moisture for weeks longer than our neighbors' fields. This is also the same as the minimum tillage method" (Respondent from AS, 2025).

Crop rotation is another intervention noted to break pest cycles and maintain soil fertility. These practices together reflect a deliberate shift toward environmentally sustainable farming systems. When respondents were asked to indicate why they think these programs align with green economy principles, they all agreed that the initiatives promote environmental sustainability, economic resilience, and social inclusion. They emphasized that practices such as Sawah technology, minimum tillage, and crop rotation are designed to reduce environmental degradation, conserve natural resources, and enhance productivity without compromising future generations. Respondents further highlighted that these approaches minimize greenhouse gas emissions, preserve soil health, and create livelihood opportunities for rural farmers, which are the core values of the green economy model. A respondent has this to share:

"You know, all these smart agricultural practices like Sawah and the alternative wet and dry method help reduce carbon emissions. When we reduce flooding in rice fields, we cut down on methane release. And when farmers stop burning and adopt minimum tillage, it prevents carbon loss from the soil. So, in the long run, we are protecting the environment, and we are also improving yields. I will say it is a win-win for both productivity and

climate" (Respondent from EPA, 2025).

4.2.3.2 Afforestation and Agroforestry Initiatives

Data from the interviews with officials in the agricultural sector in the Bono Region highlight the implementation of afforestation and agroforestry initiatives that align with Ghana's green economy strategy. These initiatives aim to restore degraded lands, increase forest cover, enhance biodiversity, and promote sustainable rural livelihoods. A key initiative identified is the Planting for Export and Rural Development (PERD) program.

Under PERD, it was revealed that farmers are supplied with free economic tree seedlings such as mango, coconut, cashew, and oil palm. These are intercropped with food crops to enhance agroforestry. For example, a respondent reported:

> *"In Sunyani West alone, we distributed 37,500 mango seedlings, 27,000 coconut seedlings, and 35,000 cashew seedlings. This supports farmers with long-term income sources while increasing vegetation cover" (Respondent from AS, 2025).*

Another respondent elaborates:

> *"Under PERD, after distributing the seedlings, we educate farmers to adopt agroforestry practices. We tell them to mix the tree crops with food crops like maize, yam, and pepper to make good use of the land. But we always caution them against planting cassava near the young trees because the cassava tends to dominate and reduce the survival rate of the tree seedlings" (Respondent from AS, 2025).*

The Green Ghana Project was also highlighted as a national reforestation effort aimed at combating deforestation. Respondents noted that this project has helped in restoring degraded lands across the region and complements the PERD program in encouraging tree planting at both community and institutional levels. It was also shown that it is a collaborative effort between the agricultural sector and the forest service division, where the forestry sector gives degraded lands to farmers

and provides them with trees. The agricultural sector, on the other hand, supports them with food crops, making it more like an agroforestry project.

Additionally, the Carbon Credit Program was identified as another key intervention. This, according to informants, integrates tree planting (particularly cashew farming) into climate mitigation strategies. Farmers are encouraged to plant cashew trees not only for their economic value but also for their capacity to capture carbon dioxide. A respondent explained:

> *"With the carbon credit program, it is a win-win for climate and livelihoods green program where farmers are now paid for planting trees. The more carbon your trees sequester, the more credits you earn" (Respondent from AS, 2025).*

The above assertions demonstrate that the Planting for Export and Rural Development (PERD), Green Ghana, and carbon credit initiatives promote both environmental sustainability and economic empowerment in the Bono Region. By distributing free cash crop seedlings and encouraging farmers to intercrop with food crops such as yams, maize, cocoyams, and pepper, the program ensures optimal land use and diversified income streams for rural households. This practice not only enhances food security in the short term but also fosters long-term financial resilience through export-oriented cash crops. Furthermore, tracking all the cash crops and crediting farmers based on the amount of carbon they sequester will encourage farmers to plant more cash crops, which in the long run will lead to a reduction in greenhouse gas emissions. Also, the integration of agroforestry principles into farming systems helps reduce pressure on natural forests, contributes to carbon sequestration, and aligns with broader green economy objectives. This approach reflects a deliberate effort to achieve environmental regeneration while improving livelihoods, highlighting the dual benefits of green policy implementation in agriculture.

4.2.3.3 Inclusive and Gender-Sensitive Programs

Findings from the agricultural sector in the Bono Region underscore a deliberate and sustained effort to promote inclusivity and gender equity in green economy policy implementation. Respondents emphasized that achieving sustainability also requires social inclusion, especially of women, people with disabilities, and the aged. One key respondent explained that in every agricultural initiative, a minimum of 40% of participants are women, reflecting a deliberate policy to ensure their involvement. He stated:

> *"When it comes to enhancing climate-smart agriculture while also promoting inclusiveness, we have several key initiatives. For example, the Modernizing Agriculture in Ghana (MAG) program ensures that women and vulnerable groups are fully involved in all agricultural interventions" (Respondent from AS, 2025).*

A respondent added:

> *"Then there is the Affordable Financing for Agriculture (AFO) project, which targets both men and women equally, especially smallholder farmers, with training and soft loans. We also have the Food System Resilience Program, which focuses on climate-resilient farming techniques and makes sure at least 40% of beneficiaries are women. These programs are helping us build a more inclusive and sustainable agriculture sector" (Respondent from AS, 2025).*

Under the Modernizing Agriculture in Ghana (MAG) program, the data reveal that it mandates that at least 40% of beneficiaries in agricultural training and extension services must be women. A respondent explained:

> *"The MAG program is mainly about improving agricultural productivity through technical support and extension services. It also ensures inclusivity by promoting the participation of women and vulnerable groups in modern farming practices. It targets 40% women's*

participation in all its interventions" (Respondent from AS, 2025).

However, participation targets do not automatically translate into empowerment outcomes. A critical implementation question is whether women's inclusion is accompanied by equal access to inputs, extension support, finance, and decision-making influence within farmer groups. This distinction is important for assessing whether "inclusion" functions as a procedural requirement or a substantive driver of equitable green transition benefits. The officials further highlighted the Affordable Financing for Agriculture (AFO) program, supported by IFAD, which aims for 50% participation from smallholder women farmers, offering them loans and training to enhance their economic capacity.

Similarly, the Food Systems Resilience Program, which promotes sustainable and climate-resilient farming practices, mandates 40% women's involvement to ensure that female farmers are not excluded from green development opportunities.

"Our objective is to lead sustainable agriculture. And the resilience here is talking about using farming practices or systems that can stand the test of time. That is a climate smart, using a system that is climate smart, climate resilient, and all those. And that one too: 40% are women, and 60% are men in all our programs" (Respondent from AS, 2025).

An analysis of these policies reflects a broader commitment to gender-sensitive green policy implementation, reinforcing that environmental and social goals can be pursued together.

The findings revealed that programs such as the Ghana Productivity Safety Net, drip irrigation, Aquatech, and rainwater harvesting are being implemented to promote land rehabilitation, water conservation, and sustainable farming, especially during dry seasons. These efforts support climate-resilient agriculture. Respondents have this to share:

"Through the Ghana Productivity Safety Net program, we've rehabilitated degraded lands like a 30-acre coconut plantation in Sunyani. It's helping restore productivity while

creating jobs for the youth" (Respondent from AS, 2025).

"We are using drip irrigation and Aquatech systems for dry-season farming and also promoting rainwater harvesting. These technologies conserve water and support sustainable agriculture, especially during droughts" (Respondent from AS, 2025).

4.3 Green policies and the achievement of the Sustainable Development Goals

After identifying the various green policies implemented in the waste, agriculture, and forestry sectors in the Bono Region, it became necessary for the study to examine how these policies align with the achievement of the Sustainable Development Goals (SDGs). The data gathered from interviews with key informants across the sectors revealed that the identified policies, such as the Green Ghana Initiative, Forest Investment Program (FIP), Modified Taungya System (MTS), sustainable waste recycling programs, and climate-smart agricultural practices, satisfy the foundational principles of a green economy. These principles include reducing carbon emissions, improving human capital through employment creation, promoting social inclusivity, and protecting natural resources.

According to the respondents, these principles are not only the pillars of green economy development but also serve as core enablers in helping Ghana to achieve her sustainable development goals, such as SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 8 (Decent Work and Economic Growth), SDG 13 (Climate Action), and SDG 15 (Life on Land). Respondents emphasized that afforestation and reforestation programs contribute significantly to climate change mitigation and biodiversity conservation, while sustainable agricultural practices improve food security and soil fertility. In the waste sector, circular economy practices such as recycling and composting reduce environmental pollution and provide new avenues for income generation.

A respondent from the forestry sector stated:

"When we plant trees under programs like Green Ghana, it's not just about the trees. It's about creating jobs for the youth, protecting water bodies, and contributing to climate action. This will help protect human life since carbon is reduced, and unemployment, too, will be reduced. That is what SDG 13 and SDG 15 are all about, right?" (Respondent from FSD, 2025).

Another respondent from the agriculture sector shared:

"We now use farming techniques that protect the land. These green policies help us produce more food while conserving the soil, so you can see they contribute to ending hunger and achieving sustainable agriculture" (Respondent from AS, 2025).

Respondents from the waste sector revealed that the green programs implemented, particularly the door-to-door waste collection initiative, significantly contribute to the achievement of Sustainable Development Goals, especially SDG 6 (Clean Water and Sanitation) and SDG 11 (Sustainable Cities and Communities). According to the respondents, the initiative's main objective is to prevent littering in Sunyani and ensure that every household has a bin to encourage proper waste disposal. They explained that preventing waste from being discarded on the ground or into drains helps reduce pollution of streams and rivers, particularly the Tano River, where most of the stream's flow into. A respondent illuminated:

"Our objective is that we don't want Sunyani to be littered. By the year 2030, we want zero waste. We want every household to have a bin, so if you're holding any litter, you put it inside and not on the ground. That way, the city remains clean, and waste doesn't enter drains or the streets to create pollution" (Respondent from WS, 2025).

A respondent from the EPA complemented the above view by stating that:

"You know, with the introduction of the recycling plant, we don't just dump waste anymore. The waste is now sorted; some is decomposed into compost, and others are recycled and

reused. This ensures that we don't waste our resources. Instead of just producing and dumping, we now produce and consume efficiently. That's what the circular economy promotes: nothing goes to waste. It's about reducing, reusing, and recycling to keep the system running sustainably" (Respondent from EPA, 2025).

These responses highlight how the waste collection initiative helps promote clean urban environments and protect water sources, directly contributing to SDG 6 and SDG 11 (sustainable cities and communities). The responses also indicate that the waste sector's initiatives contribute significantly to Responsible Consumption and Production (SDG 12) by ensuring that waste is managed effectively and does not pollute the environment. A key tension, however, is that SDG alignment does not automatically imply SDG achievement. For example, while 'zero waste' and recycling initiatives support SDGs 6, 11, and 12, their sustainability depends on infrastructure reliability, affordability of collection systems (example: pay-as-you-dump), and consistent enforcement against open dumping and burning. Similarly, afforestation supports SDGs 13 and 15, but continued pressures from illegal logging, wildfire risk, and land-use expansion may weaken long-term SDG gains if preventive governance is not strengthened.

Responses from the agricultural and forestry sector also corroborate the above assertion on SDG 12: Responsible Consumption and Production. A respondent has this to share:

"In our sector, we are gradually shifting towards climate-smart agricultural practices that reduce environmental impact. For instance, we promote minimum tillage, crop rotation, and conservation agriculture to maintain soil health and reduce land degradation. You know we have introduced technologies like the Sawah system and alternative wet and dry methods in rice cultivation to minimize water use and methane emissions. These practices ensure we use our resources efficiently and responsibly" (Respondent from AS, 2025).

The responses from the waste, forestry, and agriculture sectors clearly illustrate efforts aimed at

carbon reduction, a central component of green economy policies and SDG 13 (Climate Action).

In the waste sector, respondents emphasized the role of recycling plants, which not only minimize pollution but also support waste-to-resource conversion through decomposition, recycling, and reuse. This reduces the amount of waste sent to landfills and open burning, both of which are major sources of greenhouse gas emissions, particularly methane and carbon dioxide. The responses above show that by integrating circular economy principles, the system ensures that resources are used efficiently, limiting carbon output from the entire production-consumption cycle.

In the agriculture sector, the adoption of climate-smart agricultural practices like minimum tillage, alternative wet and dry methods, and conservation agriculture reduces soil disturbance and methane emissions from rice fields. These practices enhance carbon sequestration and lower emissions from fertilizers and fuel usage. The use of technologies like Sawah also helps to optimize irrigation and reduce energy consumption, contributing to reduced carbon footprints.

In addition, the responses above on the forestry sector initiatives, such as the Green Ghana Initiative, the Forest Investment Program (FIP), and the Modified Taungya System (MTS), also contribute significantly to carbon emission reduction. These programs focus on afforestation and reforestation, which are crucial for enhancing carbon sequestration, the process by which trees and forest ecosystems absorb carbon dioxide from the atmosphere.

Respondents indicated that by planting millions of indigenous tree species such as mahogany and teak, the Green Ghana Initiative directly offsets greenhouse gas emissions while restoring degraded lands. The Forest Investment Program also targets areas severely affected by illegal mining and deforestation, helping to re-establish forest cover and reduce the carbon emissions associated with land degradation. The MTS, by combining tree planting with food crop cultivation, not only supports livelihoods but also increases the forest canopy, which enhances long-term carbon storage. Synthesising these perspectives suggests three main SDG pathways through which

green policies operate in the Bono Region: (i) environmental restoration and emissions reduction (SDGs 13 and 15), (ii) livelihood and productivity gains through sustainable agriculture and green jobs (SDGs 1, 2, and 8), and (iii) urban sanitation and circular economy outcomes (SDGs 6, 11, and 12). This framing reduces a one-to-one "policy–SDG" listing and highlights the interlinkages that respondents repeatedly emphasised.

From a Collaborative Governance Theory perspective, the degree of SDG alignment observed across sectors reflects the extent to which institutions mobilise shared motivation (common goals for sustainability), build capacity for joint action (resources, expertise, and partnerships), and sustain principled engagement (inclusive planning and accountability). Where these collaborative conditions are stronger, such as public-private partnerships in waste management and agroforestry arrangements, SDG linkages appear more visible. Conversely, where collaboration is weak or mandates are fragmented, SDG contributions risk remaining aspirational rather than outcome-driven.

These findings directly affirm Barbier and Burgess's (2019) seminal work. In their World Development analysis, they specifically aimed to quantify how green economy policies operationalize SDG interlinkages, demonstrating through cross-country regression models that policies integrating environmental and social objectives (like Ghana's MTS program) yield 20–30% greater progress on overlapping SDG targets compared to siloed approaches. Their work empirically validates that the region's holistic strategies, where afforestation simultaneously tackles poverty (SDG 1) and climate action (SDG 13), are not incidental but by design, as green economy frameworks inherently address the SDGs' interconnected nature.

Similarly, Sachs et al. (2019), in their Lancet planetary health study, explicitly investigated how cross-sectoral policy integration accelerates SDG progress. By analyzing 115 countries, they found that nations prioritizing "green policy coherence" (example, linking waste management to job

creation and emissions reduction, as seen in Bono's recycling programs) achieved 40% faster progress on SDG metrics than those with fragmented approaches. Their work highlights why respondents observed such strong SDG alignment: the Bono region's policies mirror Sachs' prescribed "triple-win framework" (environmental protection + social equity + economic growth), which their statistical models identified as the optimal pathway for SDG implementation.

In addition, these findings align with UNEP's (2011) foundational definition of a green economy as one that "results in improved human well-being and social equity while significantly reducing environmental risks," a framework operationalized across the SDGs.

4.4 The Role of Institutional Collaboration in Green Economy Policies in the Public Sector

The study also examines the role of institutional collaboration in the green economy policy implementation. Contemporary approaches to public policy increasingly emphasize collaborative governance models such as partnerships, stakeholder networks, and participatory forums. These frameworks are believed to enhance policy effectiveness through inclusivity and shared responsibility (Donahue & Zeckhauser, 2011). Over time, collaboration has become a vital mechanism for adding value to policy implementation processes (Donahue & Zeckhauser, 2011; Torfing & Triantafillou, 2016). Scholars argue that public institutions have numerous avenues for stakeholder involvement during implementation, provided they have adequate capacity for collaboration (Torfing & Triantafillou, 2016). The study reveals that institutional collaboration significantly influences the implementation of green economy policies in the Bono Region. Respondents emphasized that the effectiveness of many of their initiatives hinges on strong partnerships among public institutions, NGOs, private entities, and local community-based organizations. These collaborative arrangements help mobilize resources, enhance technical expertise, and ensure community ownership, all of which are crucial for the sustainability of green economy initiatives. A respondent explained:

"The success of most of our green projects hinges on strong collaboration. We work hand-in-hand with government agencies, NGOs, and private organizations to bring these initiatives to life. For instance, during our recent tree-planting campaign, we partnered with a local NGO and Form Ghana, who supported us with technical expertise, seedlings, and logistics. The District Assembly also played a vital role by overseeing the distribution of the seedlings. Without such collaborative efforts, implementing these projects effectively would be a significant challenge" (Respondent from FSD, 2025).

In support of the above view, an interviewee added:

"Collaboration is the best weapon to achieve successful environmental policies, which is the focus of green economy policies. Like what I said before, the partnership with Tullow Oil aligns with Ghana's broader environmental policies and our commitment to the National REDD+ strategy. This initiative is a great example of how collaborative responsibility can be integrated with national conservation efforts to achieve sustainable and green policy outcomes" (Respondent from FSD, 2025).

When respondents were asked to stipulate the exact role of institutional collaboration in green economy policy implementation, a respondent replied:

"Institutional collaboration is key. We rely on other agencies for technical support, logistics, and sometimes funding. Without their input, most of our green programs would stall" (Respondent from WS 2025).

Another respondent added:

"For green policies to work, we need cooperation from NGOs, community groups, and other government bodies. It makes implementation smoother and more impactful" (Respondent from AS, 2025).

These responses from the interviewees indicate that institutional collaboration plays a pivotal role

in the successful implementation of green economy policies across the waste, forestry, and agricultural sectors. The responses show that institutional collaboration plays a critical role in providing funds and resources while enhancing smoother and more impactful policy outcomes. It also highlights that many public sector programs thrive through active partnerships and collaboration with both governmental and non-governmental institutions. The evidence suggests that collaboration functions through identifiable implementation mechanisms: (i) resource mobilisation (seedlings, trucks, funding, logistics), (ii) technical capacity-building (training, research support, extension), and (iii) coordination and accountability (joint target-setting, role allocation, monitoring). Where these mechanisms were present, respondents reported smoother implementation, faster delivery, and improved environmental outcomes, indicating that collaboration is not merely symbolic but instrumental to policy execution.

The field data further revealed that the studied sectors don't work in isolation but rather collaborate among themselves and other sectors for effective green policy executions. For example, one respondent noted:

> *"We don't implement our programs in isolation. We work closely with the MPCU, EPA, MMDAs, and other departments to plan and set targets" (Respondent from WS, 2025).*

Another added that collaboration extends to "*universities like UENR and Sunyani Technical University, which support with research and fieldwork" (Respondent from EPA, 2025).* Furthermore, collaboration with private organizations and NGOs was seen as a way to enhance implementation efforts and enhance shared responsibility in policy implementation. A respondent shared that:

> "*We have franchised parts of our waste management services to companies like Zoomlion Ghana Ltd., Sunyani Integrated Recycling and Compost Plant (IRECOP), Derrico Waste Management, and Elhaji Isaka for waste collection and management. This has made our*

work easier and faster" (Respondent from WS, 2025).

Another respondent added:

"We also collaborate with NGOs such as Farm Radio and Farmer Line. Farm Radio recently invited us to participate in radio programs, while Farmer Line shares good agricultural practices with us. This always enhances knowledge sharing in terms of green initiatives or programs in the Bono region" (Respondent from AS, 2025).

Respondents also indicated that community-based groups and law enforcement agencies play essential roles in terms of collaboration, especially in sanitation efforts (waste collection and management), planting of trees, and the enforcement of environmental laws. As another official remarked,

"We work with community-based groups to clean up choked gutters and maintain sanitation in local communities" (Respondent from WS, 2025).

While none of the respondents demonstrated a negative link between collaboration and green economy policy implementation, the responses clearly showed that the effect of institutional collaboration on green policies is overwhelmingly positive in achieving the overall objectives of their green policies. An informant stated:

"Working with different agencies like the EPA, Zoomlion, and the Municipal Assembly has made it easier to roll out our green initiatives. Everyone brings something to the table, and that helps us achieve our goals. So, our collaboration is always positive because without efforts from other private organizations, NGOs, Community-based groups, and schools, we will not be able to even reach our net-zero waste target by 2030" (Respondent from WS, 2025).

Another respondent added:

"Without collaboration, most of our environmental programs wouldn't work. We depend

on support from NGOs, universities, and other departments to make sure everything runs smoothly and effectively, and this is why we can't implement green policies without collaboration. I will say that if not collaboration, most public sectors will not be able to execute their policies, especially this green economy thing we are talking about. It is very broad, and one person cannot do it unless through collaboration" (Respondent from FSD, 2025).

This response demonstrates that to achieve the policy outcomes of a green economy, the most needed mechanism is to foster effective institutional collection. It further speaks to the fact that the green economy environmental issues are broad and therefore call for institutional collaboration. This is in line with the findings of Lundin (2007), who argued that complex policies that solve complex environmental issues and wicked societal problems are more effectively put into practice if agencies cooperate a lot.

These collaborative efforts also demonstrate that multi-institutional engagement is not only a policy ideal but a practical necessity for advancing green economy goals in the Bono Region. The integration of stakeholders such as government agencies, private waste management companies, NGOs, community-based organizations, and academic institutions has been seen to provide a holistic approach to policy implementation. It also assumes that collaborative engagement among several stakeholders through joint deliberation and policy implementation would facilitate the dissemination of critical insights into the nature of the environmental problem and the potential effectiveness of various remedies. The responses also show that collaboration stimulates the advancement of innovative policy solutions that can resolve policy obstacles and foster collective ownership for their implementation. Notably, collaboration was reported to be most operationalized in the waste sector through public–private service contracts and infrastructure sharing, while in forestry it was strongest in mobilization for afforestation and restoration

initiatives. In agriculture, collaboration was largely knowledge- and extension-driven (NGOs, universities, digital platforms), suggesting that the form and intensity of collaboration vary by sectoral mandate and implementation needs.

This finding also aligns with the works of Donahue and Zeckhauser (2011) and Torfing and Triantafillou (2016), who argue that collaborative policy implementation enhances coordination, prevents bottlenecks, and improves overall policy execution by leveraging the strengths and resources of diverse actors. Also, while the literature has shown that there are potentially both positive and negative effects of government agency involvement in the collaborative process for policy implementation (Vento & Sjöblom, 2018), the findings from this research demonstrated the positive aspect of collaboration in policy implementation, which corroborates with the finding from the scholarly work of Ansell and Gash (2008), who highlight that collaborative governance enhances positive policy outcomes by fostering trust, shared goals, and mutual accountability among stakeholders. Similarly, Emerson et al. (2012) argue that institutional collaboration is critical in overcoming implementation barriers by leveraging the strengths of diverse actors. Further provision comes from Bryson et al. (2006), who emphasize that cross-sector collaboration improves policy coherence and resource efficiency. Together, these studies reinforce the value of institutional collaboration in facilitating effective policy execution.

4.4.1 Opportunities for Institutional Collaboration in Achieving Successful Green Economy Policy Execution

While the respondent has indicated that institutional collaboration is an essential tool for green economy policy implementation in the Bono Region, they have further illuminated the various opportunities such collaboration brings to enhance and promote the smooth implementation of green economy policies in the selected public sector institutions. These opportunities include access to technical expertise, shared resources, improved planning and coordination, enhanced

enforcement of environmental laws, knowledge transfer, cost-effectiveness, and research support from academic institutions. These collaborative opportunities strengthen implementation capacities and ensure inclusiveness in policy actions, reduce duplication of efforts, and create synergies that promote sustainable practices and accelerate the achievement of green economy objectives across sectors. These are further discussed below.

4.4.1.1 Knowledge Sharing and Access to Technical Expertise

Interviews with respondents across all the studied sectors revealed that institutional collaboration significantly enhances access to technical expertise for green economy policy implementation. Many respondents indicated that through partnerships with institutions such as the Environmental Protection Agency (EPA), universities, NGOs, and private organizations, they can tap into specialized knowledge and innovative practices that would otherwise be unavailable. This access helps improve planning, execution, and monitoring of green initiatives, ultimately increasing the effectiveness and sustainability of policy outcomes. A respondent specified:

> *"Sometimes we rely on technical advice from FarmerLine, farm radio, and the universities. They help us with improved farming techniques we don't have in-house" (Respondent from AS, 2025).*

To support this view, another interviewee explained:

> *"The EPA and Zoomlion often bring in experts to train our staff on safe and modern waste management practices. Without them, we wouldn't have that capacity" (Respondent from WS, 2025).*

All the respondents also agreed that most public sector institutions lack in-house green economy experts to lead and guide the implementation of green policies. This gap in technical expertise, they noted, often slows progress. However, institutional collaboration has become a vital avenue through which this challenge is addressed. By partnering with NGOs, private sector organizations,

and universities, these public institutions gain access to professionals with the needed expertise. This collaborative approach fills the expertise gap and ensures that green economy policies are implemented effectively with the right technical guidance and support. An interview elucidated:

> *"You know, we don't have green experts in most of the public sector institutions you are studying, but collaboration helps solve this issue by creating access to external technical expertise. Sometimes these NGOs come with their technical expertise, organize seminars for us to learn, and also assist our extension officer in their work by providing them with technical assistance. Where we don't have knowledge, we learn, and sometimes where they also don't have knowledge, they also learn, and therefore it is also a knowledge-sharing thing" (Respondent from EPA, 2025).*

The above response highlights that institutional collaboration not only provides technical assistance but also fosters mutual learning and knowledge sharing among stakeholders. Respondents emphasized that through collaboration, external partners such as NGOs and universities support extension officers by filling knowledge gaps and offering specialized guidance. In turn, both parties learn from each other, creating a two-way flow of information and skills. This collaborative exchange enhances capacity building within public institutions and contributes to the more effective implementation of green economy policies. From a collaborative governance perspective, these knowledge-sharing arrangements strengthen "capacity for joint action" by compensating for internal technical deficits within public institutions. Rather than treating expertise gaps as purely institutional weaknesses, the findings suggest that collaboration acts as an adaptive governance strategy, allowing agencies to borrow expertise, learn new practices, and improve implementation readiness without duplicating scarce specialized capacity. A Respondent further explained:

> *"In our collaboration, we always hold a lot of meetings, especially at the universities and*

sometimes at Eusbett Hotel, where we exchange ideas and presentations on green projects, green finance, and other environmental issues. We usually discuss the kinds of projects or policies we can implement to help meet the national green targets, like carbon reduction, afforestation, and waste management. So, we all come together to share knowledge and strategies. You know, when you understand something well, you're able to implement it easier and faster" (Respondent from EPA, 2025).

4.4.1.2 Shared Resources and Cost-effectiveness

Data from the interviews revealed that institutional collaboration provides a valuable platform for sharing resources such as funding, logistics, equipment, and manpower among public institutions and their partners. Respondents across the agriculture, forestry, and waste sectors indicated that this sharing of resources enables them to implement green policies more effectively despite limited internal capacities. For instance, some public agencies rely on private waste contractors for trucks, while others benefit from university research and NGO funding. This joint approach reduces costs, avoids duplication, and enhances implementation efficiency. A respondent illuminated:

"In terms of collaboration, when it comes to planting, we have seen that it helps bring success in the planting of the trees. In terms of financing the projects and provision of logistics and... Yes, collaboration helps" (Respondent from FSD, 2025).

Interviews with other respondents also confirm the above assertion. A respondent disclosed:

"It helps when you collaborate, for instance, with the World Bank. They were all interested in global warming and all those things. So, when you are doing a project like that and you collaborate and you let them know... Sometimes they even come down to advise that we also plant trees and sponsor us in term finance. Like the FIP. You know the Tullow program, though it is through our mandate, will be sponsored and financed by Tullow Oil"

(Respondent from FSD, 2025).

A respondent from the waste sector explicitly explained how collaboration helps promote green policies through the provision of logistics by stating that:

> *"When it comes to logistics, we don't have enough trucks or waste bins to cover the whole region. But through our collaboration with companies like Zoomlion, IRECOP, Derrico, and other community groups, we can get access to their trucks and equipment. Without these partnerships, collecting and managing waste would be extremely difficult for us" (Respondent from WS, 2025).*

This highlights how shared logistics resources among institutions enhance the smooth implementation of green economy policies in the waste sector.

While the respondents highlighted the resource-sharing benefits of institutional collaboration, others also emphasized its cost-effectiveness. They agreed that collaborating institutions often share responsibilities, reduce duplication of efforts, and pool financial and logistical resources to implement green initiatives more efficiently. This significantly reduces the burden on individual institutions, especially in resource-constrained environments. This is reflected in the interview responses below:

> *"Collaboration helps us save a lot. For example, instead of each agency organizing separate training, we often come together to host joint workshops. This reduces the cost and still gives our staff the knowledge needed on green practices" (Respondent from EPA, 2025).*

> *"In our last afforestation project, the cost of transporting seedlings was shared between us and a private NGO. We also used their trucks and tools, which saved us from renting or buying new ones. Without that partnership, the budget would have been too high for us alone" (Respondent from FSD, 2025).*

These assertions corroborate the findings in the literature on the benefits of institutional collaboration (Provan & Lemaire, 2012; Gazley & Guo, 2020; Provan & Kenis, 2008). For instance, the findings align with Provan & Lemaire (2012), who demonstrated that interorganizational collaboration lowers transaction costs and optimizes resource allocation by minimizing redundancies in public programs. Similarly, Gazley and Guo (2020) found that cross-sector partnerships enhance cost-efficiency by leveraging shared infrastructure and expertise, particularly in environmental governance. Further support comes from Provan and Kenis (2008), whose network governance framework highlights how pooled resources and coordinated roles improve policy implementation outcomes.

However, other respondents explained that this collaboration has also yielded significant employment opportunities for the youth in the region. It was revealed that through joint projects with private companies, NGOs, and educational institutions, several green economy initiatives, such as afforestation programs, waste management schemes, and agroforestry activities, have created avenues for youth engagement and livelihood support. One respondent noted:

> *"Some of these private plantations, like Form Ghana, are not only helping us with forest restoration but have also employed many young people, even some of our trained foresters" (Respondent from FSD, 2025).*

Another added,

> *"Because we collaborate with local schools and community groups, we regularly engage the youth in activities like tree planting, nursery work, and composting, which gives them skills and income" (Respondent from FSD, 2025).*

An analysis of the above responses demonstrates that these opportunities not only reduce unemployment but also encourage youth participation in environmental sustainability efforts, making collaboration a key driver of both economic and ecological development and effective

policy implementation in the Bono Region.

4.4.1.3 Improved Planning and Coordination

The respondents were unanimous in their responses that institutional collaboration significantly improves planning and coordination in the implementation of green economy policies. According to them, working together with other public agencies, NGOs, universities, and private organizations helps in streamlining project objectives, avoiding duplication of efforts, and ensuring all relevant stakeholders are involved in policy execution. A respondent explained,

> ... *"through our Municipal Planning Coordinating Units (MPCU) and the Regional Network of Environmental Committees, we sit with representatives from other departments, NGOs, and agencies to set targets and determine who does what before any program is rolled out" (Respondent from WS, 2025).*

Another respondent added,

> *"Most of the policies we implement today are results of joint planning sessions with institutions like EPA, Zoomlion, and even universities. It ensures we are all moving in the same direction" (Respondent from WS, 2025).*

The above responses highlight that these collaborative frameworks foster synchronized action and enable effective use of limited resources, thereby enhancing the success of green initiatives in the Bono Region. It also shows that by bringing together diverse institutions such as Municipal Planning Coordinating Units (MPCU), the Regional Network of Environmental Committees, the Environmental Protection Agency (EPA), private waste management companies like Zoomlion, and academic institutions, stakeholders can collectively strategize, set clear targets, and define specific roles for each actor before a policy or project is initiated, making green policy implementation effective. These disclosures are in line with previous studies. Studies indicate that collaboration improves policy planning and coordination, thereby enhancing policy

implementation. For instance, Provan and Lemaire (2012), Gazley and Guo (2020), Provan and Kenis (2008), and Bryson et al. (2006) argue that cross-sector collaboration improves policy planning by clarifying responsibilities and reducing fragmentation, particularly in environmental governance and policy implementation. Similarly, Koontz and Thomas (2006) demonstrate that pre-implementation role definition among stakeholders minimizes conflicts and enhances accountability, leading to more effective policy execution.

4.4.2 Barriers to Effective Public Sector Collaboration in Green Economy Policy Implementation

While the study has revealed that effective collaboration among institutions is critical for successful green economy policy implementation by offering benefits like resource sharing and synchronized action, the literature has identified challenges such as divergent interests, power imbalances, and bureaucratic fragmentation that can undermine their effectiveness. For instance, Bryson et al. (2006) demonstrate how divergent priorities between agencies create implementation gridlock, particularly when environmental objectives compete with economic development mandates. Similarly, Klijn et al. (2025) found that conflicting performance metrics across sectors (for example, profitability vs. sustainability targets) complicate joint decision-making processes.

Again, a review of the literature revealed that power asymmetry and trust deficits frequently disrupt collaboration dynamics. Ansell and Gash (2008) emphasize how unequal influence among stakeholders leads to exclusionary participation, where dominant actors marginalize weaker partners. This aligns with Gray's (1999) earlier work showing that historical conflicts between institutions often perpetuate distrust, making genuine cooperation difficult to achieve.

Koontz and Thomas (2006) identify resource disparities as critical constraints, where under-resourced organizations struggle to contribute meaningfully to partnerships. Provan and Kenis (2008) further highlight how inadequate administrative infrastructure prevents effective

coordination, particularly in complex multi-actor networks.

The literature further highlights governance and coordination failures as a challenge to effective collaboration. Emerson et al. (2012) note that institutional fragmentation and overlapping jurisdictions create implementation gaps, while Agranoff (2007) documents how bureaucratic silos inhibit information sharing. These findings are reinforced by O'Leary and Vij's (2012) analysis of collaborative failures in environmental programs, where unclear leadership structures led to accountability vacuums. In addition, Provan and Lemaire (2012) show how short-term political cycles disrupt long-term collaboration in sustainability initiatives, with elected officials prioritizing visible projects over systemic change. Additionally, Thomson and Perry (2006) found that institutional turnover and shifting priorities erode partnership continuity.

Despite extensive scholarly documentation of barriers to institutional collaboration in green policy implementation (Ansell & Gash, 2008; Bryson et al., 2006; Provan & Lemaire, 2012), field data from this study reveal a striking contradiction: respondents unanimously reported experiencing no challenges in their collaborative efforts. While the literature emphasizes persistent obstacles, including power imbalances, resource disparities, and bureaucratic fragmentation, participants described their interinstitutional partnerships as consistently successful and frictionless.

A respondent explained:

> *"So far, our collaborations with the other agencies have been very smooth. Everyone understands their role, and we all work towards the same goal. There haven't been any conflicts or serious misunderstandings" (Respondent from WS, 2025).*

To support this view, another respondent stated:

> *"Collaboration has always been part of our work culture. Whether it's with the EPA, NGOs, or the local assemblies, we have built strong working relationships over time, and that makes everything easier to implement without delays or tension" (Respondent from EPA,*

2025).

This discrepancy warrants careful interpretation. First, respondents may have normalised collaboration as routine administrative coordination rather than critically reflecting on power dynamics, transaction costs, or accountability tensions highlighted in the literature. Second, social desirability and organisational reputation concerns may encourage officials to emphasise success while downplaying conflict, particularly where interviews involve public institutions. Third, the reported 'smoothness' may reflect early-stage or project-based collaboration that has not yet encountered stressors such as resource scarcity, competing mandates, or political interference, conditions under which collaborative tensions typically surface. However, a single respondent identified that the only notable challenge they face in their institutional collaboration efforts is communication. The respondent explained that:

> *"You know, the issue is sometimes we will go and educate the farmers on a particular farming or planting method; some of the NGOs or private institutions, especially the mushroom NGOs, will later go to the same farmers and tell them something completely different without first communicating with us. This confuses the farmers and affects the consistency of the messages we are trying to promote. So yes, communication gaps like this can be a real challenge in our collaborative efforts" (Respondent from AS, 2025).*

While effective communication is widely acknowledged as a key ingredient for successful collaboration, this respondent revealed that some "mushroom" NGOs tend to act in isolation, creating disconnects in communication. This often leads to mixed messaging and confusion among beneficiaries, particularly farmers, thereby undermining the consistency and effectiveness of policy implementation. This communication challenge is analytically important because it demonstrates how collaboration can fail through information asymmetry and inconsistent messaging, even when partnerships appear positive. In collaborative governance terms, weak

principled engagement (lack of shared planning and communication protocols) can undermine shared motivation among beneficiaries, reduce trust in extension messages, and ultimately weaken compliance and uptake of green practices. Thus, communication is not a minor operational issue but a core determinant of collaborative effectiveness. To strengthen analytical credibility, the study treats respondents' claims of 'no challenges' as perceptions rather than definitive evidence and interprets them alongside the broader literature on collaborative governance barriers, thereby avoiding overgeneralization while still recognizing the locally reported strengths of collaboration in the Bono Region. In addition, the researcher agrees that although challenges such as power imbalances, resource gaps, and bureaucratic inefficiencies are well-documented in the literature, their absence in the Bono Region's current green economy collaborations may be due to the novelty of green economy policies and the urgency surrounding the issues they address, such as carbon emissions, environmental degradation, and biodiversity loss. These are widely recognized as "wicked" societal problems (Head & Alford, 2015) that demand collaborative solutions. However, the study cautions that as green economy initiatives become normalized, such challenges may emerge if strong collaborative frameworks are not maintained. Therefore, proactive efforts must be made to institutionalize coordination and shared responsibility among stakeholders in green policy implementation in the Bono region.

4.5 Challenges of Green Economy Policy Implementation in the Public Sector Institutions in the Bono Region

The study identified challenges facing the implementation of the green economy policies in public sector institutions in the region. These barriers, as identified by the respondents, pose significant threats to the success of green policy initiatives, and therefore, without a thorough understanding of these challenges faced by public sector institutions in the Bono region, policy recommendations may remain superficial and ineffective. This section, therefore, presents findings by identifying

these challenges to help come up with possible recommendations to address the challenges to facilitate successful future green policy implementation.

The key challenges regarding the implementation of Green Economy (GE) policies are presented in the table below. The areas identified as 'All' indicate that such challenges are common across all the studied sectors. Additionally, the following abbreviations have been used to represent the various sectors in the table: Waste Sector (WS), Agricultural Sector (AS), and Forestry Sector (FS). This classification helps to clearly illustrate sector-specific challenges as well as those affecting all sectors collectively.

Table 4.2: Summary of Identified Challenges to GE Policy Implementation in the Bono Region

Challenges identified	Response from Sectors
Inadequate financial resources	all
insufficient logistics	all
Inadequate Human Resources	all
illegal logging	FS
illegal mining	FS, AS
Lack of advanced technologies	AS, WS
climate change-related issues like drought	FS, AS

These challenges are further discussed below.

4.5.1 Inadequate Financial Resources

The review of the literature shows that the implementation of policies across developing countries is always confronted with financial challenges (either delay in financial distribution, inadequate finance, or lack of financial resources) (Chukwu, 2020; Gao et al., 2022; Yeboah et al., 2023), and

this study also confirms these findings. All the respondents acknowledged that their inability to fully implement green initiatives is largely due to limited funding resources. Respondents explained that there is a persistent lack of financial support to procure green technologies, acquire essential logistics such as trucks, and conduct training programs to build capacity for green practices, and therefore, without adequate resources, the effectiveness of green policy implementation remains constrained.

Respondents stated:

> *"The major challenge we face is funding. Without sufficient financial resources, we cannot procure the needed technologies to support green initiatives" (Respondent from FSD, 2025).*
>
> *"We lack the funds to purchase trucks and other logistics, making waste collection and recycling efforts very difficult" (Respondent from WS, 2025).*
>
> *"Capacity building is key, but we are unable to provide adequate training due to financial constraints, which affects how well we implement green policies" (Respondent from EPA, 2025).*

In support of this, other respondents added:

> … "*though the government provides some funding, the disbursement is often delayed, making it difficult to execute projects on time" (Respondent from FSD, 2025).*
>
> "*We sometimes receive financial support, but by the time the funds arrive, implementation timelines have already been affected" (Respondent from AS, 2025).*
>
> "*Even when government funding is promised, delays in release mean we have to pause or slow down critical green initiatives" (Respondent from EPA, 2025).*

From the views of these interviewees, limited financial resources remain a significant barrier to the successful implementation of green initiatives across the studied sectors. Respondents

highlighted that inadequate funding prevents them from acquiring essential green technologies, purchasing logistics such as trucks, and organizing training programs to build capacity. Without financial support, institutions struggle to implement policies effectively, leading to inefficiencies in waste management, sustainable agriculture, and forestry conservation. As one respondent noted, the lack of funds hinders waste collection and recycling, while another emphasized the need for capacity-building to enhance policy execution. The respondents also highlighted that although the government provides financial support for green initiatives, delays in fund disbursement hinder effective implementation. As a result, projects often face setbacks, reducing their overall impact and making it difficult to meet sustainability targets. This is in line with Ali et al.'s (2021) assertion that many public institutions in Ghana face financial challenges, which hinder their ability to effectively fulfill their mandates.

Other respondents explained how these challenges affect agricultural and afforestation programs. They indicated that delays in funding significantly impact afforestation and agricultural green initiatives, as timely nursery preparation and planting are crucial for seedling survival. In both the agricultural and forestry sectors, financial delays extend nursery periods into the dry season, causing high mortality rates for young plants. This disrupts sustainability efforts and reduces the effectiveness of green policies. Since Ghana has two main seasons, the success of tree planting and crop sustainability depends on well-timed financial support. Without it, the impact of afforestation and sustainable agriculture remains limited. A respondent explained as follows:

> *"We often struggle with getting funds on time for preparing nurseries and acquiring seedlings. When the money delays, it disrupts the planting schedule, pushing activities into the dry season, where survival rates of the plants are much lower" (Respondent from FSD, 2025).*

Another respondent hinted:

> "*In forestry, timely funding is crucial for tree planting programs. Delays mean seedlings remain in nurseries longer than necessary, and when planting extends into the dry season, many trees do not survive, leading to losses and reduced impact of afforestation efforts" (Respondent from FSD, 2025).*

Some of the respondents also articulated that many green projects in the Bono region of Ghana, particularly in forestry and agriculture, rely heavily on donor and private funding. A reduction or withdrawal of these funds disrupts vital initiatives such as afforestation, nursery maintenance, and sustainable farming practices. Without external financial support, local institutions struggle to sustain operations, leading to setbacks in green economy initiatives. It was indicated that now that the US government has cut aid to African states, the situation is expected to worsen, as many green programs will face delays or possible abandonment due to financial constraints. An interviewee stated:

> "*Most of our green initiatives rely heavily on donor support. When these funds are reduced or cut, we struggle to continue with tree planting and forest restoration projects. Without external support, maintaining nurseries and ensuring afforestation success becomes nearly impossible" (Respondent from FSD, 2025).*

In line with this, another respondent added:

> *"Many of our sustainable agriculture programs are donor-funded. When funding is withdrawn, projects like organic farming and agroforestry suffer. Now that the US government has cut aid to African states, of which Ghana is a part, it will severely affect several of our green programs, making implementation more difficult" (Respondent from AS, 2025).*

To this end, the majority of the respondents see inadequate finance as a major challenge in the green economy policy implementation in the Bono region. Beyond general underfunding,

respondents' accounts indicate that the central implementation risk is "timing failure": delayed releases shift critical activities (nursery preparation, planting, extension visits, waste collection scheduling) into unfavourable periods, particularly the dry season. This creates an implementation inefficiency where the same budget produces weaker outcomes (low seedling survival, reduced yields, delayed collection cycles), thereby widening the gap between policy targets and observable results on the ground.

4.5.2 Insufficient Logistics

Hoogenbosh and Ros-Tonen (2010) noted that forest plantation programs often face financial challenges, which, in turn, lead to logistical constraints. In the context of this study, financial limitations have resulted in inadequate logistics across all studied sectors. Respondents explained as follows:

> "*Because we don't have enough funds, we struggle to buy essential logistics like watering cans, polythene bags for seedlings, and protective gear for field workers" (Respondent from FSD, 2025).*
>
> *"You know we can collect waste and manage it sustainably if we have enough logistics, but we lack adequate funding to purchase waste bins, modern recycling machines, and landfill management equipment, which slows down waste collection and processing" (Respondent from WS, 2025).*

Respondents also highlighted that the Forest Services Division and the agricultural sector lack sufficient vehicles to transport seedlings to forest sites, affecting program implementation. Existing vehicles are not high-occupancy, limiting the number of seedlings transported at a time.

An interviewee hinted:

"*We don't have enough vehicles to transport seedlings to forest sites, so sometimes we have to carry them in small batches or wait for help from other agencies" (Respondent from FSD, 2025).*

Another respondent added:

> "*Our biggest challenge is moving the seedlings on time. The few available vehicles are not designed for large-scale transportation, which slows down the process" (Respondent from FSD, 2025).*

Similarly, it was indicated that in the waste sector, while some trucks and vehicles are available, most are privately owned, creating inefficiencies in public waste collection. The lack of public-sector-owned waste management trucks and equipment delays waste collection and disposal processes. Additionally, inadequate landfill sites, waste sorting machines, and recycling facilities further hinder effective waste management. For example, a respondent stated:

> *"Even when we get funding, it's not enough to purchase modern waste management equipment or additional vehicles, making operations difficult" (Respondent from WS, 2025).*

The findings suggest that logistics constraints operate as the practical "translation point" between funding and results: even where policies exist and staff are motivated, inadequate vehicles, bins, protective gear, and equipment reduce operational coverage and frequency. In the waste sector, this weakens timely collection and sorting, while in forestry and agriculture, it delays transport of seedlings and field supervision, producing avoidable implementation slippages. In support of this, another respondent remarked:

> *"Most of the waste collection trucks belong to private companies, so as a public institution, we struggle to get enough resources for timely waste collection" (Respondent from WS, 2025).*

Drawing from the above, it can be concluded that inadequate logistics is another challenge faced by the studied public sectors when it comes to green policy executions.

4.5.3 Inadequate Human Resources

All the respondents identified inadequate human resources as a significant barrier to the full implementation of green economy policies in the studied public sector institutions. According to them, while the commitment to adopt green initiatives exists, the shortage of qualified personnel, particularly those with expertise in green technologies, environmental science, sustainable agriculture, and waste management, limits the scale and effectiveness of these programs.

A respondent noted that:

> *"We have only a few extension officers, and most of them are not well-trained in climate-smart agriculture or green farming techniques. So, even if we want to roll out green policies, we don't have the people to guide the farmers" (Respondent from AS, 2025).*

Other respondents explained:

> *"We lack environmental scientists and waste engineers. Most of our staff only have basic training, so implementing advanced green technologies becomes a challenge" (Respondent from EPA, 2025).*

> *"We have 12 operational areas. But as of now, we don't have essential officers occupying all those operational areas. We are lacking staff" (Respondent from AS, 2025).*

The above responses highlight how inadequate human resources pose a major challenge to green policy implementation in the Bono Region's public sector institutions. Respondents emphasized that the lack of qualified personnel, such as environmental scientists, green technology experts, and trained extension officers, hinders their ability to effectively plan, implement, and monitor green initiatives. This capacity gap affects public education, technical support, and the adoption of sustainable practices, thereby limiting the reach and impact of green economy policies in agriculture, waste management, and forestry. Importantly, the challenge is not only numerical shortage but also skills mismatch: respondents implied that available staff often have general

training that is insufficient for specialized green technologies (example, advanced composting systems, waste-to-resource operations, climate-smart advisory services, and monitoring tools). This weakens implementation quality, reduces the effectiveness of public education, and limits monitoring and enforcement, thereby affecting both the intensity and sustainability of GE policy execution. These findings corroborate previous scholarly works such as Crosby (1996), Ameyaw et al. (2016), and Mbow (2020). For instance, Crosby (1996) examined policy implementation in developing contexts and found that organizational capacity gaps, particularly shortages of skilled personnel, cripple the execution of even well-designed policies (p. 1407). These findings also resonate with Ameyaw et al. (2016), who documented similar human resource constraints in Ghana's forestry sector. Their study revealed that shortages of trained professionals and weak technical capacity directly contribute to poor policy enforcement and unsustainable practices (Ameyaw et al., 2016, p. 82). Like Bono's respondents, Ameyaw et al. (2016) identified education-practice gaps as a systemic barrier, advocating for enhanced professional training to align skills with governance needs (p. 86). In addition, these challenges, as identified by the respondents, echo Mbow's (2020) analysis of SDG implementation in Sub-Saharan Africa (SSA), where shortages of technical experts and untrained staff undermine land sustainability efforts (Mbow, 2020, p. 8). Like Bono's institutions, Mbow (2020) found that under-resourced agencies cannot enforce compliance or deliver localized training (p. 5), reinforcing the need for context-specific workforce development for sustainable policy implementation. The Skills Gap Analysis by the Council for Technical and Vocational Education and Training (COTVET) further confirms that such shortages are systemic across West Africa, with environmental agencies operating at 35–50% staffing deficits (COTVET 2018).

4.5.4 Illegal logging

The literature indicates that the success of forest sector programs and initiatives largely depends on the government's ability to track and control illegal logging (Piabuo et al., 2021; Iordăchescu & Vasile, 2023; Dekiawati, 2022; Nazarova et al., 2021). Scholars like Piabuo et al. (2021), Iordăchescu and Vasile (2023), and Dekiawati (2022) have revealed that illegal logging is the biggest challenge to the forest sector, and if not well managed, it can lead to biodiversity loss, deforestation, and degradation of forest ecosystems. They emphasize that weak enforcement of forestry laws and a lack of monitoring mechanisms allow illegal loggers to exploit forest resources, causing habitat destruction and endangering various plant and animal species while leading to high carbon storage in the atmosphere. The findings of this study confirmed what the literature says about illegal logging. The study reveals that illegal logging poses a significant challenge in the implementation of green economy policies, particularly in the forestry sector. Despite efforts to promote sustainable forest management, respondents revealed that illegal logging activities continue to deplete forest resources, undermining reforestation and afforestation initiatives. Weak enforcement of forestry regulations, corruption, and high demand for timber contributed to the persistence of this issue. Additionally, some respondents noted that community members, due to economic hardships, engage in illegal logging as a means of livelihood. This situation threatens biodiversity conservation, contributes to climate change, and hampers the overall success of green economy programs. A respondent explained:

> *"Illegal logging is a big problem. We try to enforce the laws, but the lack of resources and personnel makes it difficult. People cut trees in protected areas, and by the time we get there, the damage is already done" (Respondent from EPA, 2025).*

Other respondents uttered:

> *"Many of these illegal loggers operate at night, making it hard to track them. Some even*

collaborate with local officials, which makes enforcement even more challenging" (Respondent from FSD, 2025).

"You know, for some people, logging is their only source of income. Without alternative livelihood programs, they will continue cutting trees, regardless of the consequences" (Respondent from FSD, 2025).

Another respondent indicated that illegal logging poses a significant challenge to green programs and sustainability in afforestation programs. The respondent explained that;

"Illegal loggers often operate at night or in remote areas, using chainsaws and other heavy machinery to cut down trees indiscriminately. Unlike us (regulated logging), they do not follow sustainable harvesting practices, but they rather cut any tree they come across, regardless of its species or maturity. In their haste to steal timber, they destroy smaller tree species and seedlings, preventing natural regeneration. Sometimes you will go there, and they have cleared all the smaller trees to harvest just a single tree. And you know this reckless activity not only destroys forest resources but also leads to biodiversity loss, disrupting ecosystems and undermining afforestation efforts aimed at restoring degraded areas. When this happens, our children and grandchildren will not benefit from our rich forest resources" (Respondent from FSD, 2025).

This therefore confirms that illegal logging poses a significant challenge to the forestry service division in the Bono region, making it difficult for them to achieve their green economy policy objective, which significantly affects sustainability. From the analysis, a key interpretive insight is that the persistence of illegal logging illustrates a structural contradiction between restoration programmes and livelihood realities. While afforestation initiatives expand planting efforts, illegal logging reflects a parallel economy driven by market demand and local income needs. This implies that implementation success cannot be measured only by seedlings planted, but also by the ability

of institutions to combine enforcement with credible livelihood alternatives and community-based monitoring; otherwise, programme gains may be offset by continued depletion.

4.5.5 Issues of Climate Change

Climate change-related issues like drought were identified as major challenges by respondents from the forestry and agricultural sectors. Informants indicated that prolonged drought conditions negatively affect afforestation and reforestation efforts by reducing seedling survival rates, making it difficult to sustain green programs. In the agricultural sector, it was revealed that drought leads to soil degradation, reduced crop yields, and increased vulnerability of farmers. Respondents emphasized that unpredictable rainfall patterns make it difficult to plan tree planting and farming activities, ultimately threatening the success of green initiatives and reducing farm produce. A respondent explained:

> *"One of our biggest challenges is drought. When we plant trees, especially during the dry season, most of them do not survive due to the lack of rainfall. Even when we try watering them, the resources are limited, and the survival rate remains low" (Respondent from FSD, 2025).*

Another respondent added:

> *"The unpredictable rainfall patterns have made farming very difficult. We used to rely on the natural rain cycles, but now, we experience long dry spells that dry up our crops and affect productivity" (Respondent from AS, 2025).*

Also, an informant succinctly stated:

> *"This year in the Bono region, we have experienced a prolonged drought, which has significantly affected our farm produce. You know, in Bono, there is usually no shortage of food, but this year, things are different. The drought has reduced crop yields drastically, and many farmers are struggling. Even with the short-term maize varieties we planted, the*

yields were very low. This should tell you how severe drought affects agricultural activities and food security in the region" (Respondent from AS, 2025).

The above response indicates that while drought has affected agricultural produce in the Bono region, it has also impacted farmers' livelihoods since many rely on farming as their primary source of income. The prolonged drought has led to reduced crop yields, particularly in maize cultivation, even with short-term varieties. This situation threatens food security and increases financial hardship for farmers. While Bono is known for its agricultural productivity, the current shortage highlights the severity of climate-related challenges in the region and their threat to sustainability. These findings imply that climate variability is not merely an external shock but a planning constraint that should shape implementation design. Respondents' accounts suggest that programmes require climate-sensitive scheduling (earlier nursery preparation), drought-resilient species selection, and basic watering or logistics support to improve survival rates. Without such adaptive measures, implementation outcomes remain highly vulnerable to seasonal uncertainty, reducing the reliability of green policy results.

4.5.6 Illegal Mining

Illegal mining was also identified as a major challenge affecting both the forestry and agricultural sectors in the Bono Region. Respondents highlighted that vast areas of fertile agricultural land and forest reserves have been destroyed due to illegal mining activities. It was revealed that areas such as Banda, Tain, and parts of Wenchi have experienced severe environmental degradation as illegal miners' clear forests and cashew and other farmlands in search of gold. This has led to deforestation, loss of biodiversity, and contamination of water bodies, making it difficult for farmers to cultivate crops and for afforestation programs to thrive. A respondent stipulated:

"You know that Ghana's biggest problem now is illegal mining. At first, Bono was not attacked by these issues, but now illegal mining is a big problem for us. Miners' clear large

portions of our forest reserves, and in the process, they destroy both young and mature trees. Some of these areas, like Banda and Tain, have lost significant forest cover, making it difficult to carry out afforestation programs" (Respondent from EPA, 2025).

To support this, another informant specified:

"One of the biggest issues is that these miners do not follow any regulations. They dig indiscriminately, leaving the land bare. Reclaiming such land for forestry or agriculture takes years, and by then, the damage is already done. Even the water bodies we rely on for irrigation are polluted with chemicals from mining activities. Now, if you see some rivers, you will cry; the River Tain has been destroyed" (Respondent from EPA, 2025).

The above response indicates that illegal mining poses a severe threat to both forestry and agriculture in the Bono Region. The indiscriminate activities of miners result in massive deforestation, rendering land unsuitable for cultivation or afforestation. Additionally, the pollution of water bodies, such as the River Tain, further exacerbates the problem by contaminating irrigation sources, making farming unsustainable. Since land reclamation takes years, the long-term effects of illegal mining significantly impact livelihoods, food production, and environmental conservation efforts. This can also lead to challenges in achieving Sustainable Development Goal (SDG) 6: Clean Water and Sanitation, which aims to ensure the availability and sustainable management of water and sanitation for all. The pollution of water bodies, such as the River Tain, due to illegal mining activities threatens access to clean and safe water for communities that depend on it. Contaminated water sources not only affect agriculture but also pose serious health risks, making it difficult to meet global sustainability targets for water security.

An informant also stated:

"You see, one major problem with illegal mining is the massive carbon emissions that come from the heavy machinery they use. These people [miners] bring in excavators, bulldozers,

and other fuel-powered machines that release large amounts of carbon dioxide into the atmosphere. The situation is even worse when they burn vegetation to clear land for mining activities. I will also say the chemicals they use, like mercury and cyanide, don't just pollute water bodies; they release toxic fumes into the air, and this further contributes to environmental degradation and climate change issues that we are facing now. These machines and chemicals also lead to air pollution" (Respondent from FSD, 2025).

This response highlights how illegal mining contributes to carbon emissions and environmental degradation. It shows that the use of heavy machinery such as excavators and bulldozers releases significant amounts of carbon dioxide into the atmosphere, worsening climate change. Additionally, miners often burn vegetation, increasing air pollution and releasing carbon monoxide into the atmosphere. While the green economy aims to reduce carbon emissions and ensure food security, these harmful activities threaten sustainability efforts and accelerate the ability of these sectors to achieve their green economy policy targets. In implementation terms, illegal mining undermines GE policy through a clear outcome pathway: (i) vegetation clearance reduces carbon sinks and forest cover; (ii) land degradation reduces agricultural productivity and weakens agroforestry uptake; and (iii) water pollution raises treatment and health costs, constraining sanitation and irrigation efforts. This pathway suggests that without stronger inter-agency enforcement and land reclamation strategies, green policy initiatives in forestry and agriculture will continue to face reversal effects from mining pressures. The findings from the respondents align with existing literature. Research has shown that illegal mining leaves behind a landscape filled with excavated pits and trenches, making the land unfit for alternative uses (Yiridomoh, 2021; Obiri-Yeboah et al., 2021). Additionally, studies have highlighted that illegal mining significantly contributes to water pollution due to the extensive water consumption required for extraction, processing, and waste disposal (Mensah & Tuokuu, 2023; Darko et al., 2023).

4.5.7 Lack of Advanced Technologies

Lack of advanced technologies was identified as a significant challenge affecting the agricultural sector in the Bono Region. Respondents indicated that outdated or inadequate technologies limit efficiency in farming and waste disposal. The study shows that farmers struggle with poor irrigation systems, limited mechanized farming equipment, and outdated post-harvest storage facilities, leading to low productivity. This technological gap continues to slow progress toward achieving sustainable agricultural practices in the region. A response explained:

> *"We still rely on traditional farming tools like cutlasses and hoes because we don't have access to modern equipment. If we had advanced irrigation systems and mechanized plowing machines, we could improve our yields significantly. But without these technologies, farming remains difficult and unproductive. For example, we are currently running a project focused on a large-scale coconut plantation, but we are using only labor-intensive methods, which are costly and slow down work. You know, a task that people will take a week to complete, a machine could do in just a day or two. This is our biggest problem in the region" (Respondent from AS, 2025).*

They added that they do not have the financial capabilities to afford technologies such as combine harvesters and others to enhance green agriculture. Commenting on the technological challenges, a respondent commented:

> *"We know modern technologies like tractors, drip irrigation, and solar-powered dryers can help, but we can't afford them. Without financial support, we are stuck using outdated methods, which slow us down and reduce productivity" (Respondent from AS, 2025).*

To support the above view, a respondent said:

> *"We lack technologies like waste-to-energy plants, composting machines, and recycling facilities. If we had these, we could convert waste into useful resources instead of*

franchising it to private companies. Though we have private companies like Zoomlion and IRECOP that have some of these machines, we, the public sector, don't have them" (Respondent from WS, 2025).

All the interviewees agreed to the fact that technology is a challenge to green economy policy execution. The respondents highlighted that, beyond technological constraints, they also lack the technical capacity and skilled personnel needed for green initiatives. It was indicated that many workers have limited training in areas like sustainable waste management and eco-friendly agricultural practices. Therefore, without experts to operate advanced machinery and implement green technologies, progress remains slow. This gap in technical expertise affects both the agricultural and waste sectors, making it difficult to transition to sustainable practices through green policy implementation that would enhance environmental conservation and resource efficiency. For example, a respondent shared this:

"Throughout our monitoring and evaluation duties, I have always seen that most of the sectors, especially waste and agriculture, lack the technical know-how to implement green initiatives effectively. Many workers struggle to operate modern waste technologies or advanced irrigation systems. But you know, without skilled personnel, even when new technologies are introduced, they are either underutilized or abandoned. This challenge slows down progress and makes it difficult for these sectors to implement more green, sustainable, and environmentally friendly practices" (Respondent from EPA, 2025).

The respondents' viewpoint highlights a critical gap in the implementation of green initiatives as a result of a lack of or inadequate technical expertise in key sectors such as waste management and agriculture. While modern technologies, such as waste-to-energy systems and advanced irrigation techniques, are seen as having the potential to drive sustainable development, their effectiveness depends on skilled personnel to operate and maintain them. Without proper training and technical

know-how, these technologies, even if provided, remain underutilized, hindering progress in the execution of green initiatives. Further analysis of the findings reveals a critical structural dimension to the technological challenge. While private-sector actors in waste management, such as Zoomlion and IRECOP, possess relatively advanced recycling and processing technologies, public sector institutions remain largely dependent on these private operators for execution. This creates a form of institutional dependency that limits public-sector control over green technology deployment, scalability, and long-term sustainability. In the agricultural sector, the technological deficit is compounded by high acquisition costs, limited maintenance capacity, and inadequate technical training, meaning that even where modern equipment or systems are introduced, their sustained use is uncertain. Respondents' accounts indicate that technologies are sometimes underutilized or abandoned due to a lack of skilled personnel and operational support. Consequently, the absence of advanced technologies not only constrains efficiency but also weakens institutional autonomy, monitoring capacity, and the durability of green economy policy outcomes in the Bono Region. Further analysis of the findings reveals a critical structural dimension to the technological challenge. While private-sector actors in waste management, such as Zoomlion and IRECOP, possess relatively advanced recycling and processing technologies, public sector institutions remain largely dependent on these private operators for execution. This creates a form of institutional dependency that limits public-sector control over green technology deployment, scalability, and long-term sustainability. In the agricultural sector, the technological deficit is compounded by high acquisition costs, limited maintenance capacity, and inadequate technical training, meaning that even where modern equipment or systems are introduced, their sustained use is uncertain. Respondents' accounts indicate that technologies are sometimes underutilized or abandoned due to a lack of skilled personnel and operational support. Consequently, the absence of advanced technologies not only constrains efficiency but also weakens institutional autonomy, monitoring capacity, and the durability of green economy policy outcomes in the Bono Region.

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Similarly, the findings of this study corroborate the results of a study by Ali et al. (2021) that indicate that inadequate commitment to support technology development and transfer, the cost of green technologies, the increasing threat of climate change, and corruption were the threats to Ghana's effort to green its economy. It is widely acknowledged in the literature that technological availability is always a challenge in green transition and sustainable development, as well as its policy implementation (Adjei et al., 2024; Chukwu, 2020; Imasiku et al., 2021; Mihai et al., 2021).

4.7 Conclusion

This chapter presented and thoroughly discussed the findings obtained from the field, in line with the objectives of the study. The data collected from respondents in the forestry, agriculture, and waste sectors and the Environmental Protection Agency (EPA) were analyzed and interpreted to uncover key insights. The responses were organized thematically to examine the green economy policies and programs implemented in the Bono Region of Ghana.

The findings revealed that various public sector institutions have initiated notable green economy policies that reflect Ghana's broader policy direction toward sustainability, low-carbon development, and inclusive green growth. Importantly, the study also highlighted the critical role of institutional collaboration in enhancing the implementation of GE policies. While meaningful progress is being made, the study also uncovered significant challenges ranging from inadequate funding and limited technical personnel to logistical constraints and environmental threats such as illegal mining, deforestation, and climate-related risks. The next chapter presents the summary, conclusion, and recommendations of the study.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

5.0 Introduction

This chapter presents a summary of the key findings of the study across the waste, agriculture, and forestry sectors in the Bono Region of Ghana. It outlines the main conclusions derived from the data and literature reviewed and reflects on how the findings address the study's objectives. The chapter further provides practical recommendations aimed at enhancing the implementation of green economy policies in the public sector.

5.1 Summary of Findings

The study focused on assessing green economy policy implementation in public sector institutions within the Bono Region of Ghana. A key point emphasized is that the successful transition to a green economy relies heavily on effective policy implementation, stakeholder engagement, and institutional coordination across various sectors. Specifically, the study examined how green economy policies have been implemented in the waste, agriculture, forestry, and energy sectors. It also explored the extent to which institutional collaboration supports the execution of these policies. Additionally, the study analyzed the challenges that hinder the full realization of green policy goals and their execution.

5.1.1 Green Policies Implemented in the Studied Public Sector Institutions

The study revealed that all three public sector institutions examined: agriculture, waste, and forestry, have introduced significant green economy policies and programs aimed at promoting environmental sustainability, enhancing livelihoods, and mitigating climate change in the Bono Region. In the agricultural sector, several climate-smart practices have been adopted. These include Sawah Technology, Alternative Wet and Dry Methods, Minimum Tillage, Conservation Agriculture, and Crop Rotation. The objective of these interventions is to promote sustainable land

and water use, reduce methane and carbon emissions, and increase productivity without degrading the environment. Programs such as the Planting for Export and Rural Development (PERD), which supports agroforestry by distributing free cash crop seedlings, and inclusive projects like Modernizing Agriculture in Ghana (MAG), Affordable Financing for Agriculture (AFO), and the Food System Resilience Program, ensure equitable participation, especially among women and vulnerable groups, while promoting sustainable farming systems.

In the waste sector, key policies include the door-to-door waste collection program, waste segregation and recycling initiatives, and advocacy for circular economy practices. The main objectives are to reduce open dumping, prevent open burning, promote waste reuse and recycling, ensure clean urban spaces, and support sustainable sanitation practices. These programs are guided by the 3Rs (reduce, reuse, recycle) and supported by public-private partnerships and community-based efforts. The region aims to reach zero waste by the end of 2030. Their implementation addresses environmental and health concerns while also creating jobs and improving local governance.

The finding also revealed that the forestry sector has implemented major green initiatives, including the Green Ghana Initiative, Forest Investment Program (FIP), Modified Taungya System (MTS), and Tullow Oil Forestry Initiative. These policies aim to combat deforestation, enhance biodiversity, promote carbon sequestration, and support community livelihoods through afforestation and agroforestry. For example, the Green Ghana Project has led to the planting of hundreds of thousands of indigenous tree seedlings annually, while the FIP and MTS engage local farmers in sustainable land management. These programs in total exemplify green economy principles by supporting climate mitigation, biodiversity protection, low-carbon development, efficiency in resource use, minimizing environmental impact, ecosystem conservation, and inclusive economic development.

Furthermore, it was realized that these policies contribute to SDG 13 (Climate Action), SDG 15 (Life on Land), and SDG 8 (Decent Work and Economic Growth). Additionally, the policies contribute directly to the attainment of SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 5 (Gender Equality), SDG 12 (Responsible Consumption and Production), SDG 6 (Clean Water and Sanitation), SDG 11 (Sustainable Cities and Communities), and SDG 12 (Responsible Consumption and Production).

5.1.2 The Role of Institutional Collaboration in Implementing Green Economy Policies

The study revealed that institutional collaboration plays a central role in the successful implementation of green economy policies in the Bono Region. Respondents from all the studied public sectors: agriculture, forestry, waste management, and the Environmental Protection Agency (EPA), consistently emphasized that collaborative efforts across government agencies, private organizations, NGOs, universities, and community-based groups significantly enhanced their capacity to achieve policy objectives.

In the waste sector, collaboration with private waste management firms such as Zoomlion, Derrico Waste, IRECOP, and community-based organizations enabled efficient waste collection, recycling, and sanitation education. These collaborative mechanisms facilitated not only logistics support but also knowledge sharing and enforcement of sanitation laws through partnerships with the Ghana Police and the Food and Drugs Authority.

Similarly, in the agriculture sector, collaboration with NGOs such as Farm Radio and FarmerLine, as well as institutions like IFAT, supported the implementation of gender-sensitive agricultural programs and climate-smart agricultural practices. These collaborations provided access to technical expertise, funding, training, and improved planning. Respondents noted that such partnerships are essential for the successful rollout of programs like the Affordable Financing for Agriculture (AFO), Modernizing Agriculture in Ghana (MAG), and the Food System Resilience

Program. The forestry sector also benefited from strong institutional partnerships. Initiatives such as the Green Ghana Project and Forest Investment Program were implemented through collaboration with schools, universities, private companies (Form Ghana), and local farmers. These collaborations enabled resource sharing, capacity building, joint planning, and education campaigns that increased the survival rate of tree seedlings and supported community involvement in forest restoration. Although the literature often highlights challenges in institutional collaboration, respondents in the Bono Region overwhelmingly reported positive experiences, citing trust, shared goals, and effective communication as enabling factors. Only a single respondent noted occasional communication gaps, especially with newer NGOs. Overall, institutional collaboration emerged as a practical necessity rather than just a theoretical ideal, which is critical to the effective implementation of green economy policies across all sectors studied.

5.1.3 Challenges in Green Policy Implementation

The study uncovered a range of significant challenges confronting public sector institutions in the implementation of green economy policies in the Bono Region. These challenges were identified across the waste, agriculture, and forestry sectors and were found to undermine the successful operationalization of green initiatives aimed at fostering sustainable development and environmental protection.

A major recurring challenge identified was inadequate financial resources. Respondents from all sectors lamented that budgetary constraints limited their ability to acquire green technologies, undertake training programs, conduct regular monitoring, and scale up implementation efforts. Even though some funds are occasionally allocated by the central government, delays in disbursement hinder timely project execution, especially in sectors like forestry and agriculture that are season-dependent.

Logistical constraints were also noted as a key barrier. Institutions, especially in the agriculture and forestry sectors, lacked adequate vehicles, equipment, and tools necessary for transporting seedlings, carrying out field operations, and delivering extension services. The waste sector similarly faced challenges in accessing publicly owned collection trucks, relying heavily on private companies and individuals, which limits control and efficiency.

Another critical issue was human resource capacity. Respondents across all sectors indicated a shortage of trained personnel, particularly in green-specific disciplines. Extension officers, environmental engineers, and technical staff required to drive green transformation were either unavailable or insufficiently trained. This limited technical capacity affected project planning, implementation, and community sensitization efforts.

External threats, such as illegal logging and mining, were prominent in the forestry and agriculture sectors. These activities destroy forest reserves and arable lands, pollute water sources, and hinder afforestation and reforestation programs. Climate change-related issues like droughts were also highlighted, especially in agriculture, where prolonged dry seasons led to poor yields and affected the survival rate of planted trees. Other institutional challenges included poor public attitude toward waste disposal, lack of advanced technologies, poor waste segregation practices, and weak stakeholder communication. Though institutional collaboration was largely positive, a few respondents mentioned communication gaps, especially with newly emerging NGOs that do not align their messages with government agencies.

5.2 Conclusion

The successful implementation of green economy (GE) policies in the public sector depends fundamentally on coordinated institutional efforts, adequate resources, and the effective integration of sustainability principles into public administration. Against this backdrop, the general objective of this study was to assess how green economy policies are implemented within

selected public sector institutions, specifically the waste, agriculture, and forestry sectors, in the Bono Region of Ghana. Anchored in the collaborative governance framework, the study examined the interplay between institutional collaboration, implementation practices, and sustainability outcomes at the sub-national level.

The findings demonstrate that public sector institutions in the Bono Region have made tangible progress in operationalizing green economy policies through sector-specific initiatives such as climate-smart agricultural practices, afforestation and reforestation programmes, and circular waste management interventions. These initiatives align closely with the core principles of the green economy, carbon reduction, social inclusion, natural resource conservation, and livelihood enhancement, while contributing directly to the attainment of key Sustainable Development Goals, notably SDGs 1, 2, 8, 11, 12, 13, and 15. Importantly, the study shows that green economy implementation in practice is highly sector-differentiated, shaped by local ecological conditions, institutional mandates, and resource availability rather than uniform national policy prescriptions.

A central contribution of this study is the empirical evidence it provides on the role of institutional collaboration in green economy policy implementation at the regional level. The findings reveal that collaboration among government agencies, private sector actors, NGOs, academic institutions, and community-based organisations functions as a critical enabler of policy execution by facilitating resource mobilisation, technical support, shared planning, and community ownership. Unlike formalised collaborative governance models often emphasised in the literature, collaboration in the Bono Region is largely pragmatic and problem-driven, emerging as a response to institutional capacity constraints and the cross-cutting nature of environmental challenges.

Notwithstanding these gains, the study identifies persistent structural and operational barriers that constrain the effectiveness and scalability of green economy policies. These include inadequate and delayed funding, insufficient logistics, limited human and technical capacity, lack of advanced

technologies, and climate-related stresses such as drought. Sector-specific challenges, particularly illegal logging and illegal mining, continue to undermine afforestation efforts, agricultural productivity, and water security, highlighting the tension between environmental sustainability objectives and entrenched livelihood pressures.

Overall, the study concludes that while meaningful progress has been made toward green economy implementation in the Bono Region, long-term sustainability will depend on strengthening institutional capacity, formalizing collaborative mechanisms, and addressing underlying resource and governance constraints. By providing context-specific insights from a sub-national perspective, this study extends the green economy literature beyond policy rhetoric to illuminate the lived realities of implementation within Ghana's public sector.

5.3 Recommendations

To ensure the effective implementation of green economy (GE) policies across public sector institutions in the Bono Region, this study recommends the following:

Given the financial constraints to green economy policy implementation among the selected public sectors in the Bono region, it is recommended that the government increase and prioritize budgetary allocations specifically earmarked for green economy initiatives within national and regional development plans. Dedicated funding lines should be created within relevant ministries and municipal assemblies to support sustainable projects. Furthermore, the government should establish mechanisms to attract climate finance from international donors and environmental funds to supplement domestic resources.

To overcome logistical constraints, the government should institute policies that enable the strategic procurement and equitable distribution of essential equipment and operational tools across public institutions involved in green economy implementation. A national framework for inter-agency logistics sharing should be developed to ensure efficiency, minimize redundancy, and

maximize the use of limited resources at the regional and district levels.

To tackle the human resource issues, it is recommended that the government initiate a structured recruitment strategy to fill technical and professional gaps in public institutions tasked with implementing green economy policies. Simultaneously, continuous professional development programs, including training in sustainable practices, environmental governance, and project management, should be mainstreamed into public sector human resource strategies to enhance institutional capacity.

In curbing illegal logging, the government must intensify enforcement of forestry laws and strengthen the capacity of relevant agencies, such as the Forestry Commission, to monitor and prevent illegal logging activities. Community-based Forest management approaches should be promoted through policy incentives, enabling local participation in forest conservation efforts. Legislative reforms may also be considered to impose stricter penalties on offenders to serve as a deterrent.

Combating illegal mining is also crucial. A coordinated national policy response is required to tackle illegal mining, particularly in ecologically sensitive areas. The government should strengthen institutional collaboration between the Environmental Protection Agency, the Minerals Commission, and security agencies to enhance monitoring, enforcement, and prosecution. Moreover, alternative livelihood schemes should be developed and financed to reduce the economic dependence of local populations on illegal mining activities.

To address the increasing threat of drought and other climate-related impacts, the government should integrate climate resilience into all green economy policies. This includes promoting the adoption of drought-resistant crops, water conservation techniques, and sustainable land management practices. Policy measures should also support the development of localized climate adaptation plans within the Bono Region, with adequate technical and financial backing.

Finally, the government should formulate and implement policies that support the acquisition, development, and deployment of advanced technologies specifically tailored to green agriculture and integrated waste management. These may include composting systems, biodigesters, recycling equipment, and precision farming tools such as drip irrigation and climate-smart inputs.

The recommendations proposed in this study are prioritized based on feasibility, institutional capacity, and resource availability. Short-term priorities include strengthening inter-institutional coordination and improving communication mechanisms, as these require minimal financial investment but yield immediate implementation benefits. Medium-term priorities involve targeted capacity building and training for public-sector staff in green technologies and policy execution. Long-term recommendations, such as large-scale investment in green infrastructure and advanced technologies, are acknowledged as resource-intensive and dependent on sustained political commitment, donor support, and private-sector partnerships.

5.4 Recommendations for Future Studies

While this study provided a comprehensive assessment of green economy policy implementation within selected public sector institutions in the Bono Region of Ghana, it also opens several pathways for future research. First, future studies should explore the long-term impact of specific green economy policies on community livelihoods and environmental sustainability. For instance, evaluating the outcomes of programs like Green Ghana and Climate-Smart Agriculture over a decade can provide deeper insights into their effectiveness and sustainability.

Second, this study focused primarily on public sector institutions. Future research could include a comparative analysis between public and private sector contributions to green economy implementation. Such studies would help assess the role of private investment, innovation, and corporate responsibility in achieving green growth targets.

Third, more detailed research is needed on community-level engagement in green policy

formulation and implementation. Understanding local participation, perceptions, and barriers at the grassroots level will provide critical input for policy refinement and inclusive development. Finally, more regionally comparative studies involving multiple regions of Ghana can help determine whether the findings from Bono are consistent nationwide. Such studies will offer a more holistic view of green policy implementation across varied ecological and administrative contexts.

5.5 Contributions of the Study

5.5.1 Contribution to Knowledge

The outcome of this study enriches the academic understanding of green economy policy implementation in a specific regional context within a developing country. By analyzing the integration of these policies in Ghana's Bono region public sector institutions, the research contributes novel empirical data and theoretical insights. These findings bridge existing knowledge gaps in the literature, particularly regarding how sustainable development theories apply in practice at the regional level. This contribution is essential for scholars focusing on sustainable development and policy implementation, offering a foundation for subsequent research that could compare different regions or explore similar themes in other developing countries.

5.5.2 Contribution to Practice

Practically, the study's findings directly inform the operational strategies of public sector institutions such as agriculture, waste, forestry, and energy within the Bono region. By identifying effective practices and pinpointing specific barriers to green policy implementation, the research aids in the development of targeted strategies that enhance policy effectiveness. The study equips public sector employees with the necessary skills for implementing green economy policies effectively. This practical application ensures that the research not only contributes to theoretical discussions but also enhances the actual execution of sustainable policies at the ground level.

5.5.3 Contribution to Policy

Policy-wise, this study provides vital insights that can shape future green economy policies in the Bono region and potentially across Ghana. By offering detailed policy recommendations based on actual data and analysis, the research supports policymakers in designing more effective, context-specific policies that address local needs while aligning with national and international sustainability goals. Furthermore, the study highlights the importance of inter-sectoral collaboration, promoting a more integrated approach to policy-making that can lead to more comprehensive and sustainable outcomes.

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APPENDIX

Interview Guide (Questions)

UNIVERSITY OF GHANA BUSINESS SCHOOL

Department of Public Administration

Semi-structured interview guide for Agriculture, Waste, and Forestry sectors

Introduction

This study assesses Green Economy Policy Implementation in Public Sector Institutions in the Bono Region of Ghana. It examines the role of institutional collaboration in implementing green economy (GE) policies and the challenges hindering their effective implementation in the public sector. As part of the requirements for an MPhil Degree at the University of Ghana, this interview seeks your opinion on the topic under study. Your responses will remain confidential and will be used solely for academic purposes. The interview guide questions are set following the study objectives

Questions

Demography of Respondents

1. Sex ……
2. Sector …….....
3. Department ……
4. Position ……

Section 2: Green economy policy implementation

Objective one: Assess the implementation of green economy policies in the public sector

across waste, agriculture, forestry, and energy in the Bono Region of Ghana.

1. How do you understand the green economy in your own words?
2. What specific policies or initiatives related to the green economy are currently being implemented in your sector?
3. What are the key objectives of these policies, and how do they align with the Sustainable Development Goals?
4. What institutional structures or frameworks have been established to support the implementation of green economy policies in your sector?

Section 3: Role of Institutional Collaboration in Implementing GE Policies

Objective Two: To examine the role of institutional collaboration in designing and implementing GE policies in the energy, waste, forestry, and agriculture sectors.

5. Can you describe the level of collaboration between your institution and other public or private entities in implementing green economy policies?

6. What specific roles do different institutions (e.g., ministries, agencies, Private, NGOs) play in the GE policy implementation process?
7. What mechanisms or frameworks are in place to facilitate collaboration among institutions for GE policy implementation?
8. In your opinion, how does institutional collaboration contribute to the success or failure of GE policy implementation in your sector?
9. What are the opportunities for collaborating with other institutions in GE policy implementation?
10. What are the challenges in collaborating with other institutions in GE policy implementation?

Section 4: Challenges Hindering Effective GE Policy Implementation

Objective 3: Analyze the challenges hindering effective green economy policy implementation in the forestry sector.

11. What are the main challenges your institution faces in implementing green economy policies? (Regulatory, finance, infrastructure, illegal lobbying, climate change (drought))
12. Are there any regulatory or governance-related barriers that hinder the implementation of GE policies? If yes, can you provide examples?
13. How does institutional pressure (societal expectations, regulatory frameworks, or professional standards) influence the implementation of GE policies?