UNIVERSITY OF GHANA

FINANCING CLIMATE CHANGE IN GHANA: AN ASSESSMENT OF POLICIES AND INCENTIVES FOR PRIVATE SECTOR PARTICIPATION

BY

ASANTE KOFI APAW PRINCE

(10508659)

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DECLARATION

I hereby declare that this work is as a result of my own research and has not been presented by anyone for any academic award in this or any other university. All references used in the work have been fully acknowledged. I bear the sole responsibility for any shortcomings

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ASANTE KOFI APAW PRINCE DATE

(10508659)

CERTIFICATION

I hereby certify that this thesis was supervised in accordance with procedures laid down by the University

…….. …….

ALBERT AHENKAN, PhD. DATE

(SUPERVISOR)

DEDICATION

This work is dedicated to Abrielle, Deron and Prince, my mother and siblings

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LIST OF ABBREVIATIONS

ACARP	Accra Compost & Recycling Plant
ACF	Africa Climate Fund
ADB	Asian Development Bank
AF	Adaptation Fund
AfDB	African Development Bank
AGI	Association of Ghana Industries
ARC	Africa Risk Capacity
BAAC	Bank for Agriculture and Agricultural Co-operatives
CAAD	Comprehensive Africa Agriculture Development
CDM	Clean Development Mechanism
CDP	Carbon Disclosure Project
CFC's	Chlorofluorocarbons
CH_4	Methane
CIF	Climate Investment Fund Finance Initiative
CIMMYT	International Maize and Wheat Improvement Centre
CO_2	Carbon Dioxide
CPI	Climate Policy Initiative

CSO	Civil Service Organisation
DAC	Development Assistance Committee
DTMA	Drought Tolerant Maize for Africa
EIB	European Investment Bank
EPI	Etudes et Projects Industriels
EU ETS	European Union Emission Trading Scheme
FAO	Food and Agriculture Organisation
GBP	Great Britain Pound
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEF	Global Environmental Fund
GIS	Geographic Information Systems
GoG	Government of Ghana
GSGDA	Ghana Shared Growth and Development Agenda
GTZ	German Technical Cooperation
HARITA	Horn of Africa Risk Transfer for Adaptation
ICT	Information Communication Technology

IEA	International Energy Agency
IPC – IG	International Policy for Inclusive Growth
IPCC	Intergovernmental Panel on Climate Change
JBIC	Japan Bank for International Co-operation
MESTI	Ministry of Environment Science and Innovation
METASIP	Medium Term Agriculture Sector Investment Plan
MMDAs	Metropolitan, Municipal, and District Assemblies
MNCs	Multi-national Companies
N_20	Nitrous Oxide
NAFSIPs	National Agriculture Investment Plans
NAMA	Nationally Appropriate Mitigation Actions
NCCP	National Climate Change Policy
NDCs	Nationally Determined Contributions
NEFCO	Nordic Environmental
NESPAK	National Engineering Services Pakistan Pvt. Ltd.
NGOs	Non-Governmental Organisations
O_3	Tropospheric ozone
ODA	Official Development Assistance

PEF	Private Enterprise Federation
PPCR	Pilot Program for Climate Resilience
PwC	PricewaterhouseCoopers
RMCs	Regional Member Countries
SIPPEREC	Syndicat Intercommunal de la Périphérie de Paris pour l'Électricité de les
SSA	Sub Saharan Africa
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change

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ABSTRACT

For Ghana to achieve a major reduction in greenhouse gas emissions and adapt to current climate change impact, whilst maintaining its development mission, it requires stronger financial support with private sector participation. The study was therefore set forth to assess the existing policies and incentives available for private sector participation in climate change financing in Ghana.

To accomplish this objective, purposive sampling technique was used to identify twenty- three (23) key informant stakeholders. Findings from the research show that that both private and public sector have much understanding of climate change financing in Ghana as well as investment opportunities that exist in climate change mitigation and adaptation. However, the findings of the study revealed that the private sector faces several challenges such political and macroeconomic instability, regulatory environments, development and operation of new technologies etc., hinders the private sector in mobilizing funds for climate change activities. The challenges notwithstanding, tax rebate, waiver of taxes and duties on green technology, subsidies, feed-in tariffs, inter alia could be useful to attract private sector investment, as well as a formalized pathway for public sector to collaborate with the private sector. The study recommends the need to clarify and reduce the cumbersome application process for climate finance. This will aid capacity building for private sector as well as provision of more incentives to attract investment into climate change.

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.0 Introduction

This this study sought to assess the policy and incentives to attract necessary to attract private sector to invest in climate change mitigation and adaptation in Ghana. This chapter provides the background of the study, statement of research problem, research objectives, research questions, significance of the study, scope of the study, and organisation of the study and limitation as well as the entire study

1.1 Background of the study

The issue of climate change has become part of sustainable development discourse most especially, in the post 2015- development agenda. The stabilisation of the global climate and reduction of future emission appear to be the most crucial challenge of the 21st century, leading to a non-negotiable paradigm in the global development. Climate change does not only retrogress the efforts of Africa in achieving its sustainable developmental goals and poverty reduction, it has the potential to wipe the gains made so far by the continent. . Although Sub-Saharan Africa (SSA) is responsible for only 4% of annual global greenhouse gas emissions, the region is most susceptible to the dangerous impacts of climate change; some of these effects have already been experienced and recorded in the region (Barnard et al., 2014). Climate change has put millions of poor people at the risk of tragic crop failures, reduced agricultural productivity, increased malnutrition and hunger, water scarcity and the spread of infectious diseases (Devis, 2012). It has been established that climate change has caused increase temperatures, rise in sea levels, increased rainfalls leading to unpredictable and extreme events, increased greenhouse gas emissions and loss of carbon sinks in Ghana (GoG, 2011).

Finding an appropriate response to the harmful effects of climate change and reaching a goal of low carbon growth and development would be a daunting task for world leaders. This therefore calls for quick response involving all stakeholders, in a collaborative process to evaluate climate change scenarios, policies alternatives under uncertainty, and context-based solutions that speak to regional and local concerns and goals. Private sector participation would be essential for many reasons. It can mobilize financial resources and technical capabilities, leverage the efforts of governments, engage civil society and efforts, and develop innovative climate services and adaptation technologies (Miller, 2014). Similarly, Ellis, Schramm & Lemma (2009), postulates that private sector is capable in undertaking investment and technological innovation that would support low carbon growth, provide finance for mitigation and adaptation, adopt low carbon production processes, and encourage, facilitating more climate conscious purchasing decisions by consumers. In addition, private-sector investments constitute 86% of global investment and financial flows (UNFCCC, 2007), and 90% of the population in developing countries depends on the private sector for their income (SER, 2011). Together, these facts demonstrate that engaging domestic and international private sectors is inevitable and potentially significant (Pauw and Pegels, 2013). In acknowledging the current role and potential of the private sector in climate change, it is crucial to identify the tools and policies that can be used to encourage their engagement and participation. This means that governments would need to develop innovative approaches and packages that capable of attracting and motivating the private sector to provide funding support for the financing of climate change programmes and activities.

Globally, a collaborative process between both private and public sectors is ideal in adapting to the impact of climate change (Ansell and Gash 2008; Betsill and Bulkeley 2006; IPCC 2014; Rissik and Reis 2013; UNEP 1998; CSIRO 2014). This means that it will be easier for public

sector to unlock private sector investment and ensuring their active participation in climate change and adaptation. However, the basic questions that come to mind include; what incentives can be put in place to attract private sector participation in climate change? What barriers or risks are likely to hinder private sector engagement in climate change financing and how can private up-scale their participation in climate change mitigation and adaptation? Thus, to provide suitable answers to these questions, this study investigates climate change finance in Ghana by assessing of some policies and incentives for private sector participation.

1.2 Problem Statement

The ravaging impacts of climate change in Ghana should signal private sector to see the need to respond to climate change, both in operational and strategic terms. This is because the harm is obviously unparalleled to the extent that business operations would surge with pressure from consumers', government demanding for environmentally friendly products and attempts to regulate environmental externalities would be challenging for the private sector.

Nevertheless, climate financing in Ghana, generally, is bedevilled with lack of institutional strength and reliable funding sources (Mensah, Anderson and Nelson, 2016). In recent studies by Bird et al. (2016) on Public spending on climate change in Africa: Experiences from Ethiopia, Ghana, Tanzania and Uganda, the authors conclude that some efforts have been made towards to establish policy clarity and map out strategies for sourcing and climate finance delivery, but remains an underdeveloped part of the policy discourse. According to the authors, new and additional international climate finance has not fully materialised as hoped, and the future scale and speed at which international climate funds may become available remains unpredictable. In particular, the National Climate Change Policy, which provides a blueprint for adaptation, mitigation and social development in Ghana, is deficient in clear-cut funding

strategy for mobilizing internal and international funds to support implementation, monitoring and evaluation mechanism lacks comprehensive (Chibeze, 2015; Asante et al., 2015). According to Asante et al. (2015), coordination between the implementing agencies for climate change is needed, however, the Natural Resources, Environment and Climate Change Unit established in 2010 to oversee, coordinate and manage the financing of natural resources and climate change activities has no mechanisms to track resources generated for climate change actions within the country or from external sources**.** Same is corroborated by the findings of Institute of Statistical Social and Economic Research (ISSER), Overseas Development Institute (ODI) and Ghana's Ministry of Finance (MoF) into "Climate change finance in Ghana".

- *"There is no mention in the National Climate Change Policy (NCCP) of how funds will be raised to deliver on the plan outlined in the policy document and no process outlined to ensure transparency and accountability.*
- *There is also no finance strategy to accompany the plan, and insufficient capacity to coordinate and oversee climate spending across government.*
- *Climate change is not a primary objective for the majority of climate related spending and awareness of the NCCP and issues relating to climate change vary across government institutions"*

This situation is worrying as Westermann and Kennedy (2009) notes that there is high deficiency in the climate funding due to lack of fulfilment of commitments by developed countries. In addition, committed funds are not available to poor countries due to the complexity of the in funding mechanisms.

To improve on this (Griffin, 1999) opines that there are reformation in policy to embrace a multi-stakeholder approach which embraces contributions from a broad range of expertise. One

way to overcome this is to encourage or facilitate solutions led by civil society (Ellis et al., 2013). According to Adu-Boateng (2015) collaboration between sub-national and national governments, as well as with researchers for the implementation of climate change strategies, can be facilitated through appropriate platforms to identify, dialogue and negotiate climate-related issues. However, collaboration is often skewed towards a selected group of technical experts and therefore relegates private sector from the national actions taken on climate change, and Government is unclear on the potential and contribution of the private sector entities in effectively tackling the climate change menace (Cameron, 2011).

In developing countries, engaging the business community has been given much less emphasis and remains unusual (Biagini & Miller, 2013). Private sector engagement in climate change mitigation and adaption in Ghana has often been voluntary (usually unconcerned), ad hoc (reactive) (Alhassan, Wade and Hadwen 2016). Contrary, private sector-led investment has become part of the resource mobilisation drive at the national and international climate change negotiations to effectively tackle climate change mitigation and adaptation in developed countries (AGF, 2010; Mabey, 2012; UNFCCC, 2012). Private investment in renewable energies grew by 26% in 2014 after two years of decline, resulting in record volumes of new installed capacity (103 GW). The sum of USD 243 billion private investment remains the largest as it represents (62%) of the global climate finance in recent times (CPI, 2015). Nonetheless, UNEP (2009) notes that economic instruments that may work for one set of problem in one country may not be sufficient to address a more severe problems in another country.

A rigorous search in both management and environmental literature shows that prior research have paid less attention to how the right incentives can be created to maximise private sector investment in response to climate change issues particularly in the context of Ghana. Specifically, there appear to be a paucity of empirical research that captures the interplay

between public and private collaborations to find solutions to complex societal environmental challenge such as climate change. The research would therefore contribute to ongoing studies in climate change finance and provide win-win scenarios for both private sector and the public sector under conditions of putting together synergy to find innovative and effective solutions to problems of climate change in Ghana. In this context, preparing for the impacts of climate change will become increasingly important as companies seek to maintain their current operations and competitive advantage. Indeed, without such empirical studies, however, Ghana will not find itself in a good position when it comes to designing robust climate policies intended to stimulate private investment

1.3 Research Objectives

The general objective of this study is to assess the policy and incentives necessary to attract private sector to invest in climate change mitigation and adaptation in Ghana. Besides, the specific objectives of the study are meant to:

1. Examine the private sector investment opportunities in climate change mitigation and adaptation.
2. Assess the government policies and incentives for private sector participation in climate change financing.
3. Identify the challenges the private sector faces in mobilizing financing for climate change related business activities.
4. Recommend strategies for improving private sector participation in climate change financing.

1.4 Research Questions

To achieve the objectives and purpose of the study, the researcher will be guided by the following questions:

1. What are the climate change opportunities that attract private sector to invest in climate change mitigation and adaptation?
2. What are the policies and incentives provided by government to attract the private sector to participate in climate change activities?
3. What are the challenges of private sector in mobilizing funds for climate change activities?
4. What strategies can the private sector adopt to improve their participation in climate change finance?

1.5 Significance of the Study

The significance of this study lies in the fact that climate change finance is still a new area, which has not yet been fully explored. The success of this research will open a new area of research focusing on how to finance climate change in developing countries through existing bilateral, multilateral and private funds have proven otherwise on African continent. This research will help raise more issues to be considered about climate change finance since it is a field that has been identified as a major potential to affect the war on anthropogenic causes of climate change and local level adaptation capacity.

The research will add to the body of literature on climate change and climate change financing in the context of transdisciplinary studies. Climate change has been identified as a major cause of the vulnerability of poor people and most communities across the globe. To improve the resilience of the poor communities in developing countries therefore requires a cogent

financing strategy to implement feasible climate change adaptation and mitigation programmes. This study will provide a more scientific and contextual framework of climate change finance that is mutually beneficial to all stakeholders identified in climate change financing.

The study also provides a springboard to a much-needed conversation on how to finance climate change in Ghana; it is part of pioneering research into the issue of financing climate change programmes in Ghana. The study will provide enough information for policy institutions that regulate environmental activities in Ghana and thereby help to improve decision making in respect of climate change financing. In addition, researchers in the field of environmental resource management, sustainability science and other general fields will find this study useful as it provides the maiden and most recent information on the subject matter.

1.6 Organization of the study

This study is organised in five chapters. The chapter disposition for the study was as follows: the first chapter of the study provides the background, significance of the study and the research objectives. The review of relevant secondary literature related to the study is presented in the second chapter. The third chapter presents the research methodology. It covers the research design, data collection instruments and the sampling technique. The presentation and analysis of the findings of the study are discussed in the fourth chapter. The final chapter of the study discussed the summary of key findings, conclusions and recommendations for improving private sector participation in financing climate change impacts in Ghana.

CHAPTER TWO

LITEREATURE REVIEW

2.0 Introduction

This chapter is organised into two main sections. The first section reviews the theoretical literature whiles the second focuses on empirical literature. The first section is further divided into two parts. The first presents a definition of private sector; the second part examines the concept of governance and the theoretical framework of the study. The second section is also divided into two; the first part reviews literature on climate finance and the second part considers private sector participation in climate change

2.1 An Overview of climate change

The worldwide normal weather conditions have gone up by more than 1.5°F since the late 1800s IPCC (2013). The warming is the result of the continuous accumulation or human emission of billions of tons of carbon dioxide (CO_2), Chlorofluorocarbons (CFC's), methane (CH_4), nitrous oxide (N_20), tropospheric ozone (O_3), and water vapour known as greenhouse gases, into the atmosphere every year. This has been accompanied by rising sea levels, heat waves, droughts, floods, extreme weather and many other climate effects. The impacts are global in scope and unprecedented in scale UNEP (2016). In effect, the more humans emit greenhouses gas into the atmosphere; the greater the earth would experience a change in climate and weather conditions

Climate and weather appear to be mutually exclusive under this context and therefore to better understand climate change, it would be important to draw a line between the two. The term "weather" refers to the short-term (daily) changes in temperature, wind, and/or precipitation of a region (Merritts et al., 1998). Simply, weather is the day-by-day conditions of the atmosphere

in terms of daily temperature, humidity, and moisture. The weather is very difficult to predict due to the dynamic nature of the atmosphere.

Climates on the other hand, refer to the average weather over an extended period, usually across a period of 30 years. Weather has a very limited predictability effect and could directly perceive by people while climate cannot (Kropp & Scholze, 2009). In a popular maxim, climate is what you expect and weather is what you get. Climate varies from one region to the other based on factors such as place, latitude, distance to the sea and vegetation and presence or absence of mountains or other geographic factors. The statistical significant variations of the mean state of the climate or of its variability, typically persisting for decades or longer have been referred to as "climate change" (Baede et al., 2001)

2.2 Climate Finance Definition

Climate change financing has emerged in response to the need for adequate, predictable and sustainable financing to address climate related issues, particularly in developing countries. (UNFCC 2007; OECD 2009). Some scholars also considered climate finance to include resources for activities supporting low carbon development and energy infrastructure transitions (Stewart, Kingbury and Rudyk, 2009; Buckner et.al, 2012; Nafo, 2012; Falconer and Stadelmann, 2014). Similarly, the UNFCC refer to the term climate finance as :'finance aims at reducing emissions, and enhancing sinks of greenhouse gases and aims at reducing vulnerability of, and maintaining and increasing the resilience of, human and ecological systems to negative climate change impacts' (UNFCCC, 2014). Oscar (2012) notes that climate finance is a heavily contested term. Similarly, Nafo (2012) asserts that the definition of climate change finance remains contentious. Debatably, there is no globally accepted definition of climate change finance. This is mainly due to the many differing views on what type of funding

should make up climate change finance, how it should be delivered and how much money developing nations would need to mitigate climate change and adapt to its impacts (Venugopal & Patel, 2013).

Used in the narrow sense and in the context of international political negotiations, climate change finance refers to funds from developed to developing countries for taking care of climate change problems. As Buchner, Falconer, Hervé-Mignucci, Trabacchi and Brinkman (2011) affirm climate change finance used in the narrow sense as well as in the context of international political negotiations, refer to funds from developed to developing countries. Funds may flow from developed to developing countries (North-South), from developing to developing countries (South-South), from developed to developed countries (North-North) and domestic climate finance flows in developed and developing countries. However, developing countries for some time now have raised concerns over the dominance of developed countries at the GEF (Venugopal & Patel, 2013).From the foregoing, it could be interpreted that developed countries have an obligation towards developing countries by way of providing financial support to transform their economies to 'less carbon - intensive and more resilient to climate change. Oscar (2012) corroborates this claim by referring to climate change finance as the transfer of public resources from the North to the South to cover the costs of dealing with the long-term impact of climate change.

2.2.1 Sources of Climate Finance

Finance for climate change actions are many on the globe and the architecture of such funding mechanisms is very complex (UNCCD, 2013) and are channelled through various conduits. These sources are grouped by scope or by whether they fall under or outside the UNFCCC. A

brief overview of these sources/options/initiatives existing for financing climate change is provided below.

2.2.2 Bilateral Climate Finance

Bilateral climate finance is sourced as a result of direct cooperation between governments and executed through direct transfers from developed to developing countries and are administered largely through existing development agencies. According to Atteridge, (2011), bilateral sources appear to provide considerably more flexibility in scope, meaning perhaps greater opportunity to find synergies between climate and development outcomes. However, transparency and consistency in reporting of some bilateral finance for climate actions appear to be limited with countries self-classifying and self-reporting climate-relevant financial flows without a common reporting format, or independent verification. (Nakhooda, Watson and Schalatek, 2016). According to Climate and Policy Initiative estimated that USD 12-19 billion was directed through governments, ministries and bilateral agencies in 2014 in addition to that spent through climate funds and development finance institutions, including climate related according to ODA (CPI, 2015).

It is worth noting here, however, that the bilateral institutions have for decades played a key role in providing aid and investments to developing countries. Their gradual integration of climate financing into development activities means they are now a very significant agent in delivering finance for climate change (Atteridge, Siebert, Klein, Butler and Tella, 2009)

2.2.3 Multilateral Climate Finance

Multilateral climate funds are a major channel for climate finance flows from national donors to projects in developing countries, often utilized as part of multimillion-dollar country-wide

investment programmes administered by multilateral development banks (Buchner, Brown and Corfee-Morlot, 2011). Cameron et al. (2015) notes that Public climate finance is often made available to multilateral climate funds, pools of resources from donors and other sources that are dedicated to addressing climate change.

Funds flow through multilateral through other organisations development bank and multilateral agency channels or UN organisations to fund and implement actions in host countries. They include the World Bank, regional development banks such as the Asian Development Bank, the African Development Bank and the Inter-American Development Bank, as well as two institutions participating in this mapping exercise, the European Investment Bank (EIB) and Nordic Environment Finance Corporation (NEFCO). These institutions play a key role in using international public support to achieve local investment in developing countries. They have also an explicit goal of engaging private sector and leverage its capital for climate-relevant investment (Buchner, Brown and Corfee-Morlot (2011). Multilateral institutions are an important channel for DAC member countries' ODA. They offer the advantage, particularly for smaller donors, of being able to mobilise significant volumes of resources and to broaden development objectives. Money that flows to these intermediaries includes proceeds of major borrowing programmes, gross income from loans, investments and shareholdings and direct contributions from donor countries to specific disbursement programmes. In addition, these actors raise finance on capital markets, from a mix of public and private investors according to Buchner, Brown and Corfee-Morlot (2011)

Multilateral climate funds delivered an average of $2.2 billion per year to developing countries in 2013–2014 compared to total climate finance flows averaging $714 billion per year in the same period (SCF 2016). Effective spending of multilateral climate finance and delivery of successful outcomes are critical in building consensus on the imperative to take action in

response to climate change. Multilateral funds bring both developed and developing countries together to agree an approach on how best to tackle this collective problem. They have created space in which new ideas can be fostered through collective deliberation with scientific, private sector and civil society actors, thereby setting new norms for governance of public finance.

This gives developing country's government greater voice and representation in decision-making. Steps to increase inclusion and accountability in multilateral fund governance have been taken, including by creating a role for non-governmental stakeholders as observers to fund meetings, with varying degrees of active participation opportunities.

2.2.4 Mechanisms Established by the UNFCCC

Mechanisms established by the UNFCCC constitute the third source of climate finance. Mostly, governance processes of the funds and their implications have greater legitimacy under the regime of the Convention. The mechanisms include Climate Investment Fund (CIF), Adaptation Fund (AF), Global Environment Facility (GEF) and, Green Climate Fund (GCF) (CEMDA, 2013).

2.2.5 National Climate Change Funds

The increase in climate change funding opportunities makes it important for countries to consider different channels and tools to attract and leverage different types of climate change investment, including that from private sources. National and regional funds are one of these tools that can be used to meet this challenge. Developing countries have increased their own spending, through their own national budgets, on activities related to climate change Buchner, Brown and Corfee-Morlot (2011). Several developing countries have established regional and national channels and funds with a variety of forms and functions, resourced through

international finance and/or domestic budget allocations and the domestic private sector (Nakhooda, Watson and Schalatek, 2016).

The Indonesian Climate Change Trust Fund was one of the first of these institutions to be established. Brazil's Amazon Fund, administered by the Brazilian National Development Bank (BNDES), is the largest national climate fund, with a commitment of more than USD 1 billion from Norway. There are also national climate change funds in Bangladesh, Benin, Cambodia, Ethiopia, Guyana, the Maldives, Mali, Mexico, the Philippines, Rwanda, and South Africa

The trend to establish national funding entities and institutions responsible for allocating and managing climate change finance coincides with a growing call by developing countries for more decentralized decision making and, in some cases, direct access to funds rather than through the mediation of international or other institutions. This new development creates a demand for funding for capacity building, as national institutions will be expected to operate according to universal practices of good governance. Strengthening these national institutions will be an ongoing and, most likely, long-term project. With most of the national institutions recently established to tap climate change finance, international institutions have continued to play an important, though different, role –one of support rather than direct action (Gomez-Echeverri, 2010). Building the capacities of many of these national institutions will take time and resources.

2.2.6 Private Climate Finance

Private finance arrangements already plays an essential role in the global climate change financing architecture but it is unlikely that alone will be sufficient to deliver the required adaptation or mitigation actions in many countries, particularly emerging economies.. Weaver (2011) notes that private investments is focus on return for investments, and are not concerned

with mitigation as a lever for increasing energy access and enabling poverty eradication. This therefore makes finance flows very difficult (Atteridge, 2011). Similarly, Grießhaber, (2012) notes that private finance for climate finance are mainly driven by economic interests hence investments takes place in projects and areas where capital re-turns are high and best predictable but not necessarily, where they are needed.

2.3 Climate Finance Opportunities

Access to access to funding climate change comes from a variety of sources. This include International and multilateral sources, bilateral and regional sources and private investment (UNECA, 2014). Under the Green Climate Fund (GEF), Developed countries made an agreement at the Copenhagen Accord (Cop15) to mobilize 100 billion dollars a year by 2020 to assist developing countries address their needs (UNFCCC 2009). While developing countries have argued for strong national ownership, developed countries commitments towards this pledge has been disappointing. Current contributions from developed countries to developing countries are insignificant considering the climate needs of developing countries. Buchner et al. (2015) who argues that latest tracking data available, the current volumes of finance are nowhere near the levels needed to support the implementation of developing countries' Nationally Determined Contributions (NDCs) support this.

Climate finance to Africa has been growing considerably. Statistics shows that climate finance flowing to developing countries totalled USD 52.5 billion in 2013 and increased to USD 61.8 billion in 2014 (OECD, 2015). Recent data indicates that USD 2.3 billion has been approved for 453 projects and programs throughout Sub-Saharan Africa since 2003 (UNDP 2015) on the African continent. The Africa Climate Change Fund (ACCF) was established in April 2014 as a bilateral trust fund with a € 4.7 million (US $6 million)

contribution from the government of Germany for an initial three-year period. At the end of 2015, the ACCF was able to secure an additional funding commitment of € 4.7 million from the government of Italy, which will bring the total contributions to the ACCF to over € 9.4 million. The aim of ACCF is to support regional member countries (RMCs) in their transition to climate resilient and low carbon development. Specifically the Fund aims to help RMCs:

- *Prepare to access greater amounts of climate finance*
- *Address climate change in their growth strategies and policies and also in developing climate-resilient and low-carbon investment plans and projects*
- *Co-finance climate-resilient and low-carbon projects and programs*
- *Receive consolidated information on climate-resilient and low carbon development;*
- *Build the capacity of national and regional stakeholders for climate change and green growth; and*
- *Prepare for and contribute to the Conferences of the Parties of the United Nations Framework Convention on Climate Change (UNFCCC).*

Table 2.1 Climate funds financing climate change in Africa (as of April 2013)

Fund	**Fund focus**	**Donor type**	**Financial instrument(s)**
AF	Adaptation	Multilateral	Grants
CTF	Mitigation	Multilateral	Grant and loans

Congo Basin Forest Fund	REDD	Multi-donor	Grants
FCPF	REDD	Multilateral	Mixed
FIP	REDD	Multilateral	Mixed
GEF Trust Fund 5th (GEFTF5)	Multiple	Multilateral	Grants
Global Climate Change Alliance	Multiple	Multilateral	Grants
Global Energy Efficiency and Renewable Energy Fund	Mitigation	Multilateral	Mixed
ICF – UK	Multiple	Bilateral	Grants and loans
International Climate Initiative – Germany	Multiple	Bilateral	Grants and loans
Japan Fast-Start Finance	Multiple	Bilateral	Grants and loans

Least Developed Countries Fund	Adaptation	Multilateral	Grants
Norway International Climate and Forest Initiative	REDD	Bilateral	Grants and loans
PPCR	Adaptation	Multilateral	Grants and loans
Special Climate Change Fund	Adaptation	Multilateral	Grants
SREP	Mitigation	Multilateral	Mixed
UN REDD	REDD	Multilateral	Grants

Source: CFU (2013)

Ghana's record of accessing multeral climate initiatives from the GEF and the World Bank has been impressive but has shown poor performance in assessing carbon market financing (Würtenberger et al. 2011). Under NAMA scooping study, information on 45 financial initiatives from bilateral, multilateral sources for private sector seeking mitigation actions have been outlined (PEF, 2014). According to Domfeh (2015), the African Union through NEPAD, for instance, has for the past two years being disbursing a €3.6million fund for adaptation.

Projects attract up to €200,000, but Ghana has not benefited from this programme due to complex and competitive nature of application procedure. This is in harmony with Ahenkan and Surugu (2015) who opines that international funding mechanisms are complex, has intricate application procedure, and hence affects the flow of funds to meet climate needs. The authors there suggest that innovative sources of funding should be explored to compliment international flows to enable developing countries, particularly, Ghana to sustain its mitigations and adaptation actions. A specific contribution comes from Giovannetti and Lanati (2015) who stress that no individual source of financing is independently sufficient to successfully provide the required resources for sustainable development financing.

2.3.1 Climate Change Investment Opportunities for Private Sector Engagement

Strategic opportunities aimed at reducing carbon emissions through the development of innovative goods and services can position companies to take advantage of emerging consumer demand (Kolk and Pinkse, 2005; Kolk and Pinkse, 2004). The Stern (2007) review stresses that climate change and weather events can disrupt businesses and indirectly alter market demand and supply. In addition, motivation for private sector companies to response to climate change can vary; drivers can be operational or strategic, a commitment to corporate social responsibility, a response to regulation, or broader stakeholder relations and the potential for the private sector to expose themselves to law suits if they fail consider the impacts of climate change (POST, 2004; PWC, 2010). Also, Lee (2012), argue that there has been growing interest among researchers and practitioners concerning the relationship between corporate carbon strategies and firms' performance

A study by Oxfam (2009) outlines the benefits of capitalizing on the new "adaptation marketplace." It encourages companies to invest in climate change preparedness and adaptation measures in several sectors, such as water management, new resistant agricultural products, insurance, disaster preparedness, coastal resource management, and climate change information and consulting services (Oxfam, 2009). A similar report by GHK (2010), identified key opportunities for UK businesses in adaptation to climate change in the domestic and global markets. The case study analysis made several examples of opportunities for private companies across a range of sectors. According to the study, these opportunities are at its budding stage or likely to be available in the medium to longer term at both domestically and globally. Bernard, McFatridge and Minang (2012) also notes that major banks, commodity brokers, geographic information system (GIS) firms, and large ICT companies such as Google and other firms within the private sector whose activities are not dependent on forests but are eager to offer solutions to deforestation. According to Matrix (2013) in 2012, UK companies were estimated to have generated £2.1 - £6.1 billion through sales of climate-related goods and services representing a growth in the market over recent years

The above study provides much relevant information on opportunities in adaptation and mitigation actions globally. Though these opportunities may vary considerably across sectors and companies, it is clear that businesses, which are taking rigorous action on climate change, stand to reap a lot of benefit. Private sector has a key role to play in addressing climate change but one of the major factors that would catalyse their investment is the return on their investment. If return on investment were low then that would be disincentive for their engagement. However, climate investment options are often long term in character, risky and require technocrats to roll it out and therefore most business organizations may not consider it investment as a viable alternative. Biagini and Miller (2013) agree and note that most businesses perceive consideration of climate risk in their investments and business plans to be

unnecessary, technically difficult, and perhaps premature. Many businesses have already started to recognise that climate change poses both risks and opportunities. For example, the Carbon Disclosure Project (CDP) operates worldwide to collect and distribute high-quality information that motivates investors, corporations and governments to take action to prevent dangerous climate change. Nevertheless, in most cases, there is a lack of effective frameworks in place for understanding and managing these long-term risks and opportunities. A better understanding of climate change and its motivational factors would provide a great degree of value to the business or corporate sectors for developing their strategies and actions in line with global and national

2.3.2 Areas of Private Sector Engagement

Scholars and practitioners around the world have prescribed two approaches for addressing climate change: mitigation and adaptation (Klein et al. 2005; Verchot et al. 2007; IPCC, 2007). Mitigation means 'implementing policies to reduce greenhouse gas emissions and enhance sinks' (Pachauri & Reisinger, 2007). Mitigation involves reducing GHG emissions or enhancing sinks in forests and soil. The IPCC defines adaptation to climate change as 'adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities'. Mitigation refers to interventions or policies to reduce emissions or to enhance the sinks for greenhouse gases. Thus, mitigation is a key long-term solution to addressing climate change and minimising its negative impacts in the future.

Climate adaptation, on the other hand, refers to 'initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects' (Pachauri and Reisinger, 2007). Adger et al., (2003), notes that adaptation is the adjustment of

a system to moderate the impacts of climate change, to take advantage of new opportunities or to cope with the consequences. The Stern Review (Stern, 2006) relates adaptation to building resilience, and recognises that it will be a key response to reduce vulnerability to climate change.

In the short term, mitigation and adaptation will not substitute for each other; that is, current reductions in emissions will not avoid the necessity to address the effects of climate change that are already being felt. However, the need for adaptation in the long term can be reduced by current mitigation. The reality of climate change is that it will be around for the near future because of the emission levels associated with the developmental and lifestyle paths to which the world is already committed, and from which we cannot withdraw immediately. It is recognised that the solution to human-induced climate change ultimately lies in mitigation. However, it is also recognised that stabilising emissions, or reducing them to levels that do not affect climate, will not happen immediately. For a considerable period into the future, the world will therefore be exposed to climate change impacts resulting from past, present and future emissions. With the slow pace of mitigation, adaptation to climate change is the only option, especially in those areas and among those groups that are most vulnerable – the poor and developing countries.

2.3.2. 1 Agricultural Technologies

Agriculture has been identified as one of the major causes of GHG emissions, which have also induced climate change. Agriculture accounts for 17% directly through agricultural activities and an additional 7% to 14% through changes in land use (IPCC, 2007; World Bank, 2009; Lybbert and Sumner, 2011; OEAD 2015). Johnson et al., (2007) notes that GHGs such as; gases such as CO2, CH4, and N2O are from agriculture and a source,) for three (primary

greenhouse and serve as a sink for CO2 through Carbon sequestration. As Khan et al. (2009) concur that the climate change agenda has subsumed agricultural production as both a contributor to climate change and, through adjustment in practices, a potential mitigating force. Clearly, from the positions of the authors above it could be deduced that climate change is expected to hit food production and would consequently affect livelihood most regions. As Ahenkan and Surugu, (2015) confirms biodiversity, ecosystems services, and livelihood of many people would be hardest hit. Its impacts are expected to deepen food insecurity, poverty, poor livelihoods and unsustainable development (UNDP, 2004; FAO, 2005; IPCC, 2007).

Lobell et al. (2011) used combined historical crop production and weather data to model yield response to climate change for several key African crops. The authors found that by mid-century, the mean estimates of aggregate production changes in sub-Saharan Africa would be -22, -17, -17, -18, and -8 percent for maize, sorghum, millet, groundnut, and cassava, respectively. According to them, except cassava, in all cases, there is a 95 percent probability that damages exceed 7 percent, and a 5 percent probability that they exceed 27 percent. Countries with the highest average yields showed the largest projected yield losses.

On the other hand, Lybbert and Sumner (2011) also acknowledged that the production of (i) more food, (ii) using fewer resources, (iii) under more volatile production conditions, and (iv) with net reductions in GHG emissions from food production, processing and marketing has been the core challenge of climate change adaptation and mitigation in agriculture. They argue that agricultural technologies will be the alternative for both governments and especially the private sector to meet these challenges. They suggest agricultural technologies such as several new varieties and traits offer farmers greater flexibility in adapting to climate change, including traits that confer tolerance to drought and heat, tolerance to salinity, resistant to pests and diseases and private agricultural biotechnology firms such as Monsanto.

In addition, A report by FAO, (2014) points out that Heads of State and Government have emphasized the importance of the agriculture and climate change, by endorsing the New Partnership for Africa's Development (NEPAD) programme on Agriculture and climate change. The Vision to have at least 25 million smallholder households practicing Climate Smart Agriculture (CSA) through the Comprehensive Africa Agriculture Development Programme (CAADP). Under NEPAD, member countries prepared National Agriculture and Food Security Investment Plans (NAFSIPs) to provide opportunities to integrate the scaling up of practices that potentially benefit development, food security and climate change adaptation and mitigation into an existing continental and country owned sustainable agriculture development framework. (Branca, Tennigkeit, Mann and Lipper, 2012). According to the report, many NAFSIPs contain programmes designed to support commercialization either in the agricultural sector, directly involving smallholders or through support to agriculture related businesses along the value chains.

Although this have been efforts made at this level is quiet phenomenal governments and Heads of State and Government must double their efforts and if possible bring research scientist across African together to develop new and innovative agricultural technologies that will spur private sector investment. African leaders have gain notoriety in ratifying international conventions but lack the political will to translate programmes in to actions and therefore one wonders whether the expectations of the Malabo declaration would be realised. A case in point is the Ghana's Medium-term Agriculture Sector Investment Plan (METASIP). FAO (2014) indicates that US$1,001.02 million over 2011-2015 was the estimated budget which only shows government intent but not implementation. It will therefore not be surprising whether similar occurrence has not replicated itself in Benin, Ethiopia, Gambia, Kenya, Liberia, Malawi, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Togo and Uganda where NAFSIPs were prepared in the context of CAADP compacts. Finally, there is no universally applicable

list of mitigation or adaptation practices, all practices need to be assessed for their appropriateness to individual agricultural systems and clear incentives and capacity strengthening are required.

2.3.2.2 Insurance Markets

There is considerable interest in the potential for insurance products as part of adaptation strategy for several reasons (McHale and Leurig, 2012). Courbage and Stahel (2012) notes that insurance can be a valuable tool for adaptation in three main ways: helping to manage climate change risks; providing incentives for risk prevention; and providing information on risk. Insurance and reinsurance companies may have opportunities to offer new products to address newly recognized risks, such as weather-indexed insurance, policies, which pay automatically upon defined weather events and eliminate any discretionary judgements (Hazel et al., 2010). Mills (2009) opines that private sector organisations in the insurance sector can take advantage of the green revolution in the financial markets and introduce new climate-friendly products and services through their core business and through their investments and asset management. He further indicates that insurers have a huge opportunity to day to develop creative loss-prevention solutions and product that will reduce climate change-related losses for consumers, government and themselves.

Many other innovative insurance concepts for small farmer risks have been proposed (Oxfam, 2012). Insurers have rolled out green buildings products and services, including products and services especially designed for new green buildings and upgrades to green traditional buildings (Mills, 2009). According to Mills (2009) climate-related micro-insurance, which provides coverage for low-income populations without access to traditional insurance, is reaching a greater number of policyholders than most climate-related products in the traditional

market. He identified micro-insurance products covering about seven million policyholders. Many of these products respond to climate-linked vulnerabilities such as food and water shortages in rural areas of South America, Africa and Asia. The National Company of Agricultural Insurance (NCAI) a multi-stakeholder partnership between the government of Senegal, insurance and reinsurance companies in Senegal, farmer organisations and national private sector, provides a range of insurance products, including index insurance, crop insurance and livestock insurance. African Risk Capacity initiative (ARC) allows governments to take out insurance against natural disasters, providing them access to immediate funds to implement rapid and planned response to support vulnerable populations to climate shocks (Crick et al., 2016). Insurance companies in Kenya provide index-based weather insurance and index-based livestock insurance to small scale farmers and herders (LTS International and Acclimatise, 2012)

Obviously, the above points cannot be accepted as the only drivers influencing insurers to venture into this arena. Other factors such as financial literacy, risk awareness, and regulatory frameworks and enforcement of property rights can push for the development and suitability of this specific tool. Although one way to mitigate the damages and consequences of climate change is compensating victims, a central challenge for most private sector organisations would be the quantum of compensation and the duration for the payment of claims. In addition, the relationship demonstrated in India and Thailand exemplifies the synergy between the public and private sector collaboration in a way that allows the innovation and flexibility needed to build adaptive outcome. Governments seeking to engage private actors need to build those relationships with the desired adaptation outcomes in mind. The public sector can therefore create an enabling environment for non-state agencies to pursue new business opportunities in the event of climate change. Finally, insurance product offered by Pepsico farmers to its farmers is very innovative considering that it is based on measurable climate change outcomes,

which limits farmer's losses due to disasters or harmful conditions brought about by the climate change. Arguably, managing this insurance would be easier and retaining the incentive for farmers to limit their exposure to losses.

2.3.2.3 Renewable Energy

Rapid economic growth, coupled with other variables such as demand for energy, inadequate resources, fluctuating oil prices, and uncertain energy supplies have pushed world leaders to realise that secure and safe supplies of fossil fuels can no longer be taken for granted (Aslani, Naaranoja, and Zakeri 2012. Literature has discussed many alternative technologies that might potentially replace fossil fuels as our main source of energy (Hoffert *et al.*, 1998, 2002; Pacala and Socolow, 2004). Fossil fuel providers are therefore investing in research and development on renewable energies such as geothermal, hydro, solar, wave, wind, and bio fuels among others. As Tsitsiragos, (2015) notes that demand for renewable energy is expected to increase globally as societies move towards low-carbon economies. Similarly, Jennison (2014) asserts that Renewable energy generation will become more attractive to businesses looking to increase their energy security.Ren21 Renewables (2007) acknowledged that by mid-2007, at least 140 publically traded companies worldwide, focused in part or completely on renewable energy, and had a market capitalization greater than $40 million USD. They indicated that the estimated total market capitalisation of the companies and divisions in mid-2007 was more than £100 billion GBP. According to William et al (2015) the objective of the GEF is to finance the incremental cost of using environmentally friendly technologies instead of more conventional solutions through grant funding because renewable energy technologies are often the lowest cost solution in remote rural areas (Solano-Peralta et al 2009; Szabó et al 2011; Blum et al 2013).

Statistically, in Africa, less than 10 per cent of the rural population on the average have access to electricity (Energypedia 2014). Investment firms are beginning to see opportunity, likely because of renewable energy quotas and feed-in tariffs rewarding investment in this area, and investment firms are beginning to act on these prospects. According to Tsitsiragos (2015), the private sector together with the public sector in Morocco is constructing a 510-megawatt solar plant in the Moroccan desert that will provide power to 1.1 million people. The author indicates that his project will make Morocco a renewable energy powerhouse and serve as a model for future public-private partnerships. In Nepal, the first project-financed hydropower plant in the country is expected to generate about 200 GWh of electricity, helping address debilitating power shortages, which underlie the country's lack of industrial progress. In Ghana the Renewable Energy Act 2011 established the Renewable Energy Fund. The Act is an important milestone in the promotion of renewable energy and with it, the government has created the right conditions for investment in renewable energy in Ghana by removing policy uncertainty. There are three policy instruments enshrined in the Act - the Feed in Tariff, the Renewable Energy Fund and the Renewable Portfolio Standard.

Clearly, from the above point's renewable energy such as bioenergy, direct solar energy, geothermal energy, hydropower, wind and ocean energy (tide and wave) has the potential in catalysing the world to achieve the idea of sustainability and sustainable development of the renewable energy-based industries. From social and economic standpoint, the sector has the potential to create jobs for skilled personal in developing countries where unemployment is very high. This is due to small and medium sized enterprises involved in all stages of the supply and production chain. In conclusion operational and maintenance cost for renewable energy would be very high for private sector companies on one hand and other hand end-users may not be able to afford it, in view of the fact that income levels of most are generally low. This

would become a disincentive for most private sector companies who would expect return on investment at favourable time scale

2. 3.2. 4 The Built Environment

Increasing demand for housing as a result of recent population upsurge and the quest for economic development. According to Fink (2011), buildings are the greatest energy consumers, accounting for 40% of total energy use, with corresponding carbon emissions of more than 30%, exceeding those of the transport sector. He opines that heating (and cooling) of homes and buildings is responsible for approximately 56% of the energy consumed, and as comfort levels rise, the demand for air-conditioning systems, white goods, technology equipment and even larger homes throughout the wider Europe increases. Global new build and retrofit markets are likely to grow substantially; requiring technologies and design, engineering and construction services Agrawala, et al. (2011). Opportunities for green infrastructure and re designing/re-engineering urban areas for climate resilience will start to become important. Eco-towns in the UK will provide good demonstration site potential (GHK, 2010).

Global green building activity has doubled every three years for over a decade, with more growth expected, there are many stakeholders with vested interest in green building including owners, tenants, building operators and designers. Recent literature shows that green buildings have a greater market demand, willingness to pay (Gou et al, 2013) and rental values than conventional buildings. The McGraw-Hill Construction report, for instance, reveals that market demand for green buildings has experienced increased growth. In response, project owners are encouraged to provide green buildings (Butler, 2008; Robichaud et. al, 2010; Sundbom 2011; Dhaliwal, 2012; Nurel et al. 2013 and Li Y et al., 2014;). The appeal of the

market prospects of green buildings is persuasive for project owners, especially owner-developers, focused on profit making. In addition, the literature findings revealed that green building is in the owners' interest in helping their business to prosper. Porter and van der Linde (1995) opines that there have been many case studies which show private sector companies who appear to have benefited going green in response to market-based environmental regulations. Exhauster and Rammer (2014) agree that regulation-induced innovations, which improve a firm's resource efficiency in terms of material or energy consumption, have a positive impact on profitability, as measured by pre-tax profits over sales. Lanoie et al. (2011) also concur that regulation-induced; low-carbon innovation improves business performance, though not enough to offset the costs of complying with climate change regulations. They conclude that the net effect is negative that is, the positive effect of innovation on business performance does not outweigh the negative effect of the regulation itself. These results suggest that climate change regulation is costly, but less so than if one was to consider only the direct costs of the regulation itself, without the ability of innovation to mitigate those costs

A recent study found that global deployment of cool roofs and pavements would generate cooling to the same effect as offsetting 150 Gigatonnes of CO2. According to Smith (2014), several cities are beginning to encourage green roofs through legislature and tax incentives. New York is offering tax rebates to people wishing to install green roofs. Tokyo has a new policy that requires 20% of new government buildings and 10% of private buildings to have green roofs. Roofs and paved surfaces typically comprise about 25 and 35 percent, respectively, of dense urban areas (Akbari et al., 2009), so increasing the reflectivity of these surfaces offers the potential to offset some of the urban heat island effect and influence global climate. Green rooftops and landscaping options not only reduce urban and regional heat islands but can also improve local and regional air quality (Taha et al., 1997) and provide recreational opportunities and other non-climate benefits.

2. 3.2. 5 Innovation and market penetration:

It is generally accepted that to achieve a reduction in GHG emissions at a considerable levels innovation and large-scale adoption of GHG-reducing technologies would be crucial throughout the global energy system (IPCC 2007). Technological change is, however, often seen as an exogenous event (Lavie, 2006), while companies can in effect have a clear influence on the specific trajectory that technological change follows (Kemp et al., 1998). Through R&D and technological capabilities, companies can invent technologies that help reduce emissions.

However, potentially more important even is their role in the whole innovation process, which means not only inventing a technology, but also commercializing it by bringing usable products to the market. This involves a wide array of capabilities such as integrating technological capabilities into product design and the manufacturing process, being responsive to market needs, optimizing the time it takes to bring a product to the market and maintaining flexibility (Rothwell, 1994). In particular, the water sector offers many opportunities in the area of innovative technologies related to adaptation, around issues such as water management, distribution, and drainage (Agrawala, S. et al. 2011). According to Agrawala, S. et al. (2011), desalination is in great demand in North Africa and in the Middle East. Although it requires a lot of energy to process in some circumstances, it may be the only alternative solution to climate change-induced water shortages. Additionally, SUEZ Environment conducts wastewater "regeneration" activities worldwide, reusing treated wastewater for irrigation, for industrial water processes, for water-cooling and in the production of "soft" water. Reuse of treated wastewater is therefore a means to reduce water extraction and usage. In the face of current temporary and chronic water deficits due to increasingly frequent and prolonged droughts, water reuse is considered as a strategic alternative resource worldwide. For example, SUEZ Environment subsidiary through its GDF SUEZ is involved in providing solutions for adapting

to climate change impacts through the development of desalination systems, the reuse of "regenerated" wastewater, the use of simulation tools, the management of aquifer recharge, and the reduction of water leakages. SUEZ Environment estimates that more than half of the world's population lives less than 100 km from coastal regions and these offer opportunities for desalination services

Enhanced participation from the private sector is required for the technological innovations that will support a low-carbon growth path for Africa. Home- grown technologies designed by Africans, specifically adapted to the unique conditions of the continent, should be exploited (ADF, 2015). However, the AfDB offers an interesting view, which emphasises that Africa, should have a different perspective from that of industrialised countries with regard to its pursuit of the green growth agenda. Whereas in those countries, the emphasis is placed on shifting towards a low carbon economy, in Africa, the approach has to be in the context of social and economic development.

Companies that possess specialized assets that are required for commercializing certain types of innovation can benefit from technological change because they form the bottleneck in the value chain; however, those companies that merely own generic assets stand to lose their competitive advantage as the innovation will make these assets obsolete (Jacobides *et al.*, 2006; Rothaermel and Hill, 2005; Tripsas, 1997). The choice that companies have in responding to technological change is therefore trying either to influence the technological trajectory in such a way that it will most likely be competence enhancing or to change firm specific capabilities to be able to deal with a competence-destroying change instead (Tushman and Anderson, 1986).

In conclusion, while not downplaying on the assertion made of the AfDB and OSISA on this discussion, it is both appropriate and practical to indicate that innovation and technology has become ubiquitous in achieving sustainable development goals. So therefore, if the Developing

world has interest in moving in tandem with the developed world, there should be a paradigm shift towards technology and innovation. In pursuit of substantial reductions in national GHG emissions, governments first turn to the 'technological shelf' of available products, processes, and technical knowledge.

2.3.2. 6 Forestry Sector (REDD+)

Private sector participation in REDD+ has received wider coverage under climate change literature (O'Sullivan et. al., 2010; Albani et al., 2012; Bernard, McFatridge and Minang, 2012; CIF, 2013; Walker *et al.* 2013; Aguilar-Støen, 2015; Nhantumbo and Camargo, 2015; Henderson and Coello, 2015) UNEP (2011) provides several reasons why private sector engagement is critical to halting climate change, particularly the change resulting from deforestation and forest degradation.) Similarly, Boutthavong, Hyakumura and Ehara (2015) explores the forms of stakeholder participation in the implementation of three pilot projects in Laos south east Asia, with a focus on who actually makes decisions on project activities with regard to REDD+. The authors found that engaging the private sector in REDD+ provides leverage for the private sector to harmonise their investment and future business operations with REDD+ activities. According to them private sector could be a key source of investors to buy carbon credits from projects. They argue that monitoring of forests and related resources at project sites would be difficult without full participation from the private sector.

According to the UNEP Green Economy report an average annual additional investment of US$40 billion will be required to halve global deforestation by 2030 and to increase reforestation and afforestation by 140 per cent by 2050, relative to business as usual (Carbon Markets & Investors Association, 2009; UNEP, 2011; World Economic Forum, 2011; Carbon Markets & Investors Association, 2011). Accordingly, the authors opined that the private

sector is well placed to meet this requirement while they adopt to practices that can yield long-term reductions in deforestation and forest degradation, hence reducing emissions. In addition, private sector engagement is vital due to its ability to create jobs that positively affect local and national economies. They assert that hiring people formally during implementation of REDD+ project and other jobs such as working in tree nurseries and plantations, as ecotourism guides, or controlling forest fires; rangers to monitor and protect the project area from outsiders would bring the people hired into tax-paying brackets, further contributing to the wider economy of the countries. Henderson et.al, (2014) also claims that the innovative attribute of the private sector will enable it contribute to REDD+ by incorporating new systems, knowledge, technologies and practices into their operations to boost efficiency, productivity and profits.

Clearly, in every environmental mechanism there are issues however if moral obligations are upheld by the private sector and complies with environmental laws the rights of local people would not be compromised. In particular, a company in Mozambique submitted a request covering an area equivalent to 19 per cent of the whole country to implement a REDD+ initiative, and another covering more than 50 per cent of a province (Nhantumbo, 2011). In such enormous landscapes, it is inevitable that the rights and interests of other people and businesses will be infringed. As forests, food, and agriculture are the life-blood of the social, economic, political, and environmental fabrics of all the poor countries (Murthy et al., 2010). The declining productivity and deterioration of forest ecosystems is a central concern to millions of people whose livelihoods depend on them (Boon and Ahenkan, 2012).

Current studies have identified several private sector actors engaged in REDD+ seeking investment opportunities or to become ‘’carbon neutral’’, emission-intensive industries (Bernard et. al., 2012). Other examples include BNP Paribas and Nedbank Group, which have taken stakes in REDD+ projects. These funds and major private sector firms are strategically orienting themselves to take advantage of the growth in REDD+ credits on voluntary carbon

markets, and are attempting to capture an early share of credits in anticipated REDD+ compliance markets (Janson-Smith & Marsh, 2012). The increasing involvement of financial institutions indicates a growing confidence in the future of forest carbon investments (Diaz, Hamilton & Johnson, 2011). Some of these deals take the form of direct investments with project developers seeking carbon financing for most project types, others take the form of major purchase agreements, or often they are some combination of the two (Diaz, Hamilton & Johnson, 2011).

Unequivocally, private sector engagement would bring in a lot of foreign direct investment into African countries where REDD+ project are ongoing. However, private sector motive on investment in any mechanism be it in a developed or developing country has always been return investment. This drive has the ability to undermine the main objectives of REDD+

2.4 Role of Incentives for Private Sector Engagement

Unlocking private sector investment to complement government's efforts in reducing greenhouse gas emissions and help developing countries build resilience the wake of climate change will not come with ease. This is due to the fact that private sector require an attractive environment that promises a high return on investment. Realignment of Public policies must make room for broad policy alternatives in quick and timeous manner to accelerate private sector flows through clear investment framework would be required (Griffith-Jones, Hedger and Stokes, 2009). Similarly, at the G8 Gleneagles meeting in 2005, the business sector, including the World Business Council on Sustainable Development, delivered this same message:

"The track record tells us that in the absence of strong policy support mechanisms and incentives, and while fossil fuels are cheap and widely available, public and private funds are unlikely to deliver the necessary technologies at a cost and scale necessary to address climate change unless there are major changes in investment frameworks."

Nevertheless, private sector face a wide array of risks namely, political thus policy and social risks; physical risks and market risks, (Frisari et al. 2013; Micale et al. 2013). Additionally factors affecting the cost and return to their investments include, transaction costs and information costs (Fiestas and Sinha 2011). According to Torvanger, Narbel, Pillay and Clapp (2016) many financial tools such as revenue support, credit enhancement, direct investments, and insurance could be used to mobilize private finance (see Fig. 4). Several publication in recent years have suggested a strong and sound regulatory environment realised through transparency, longevity and certainty, support from public budgets, fiscal policy and the use of domestic and international public finance as tools to incentivise private sector investment (Hamilton, 2009; High Level Advisory Group on Climate Change Financing, 2010; Kreibiehl and Miltner, 2013; Mabey, 2012; UNFCCC, 2012).

Table 2.2 List of instruments for de-risking and cost reduction for mobilizing private finance for climate change mitigation in developing countries.

Revenue Support Policies	**Direct Investment**	**Insurance**	**Credit Enhancement**	**Others**
Feed-in- tariff Feed-in- premium	Concessional loan	First- loss insurance	Export credit guarantee	Debit- for climate swaps Green Bonds

Tradable green certificate Tendering process	Dedicated private equity Grant Equity investment development PPP	Insurance /guarantee Public political risk	Interest rate subsidy Partial credit guarantee Loan guarantee Securitization	

Source: Torvanger et al. (2016)

This list is drawn from Bird et al. (2013), Brown et al. (2011), Buchner et al. (2012), Chaum et al. (2011), Ellis et al. (2013), Frisari et al. (2013), IFC (2013), IFC (2011), Kato et al. (2014), Micale et al. (2013), OECD (2015b), Pauw (2014), and Trabacchi and Stadelmann (2013).

In a study to find, instruments to incentivize private climate finance for developing countries, Torvanger et al. (2016) opined, a particular tool would be significant based on the country, sector and the type of climate intervention. Indonesia, Morocco, Kenya, the Philippines, and South Africa are some Annex II countries who deploy most of their renewable energy technologies through tendering (REN21 2014). Ghana, India, Vietnam and Nepal have introduced some sort of green certificate mechanisms (REN21 2015). In Kenya feed- in –tariff was used to address energy deficit through the implementation of Renewable Energy Feed-in-Tariff (REFiT).

A careful scrutiny of this entire propositions regarding these instruments appear to be inconsistent with the UNEP‟s (2009) guide form economic instruments for environmental and

natural resource management which provides that three groups of economic instruments namely; price based instruments; property rights based instruments; and legal, voluntary and information based instruments. While these instruments are plausible in most developing countries like Ghana, care and caution ought to be taken in the rolling of these tools especially with the assumption that private sector participation bring in FDI. As regulatory policies such as tax regimes in Ghana has gain notoriety in most public discussion. A case in point is of SINOPEC, the Chinese firm undertaking the construction of Ghana's Western Corridor Gas Infrastructure Project, which has been granted exemption from import duties, VAT, and corporate income tax by the Ghana Gas Company without prior parliamentary approval. In response to public pressure, the Minister of Finance and Economic Planning is now putting together the necessary documentation for parliamentary ratification.

2.4.1 Climate Change Policies

Mitigation and adaptation are two separate policy approaches suggested by the UNFCC in responding to climate change. Policy makers locally and internationally have therefore followed these two approaches in rolling out climate change policies. However, within the streams of climate change policy scholarships mitigation has received exceptional coverage with adaptation largely considered a responsibility for individual countries (Ayers and Huq, 2009). To put this in perspective mitigation policies include the Kyoto Protocol, LULUCF (Land Use, Land-Use Change and Forestry), NAMA (Nationally Appropriate Mitigation Actions) and REDD+ (Reducing Emissions from Deforestation and forest Degradation) with adaptation policies, such as NAPAs (National Adaptation Programs of Actions) limited to the least developing countries.

In congruence with financing mechanisms, mitigation and adaptation are also segregated with mitigation overshadowing adaptation financing respectively (Duguma, Minang and Van Noordwijk, 2014). In particular, 96% of global climate finance (350 billion USD) in 2010/11 was allocated to mitigation activities alone (Buchner et al., 2012). By contrast, priority if given to adaption than to mitigation in Africa (Branca, Tennigkeit, Mann and Lipper, 2011). Interestingly, Pauw and Dzebo, (2014) assert that hundreds of billions of dollars are invested in climate-change mitigation annually, but very little of this goes to Africa. Statistically US$18 billion will be needed every year between 2010 and 2050 in SSA World Bank (2010). Recent estimates by AfDB put adaptation costs in Africa in the range of US$20–30 billion per year over the next 10–20 years (AfDB, 2012). In UNEP's 2016 Adaptation Finance Gap Report, estimates that the annual adaptation costs for Africa is up to USD 300 billion by 2030. This suggests that developing countries in Africa like Ghana might not be able to adequately meet expenditure on national adaptation action plans and foster private sector engagement, which requires huge finance to be met by the public sector alone.

Growing literature on climate change have suggested and integrated approach to mitigation and adaptation owing to the fact that it can be more effective and efficient (Dang et al., 2003; Klein et al., 2007) and reduce trade-offs between the two (Kane and Shogren, 2000). Moser (2012) advocated for such a holistic approach stating that the overlap of mitigation and adaptation demands a long-term, life cycle, and systems perspective. This has potential for promoting sustainable development more effectively especially in developing countries (Dang et al., 2003; Swart and Raes, 2007).

Thuy et al. (2014) suggest that the integration of adaptation and mitigation in policy should have three objectives:

- *an integrated policy framework that accommodates multiple goals of mitigation and adaptation;*
- *policy coherence, or the removal of negative spill overs and contradictions between mitigation and adaptation policies; and*
- *High-level policy integration or the realization of mutual benefits and making mitigation and adaptation policies mutually supportive.*

The authors conclude that an integrated policy requires comprehensiveness, aggregation of the costs and benefits and the consideration of distributional impacts and consistency across policy goals, including in operationalized guidelines with and across different sectors.

On the other hand, Duguma et al. (2014) also suggest four conditions to achieve mitigation and adaptation integration:

- *planned and or existing national laws, policies and strategies;*
- *existing and planned financial means and measures;*
- *institutional arrangements in the country with specific reference to climate change issues; and*
- *planned* and or existing plans, programs and initiatives in the country.

Despite the positive prospects that can be achieved through the integration of mitigation and adaptation, Klein et al. (2005) assert that a key setback in integrating gains by integrating climate change adaptation and mitigation is institutional complexity emerging because of various actors involved. Tompkins and Adger, (2005) concurs and note that institutional divergences between adaptation and mitigation measures also became obstacles in moving toward integrated climate policies at various scales. In spite of these arguments advanced, these authors, Underdal, (1980) asserts that an integrated policy is one that recognizes all major

consequences of policy decisions, that evaluates policy options based on the forecast impacts of aggregated goals, and that ensures consistency between policy elements.

While this discussion makes some good points, the authors failed to place their suggestions in the context of developing countries. This is because policy conditions for mitigation and adaptation, which would work well in developing countries, does not necessarily, guarantee its suitability in the context of developing countries. Arguably, perusing mitigation and adaptation policies separately would be the best option. Additionally, taking a view of developing nations from Riggs (1962) famous Prismatic Model, the economies of developed and developing nations do not share similar characteristics. Developing nations are characterised by an economy transitioning from agrarian to industrial; National income and the per capita income is very low, systems are perceived not to be in tandem with people and their problems etc. For this reason, making suggestions from the lens of developed countries would not reflect the true picture of developing countries.

2.4.2 Effectiveness of Policies

Climate change has been recognised globally as a developmental and environmental issue. Therefore, conscious efforts must be made by experts, academic and international negotiators to galvanize information about the likely impacts of climate change on human society, the options for responding to climate change, and the trade-offs between policy choices and their effectiveness, benefits, risks and costs (Dessler & Parson, 2009). Climate change mitigation and adaptation need to be mainstreamed into all development policies, programmes and activities, and funding decisions to achieve sustainable development (Agarwal & Perrin 2008). According to them understanding how to link climate change to the development challenges of the particular sector under consideration should be the first thing to consider. In addition, Nill

& Kemp, (2009) argue that climate change policies need to be coherent with policies related to national development. This illustrated by a recent study by Asante et al. (2015) on climate change financing in Ghana. The study finds that that Ghana has fully recognize the need to foster the sustainable development priorities identified in the Ghana Shared Growth and Development Agenda I (2010-2013). According to them, the National Climate Change Policy (NCCP), which gives policy direction of Ghana government's response to climate change (MESTI, 2014) has strong linkages with the current national development policies including the Ghana Shared Growth and Development Agenda II (2014-2017) and the 2014 Coordinated Programme of Economic and Social Development Policies. More so, they posit that national response to climate change has become a crosscutting issue in all national development plans and is being mainstreamed into national sectoral programmes, including some Metropolitan, Municipal, and District Assemblies (MMDAs). These policy documents acknowledge their coherence with the NCCP in order to achieve the country's objectives on climate change. This shows that climate change is a top priority in Ghana's developmental agenda. However, a draw back in this approach was that all authors failed to address the issue of implantation. This is on the basis that policies which fail to address implementation is arguably the most important part of public policy cycle and therefore any mechanism to assess climate should robust in addressing the issue of implementation (Bird et al. 2013). To be more precise the effectiveness of any policy is measured by its outcomes, as no matter how effective a policy may be at achieving certain goals in principle, it is useless if it cannot be implemented' (Thomas & Grindle, 1990).

According to Bird et al., (2013) climate change policies will require new governance arrangements and involve a wide set of stakeholders, as the response to climate change requires interdisciplinary and cross-sectoral involvement. Similarly, Jones *et al.*, (2008) and Boating (2006) notes that binging stakeholders to a decision making table will ensure that opposing

views of stakeholders are heard and harmonised among all stakeholders. It implies therefore that, private is key among other stakeholders in delivering climate change solutions for the benefit of society through market competitiveness and also implementing cost-effective options for a low-carbon future. This is very important in the policy process in that gaps within polies are identified and dealt with. In addition, when all stakeholders participate in the policy decision, they are able to owe the outcome of the policy and therefore implementation becomes easier. The new framework must create mechanisms that catalyse much greater volumes of portfolio and direct private sector investment in climate change-related activities (WBCSD and WEF 2008).

2.4.3 Policy Conditions for Private Sector Participation

The importance of private sector investment to scale-up finance to achieve a vision of low-carbon and climate resilient infrastructure globally adaptation has been emphasised in many climate change negotiations (Carbon Markets & Investors Association, 2009; UNEP-Financing Initiative, 2011; World Economic Forum, 2011; Carbon Markets & Investors Association, 2011). There should be an urgent policy action across continents to spur private investments in a clear climate and sound investment policies, targeted financial tools and instrument essential to overcome barriers to private sector investments and address market failures. This is consistent with the World Business Council call for business to invest in viable, economic projects especially when there is policy certainty. (WBCSD, 2008). According to the Council, a good policy environment will be attractive to the private sector to deliver competitive business solutions and lower the risk of investment. For example, global harmonization of standards will reduce the cost of technologies deployed worldwide; energy efficiency standards will help the deployment of energy efficiency in buildings and sustainable

mobility solutions; a suitable combination of legal framework and market mechanisms will reduce illegal logging and promote sustainable forest management; a meaningful carbon price will make low carbon projects more competitive

In a recent study, Lui (2016), he analysed the role of public finance and public policy instruments in mobilizing private climate finance in 23 developing countries using econometric models. The study revealed that inflows from developed to developing countries has a negative effect on private investment in low-carbon projects. However, domestic regulatory policies have significant and positive effects on private investment volume, while domestic fiscal policies have significant but negative effects on private investment volume.

Additionally, the study shows that private investors respond to public fiscal policies when public finance is already engaged to a certain level. He concludes that the impact of public instruments on mobilizing private investment is mixed, due to the conflicting consequences of the signalling effect and the crowding-out effect. He therefore suggests that it is important for policy makers to design the right set of policies, so that public spending does not "crowd out" private investment. Rather, public finance should focus on where it is most needed to compensate for the absence of private financing and to mobilize additional private sector engagement. According to him, single mechanism is usually less effective and fiscal policies in particular may even crowd out private investment. A set of public instruments, which include well-developed regulatory policies, fiscal policies and sufficient public finance, is essential to stimulate more investment that is private.

Although, the author provides much information relevant in the context of developing world, the study failed touch on transparency and accountability in public funding decisions. It is not just a matter of advocating for system where public finance should focus on where it is most needed to compensate for the absence of private financing or to mobilize additional private

sector engagement. In many developing countries, transparency and accountability appear in many public finance decisions but appear to be rhetoric. The political will translate such commitments into substantive reform is often lacking. Some governments remain fiercely opposed to incorporating these principles into the international development agenda, viewing them as entry points for illegitimate political meddling. This has been confirmed by the World Bank who given an approximation of 13-35% of contract value in road transport projects alone in developing countries (OECD, 2014)

Bird et al. (2013) opines that any framework to assess climate change policies needs to address the issue of implementation. Ultimately, the effectiveness of any policy is measured by its outcomes, as 'no matter how effective a policy may be at achieving certain goals in principle, it is useless if it cannot be implemented' (Thomas & Grindle, 1990). According to Bird et al. (2013), to allow for implementation, a policy should be costed (which is proving a major challenge for climate change policies), should have explicit, time-bound objectives and be supported by relevant instruments, including economic and regulatory measures as well as administrative norms. Furthermore, they develop the claim that if climate change policy is going to ensure the effective delivery of finance, it needs to come with a set of implementing instruments and regulations: a complete 'policy package'.

2.5 Barriers to Private Sector climate change action

Barriers discourage or raise obstacles to climate change adaptation decision-making and implementation, which in turn make private sector adaptation less opportune, efficient and or effective, or may require costly changes. Some are external to an organization and or individual, and others are internal and based on perceptions and experience. (Moser and Ekstrom, 2010). Brown et al. (2007) identify barriers impeding the commercialisation of

climate change mitigation technologies and suggest that these barriers are wide ranging, with the two biggest being the absence of a price on GHG emissions and issues relating to cost effectiveness. Nel, (2015) explores the key risks and barriers associated with renewable energy market development in South Africa. He identified political risk, human capacity, and corruption as the most serious risk faced by the private sector in renewable energy markets. In addition, perceptions held by stakeholders in the deployment of renewable energy sources as well as governance gabs are among the gabs identified. He argues that these risks impedes the development of renewable energy and serves as a disincentive for the private investment. In a recent study by on " GHG Reduction Potential in Asia, Masui, Ashina, Fujimori and Kainuma (2015) opine that institutional, economic, financial, and technological barriers exist in most Asian countries in their effort to transit to low carbon societies with private sector enterprises as key actors. The authors confirm that though these barriers differ from country to country, they are obstacles to technology transfer and technology diffusion. According to authors in China, India, and Thailand, for example, technologies such as wind power and bioenergy electricity production that are ready for diffusion and technology transfer for commercial use may encounter such barriers as high patent acquisition costs or a lack of local expertise with regard to imported technologies and lack of know-how and skills for their operation and maintenance. For technologies such as LED lighting or photovoltaic that are ready for diffusion and technology transfer for business or consumer use, the barriers may be the small size of the market and an exceedingly small amount of investment from overseas.

World Economic Forum (2013) also, identified political and macroeconomic stability, regulatory environment, development and operation of new technologies, and capacity to utilize investments as some of the obstacles associated with green investment in developing countries. According to Würtenberger (2012), investors perception to new low-carbon technologies and equipment is unreliable, especially if it is deployed in a developing country;

they may think demand for these technologies and equipment will be insufficient; or they may be concerned with risks of contract breach by other parties, or with risks of non-performance due to political changes.

However, barriers in developing countries face largely depend upon national circumstances, but can be classified in political, economic, financial, legal, regulatory, technical, institutional or socio-cultural terms (Boldt et al., 2011; Painuly, 2001). Financial barriers may include insufficient equity, unavailability of long-term debt and early-stage financing (Ritchie and Usher, 2011). Political risks may be related to changes and instability of state institutions, wars, terrorism and similar risks; and policy risks may be related to changes in agreed policies, tariffs or contracts (Corfee-Morlot, 2012). In addition, Stringer et al. (2014) notes that barriers to the adoption of sustainable land management technologies include, the cost of introducing or maintaining the technology; availability of labour to implement it; local traditions and cultural factors; or logistical challenges such as distance to markets. According to them, these complications make it imperative to combine locally held knowledge on SLM technologies with scientific testing and validation, so that local technologies and know-how can gain greater policy credence and be more widely applicable across contexts (Raymond *el al*., 2010)

2.6 Collaborative Governance Theory

The collaborative governance emerged in the 1960s resulting from complex governance gabs during the post New Public Management era to a governance system that is capable of addressing critical issues, including transparency, accountability and a broader stakeholder participation in a continuous collaborative policy environment. Thus collaborative governance bring state and non- state actors together to enable them share their diverse interests, become better informed, and become more invested in mutually beneficial joint solutions (Emerson & Murchie, 2010). It integrates structures for decision making, deliberative processes, leadership, and information to resolve and manage difficult public policy problems (Emerson & Murchie,

2010). Its primary focus is on managing social issues that span multiple jurisdictions (Ferreyra & Beard, 2007; Imperial, 2005) and that involve significant political conflicts among adversarial parties (Leach et al., 2002; Weber, 2003). Collaborative governance refers to a situation and process in which public actors work collectively with the private sector, civil society, and the community during the policy process (Agrawal & Lemos, 2007; Bryson et al., 2006; Emerson, Nabatchi, and Balogh, 2012; Kettl, 2006; Thomson & Perry, 2006). Ansell and Gash (as cited in O'Brien, 2012), noted that collaborative governance is a governing arrangement where one or more public agencies directly engage non state stakeholders in a collective decision-making process that is formal, consensus oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets..

In a study by O'Leary and Vij (2012) on inter-organizational collaboration in public management, the authors questioned where this field has been and where it is going. They outlined a number of issues, concepts and ideas which include multiple definitions, organizational changes demanding collaboration, interdisciplinary issues, management challenges, paradoxes of autonomy and interdependence, collaborative considerations, individuality, leadership challenges, weaknesses in research and the missing link between research and practice (O'Leary & Vij, 2012). Unlike the Ansell et al (2008) and Emerson et al (2011), O'Leary and Vij (2012) uses the term 'collaborative public management', rather than 'governance' in their definition which is adopted from Agranoff and Mcguire (2003). In so doing, they stressed that: "Collaborative public management is a concept that describes the process of facilitating and operating in multi-organizational arrangements to solve problems that cannot be solved or easily solved by single organizations.

Early researchers have tried to address two fundamental issues underlying collaborations thus: (1) why actors collaborate and (2) whether collaboration is the most effective tool in finding antidote to issues which is often set out to address. While a group of researchers have concluded

that there are a plethora factors that inspires actors to collaborate (Henry et al., 2011; Ingold and Fischer, 2014; Nowell and Steelman, 2015; Berardo and Lubell, 2016; Scott and Thomas, 2016), other scholars in addressing the latter question have shown that collaborative engagement differ on case by case basis and therefore defining effectiveness is of ambiguous and problematic (Turrini et al., 2010). Nevertheless there is a growing literature in environmental management and governance that makes a strong claims that collaborative engagements can be effective in solving intractable issues but it is also shown that there is no guarantee that this will happen automatically, and again, the effectiveness in problem solving depends on the specific tasks at hand (Folke et al., 2005; Koontz and Thomas, 2006; Lubell et al., 2014; Scott, 2015; Ulibarri, 2015 Barnes et al., 2016; Bodin et al., 2016). This comprehensions are corroborated by studies conducted by Waugh and Streib, 2006; Moynihan, 2009 and McGuire and Silvia, 2010 challenges involved in managing collaboration within multi-organizational networks under conditions of threat, urgency, and uncertainty.

In a recent study by Vangen, Hayes and Cornforth (2014) on 'collaborative governance' and inter-organizational collaboration, the authors identified a contrast in the literature between studies of collaborative governance and governing collaborations. According to them, in the former case, a deliberate choice to use inter-organizational collaboration for public policy or public management purposes is made, whereas in the latter case they are merely concerned with the governance of collaboration, which is not necessarily initiated by public agencies. They identified two definitions, in which 'collaborative governance' defines a mode and means of public governance, and 'governing collaboration' a practice that is focused on a common goal, but which is not necessarily initiated by public organizations.

However, in all collaborative engagements, the theory provides that non-state actors have a responsibility to play in the decision making process in ensuring a good policy outcomes.

Although proponents of the theory have advanced convincing advantages, the underlying arguments raised by other studies suggest in that powerful stakeholders manipulate the process (Page, 2008), public agencies lack real commitment to collaboration (Ansell & Gash, 2008) and distrust becomes a barrier to good faith negotiation (Huxham & Vangen, 2000)

Collaborative governance has since become an essential part of public administration, democracy, and management discourse (Emerson, Nabatchi & Balogh, 2011). Collaborative governance approaches have been discussed extensively in public administration and public policy scholarship. Existing studies address important topics such as the processes to enhance stakeholder participation within the collaborative governance setting (Bingham, Nabatchi, and O'Leary, 2005; Koontz et al. 2004), and the improved social outcomes that result from this governance approach (Beierle, 1999). Other researches have considered the collaborative governance process across sectors, settings, issues, and time (Bryson et al., 2006; Emerson, Nabatchi, and Balogh 2012; Lenkowsky and Perry 2000; Thomson and Perry 2006; Ansell and Gash 2008). Also within the streams of theory and research, collaborative governance has been applied and studied in several policy contexts. It has been used by law enforcement agencies (Nicholson-Crotty and O'Toole, 2004), the Veteran's Health Administration (Dudley and Raymer, 2001), and the Department of Homeland Security (Jenkins, 2006; Taylor, 2006). It has been applied to child and family service delivery (Berry et al., 2008; Graddy and Chen 2006; Page, 2003; Sowa, 2008) and to government contracting (Romzek and Johnston, 2005; Bloomfield, 2006; Brown, Potoski, and Van Slyke, 2007).

The justification for choosing collaborative governance for this study is anchored on the following reasons. Firstly, in many cases, climate change policies will require new governance arrangements and involve a wide set of stakeholders, as the response to climate change requires interdisciplinary and cross-sectoral involvement (Bird et al., 2013). The theory promotes multi

– governance arrangements, input from a variety of parties to develop innovative solutions to complex problems, which cannot be easily solved by a single organisation. As noted in United Nations global sustainable agenda that governance and partnerships involving public and private actors as key elements for achieving the sustainable development goals Kuhn (2016), partnerships between public and private sector initiatives have resulted in successful results for the public sector in terms of performance within the new public management discourse (Ahenkan and M-Surugu, 2015)

Secondly, the challenge for public leaders and managers is to acquire a policy versatility to match the various policy options to maximize their collective contribution to mitigation and adaptation objectives. Collaborative governance lends itself to these kinds of complex problems whereby multiple options must be sorted, prioritized and adjusted to geographic location, socioeconomic conditions, and governing capacity.

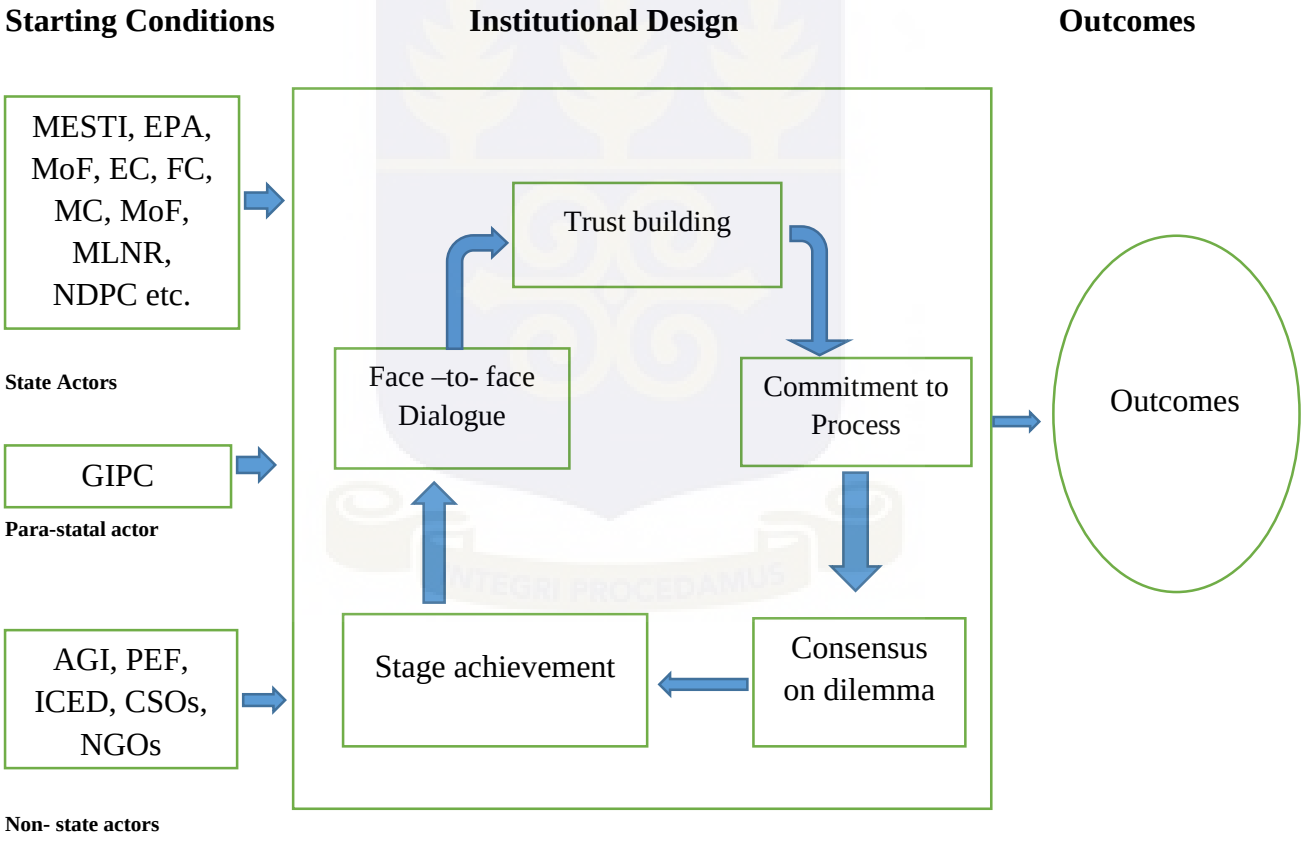
Finally, the desire to improve the effectiveness and performance of programmes is encouraging public leaders to identify new ways of providing services. Collaboration can result in innovative approaches to service delivery, including multi-sector partnerships. (Selden, Sowa and Sandfort (2006); Goldsmith & Kettl, 2009; Andrews and Entwistle (2010)

2.6.1 Conceptual Framework for the Study

For many years, policy formulation and implementation process in Ghana have been handled as matters of State deliberation or taken a top –down approach. At best, private sector companies have played marginal roles in this deliberative process. Owing to the intractable nature of climate change there should be a shift from the current status quo to a model that embraces the private sector in an effective collaboration. Both public and private sector actors would be able to commit to the collaborative process; define climate change dilemma; design success from diverse stakeholder perspectives; create governance structure and engagement

process and deliver synergistic sustainable outcomes. Again, this would provide a level playing field for all actors in a transparent manner and tone down views held by distinguished personalities like Mr. Kofi Anan, former UN Secretary General, who opines that Africa has never suffered from a resource curse. What the region has suffered from the curse of poor policies, weak governance and failure to translate resource wealth into social economic progress (APP. 2013). Thus, the relationship between the above variables have been illustrated and presented on a conceptual framework as in **Figure 2.1** below:

Figure 2.1 The Collaborative Model for Public and Private Engagement



Actors + Effective Collaborative Engagements = Sustainable Outcomes

Source: Researcher's own construct

As it can be seen from figure seen from **Fig.2.1** above the collaborative processes are in three phases.

Phase one

The first phase deals with state actors (MESTI, EPA, MoF, MoA, MLNR, EC, FC etc.), para-statal actor (GIPC) and non-sate actors (AGI, PEF, CSO, and NGOs) who are the principal stakeholders engage in the collaborative process. With issues relating to climate change, state agencies come out with policy and policy direction and therefore they are those expected to set grounds for collaboration. This is particularly important in the case of Ghana because government institutions tend to operate within silos, making multi-sectoral collaborations very rare (Asare, 2015). In addition, this arrangement fits perfectly into the Ahenkan and Surugu (2015) who suggest that private sector companies who have the financial muscle should be targeted to invest in climate change opportunities.

Phase two

Phase two is where collaboration starts. It is further divided into five stages.

Stage one

At the first stage of the collaborative process, an attempt is made to commit all stakeholders to the collaborative process. This is achieved by exploring the mind-set of all stakeholders.

Prejudices such as the inability of the private sector to promote public interest on the basis of pursuing private profitably are often high even before the process begins. Such positions prevents innovative thinking and therefore cooperation is needed from both sides to clear such prejudices: from the public side, a better understanding of the functioning of private companies; from the private side, a higher consideration for the ultimate social objectives of economic activity. At this stage, better ways of blending public and private resources are sorted out.

Stage two

Considering the huge financial gab required by the public sector to adequately meet the estimated cost of the full implementation of the NCCP, investments of the private sector would be crucial in filling or closing that gab. Views, perspectives of both sides regarding incentives are discussed. A common ground is reached in case there are divergent views or perspectives. It is believed that incentives can help reconcile private interests with the pursuit of global and local public goods and it can help bring much more focus on performance and results. Divergent views on the right incentives are therefore listed.

Stage three

Recognising this gap through brainstorming public actors at this stage set out available opportunities such as tax incentives especially on green grown technology, market base incentives, laws, soft loans, hedging for private sector in case of negative shocks, etc. All stakeholders participate in objective discursions with respect to incentives outlined.

Application procedure and rules for engagement process are clearly spelt out. For private sector to convince itself and commit, its finance in terms of investments, among other things, understanding the policy conditions under which incentives are given (Gray, 1989; Luke, 1998; Bryson et al., 2006; Ansell & Gash, 2008) is key. This will help to identify policy gaps and key actors, and improves accountability. Stakeholders are actively engaged in the collaboratively as opined by Boating (2006) and Jones et al., (2008) that **s**takeholder participation does not only ensures that the voices of various stakeholders whose interests may stand opposed to each other are heard, but it also builds consensus amongst all stakeholders, including the non-dominant ones. In that regard, private sector concerns are addressed. Concerns such as weaknesses in the NCCP that serves as disincentive for private sector engagement, strong policy environment capable of attracting private sector investment are given the needed

attention. Issues of capacity especially how to come up with a good proposal that fit into the international climate funding mechanism is also addressed. Roles and responsibilities are assigned to stakeholders who are involved in the collaborative process and this would ensure responsibility on the part of stakeholders. The assumption is that confidence level of private sector would be boosted and therefore taking an investment decision would be at ease.

Stage four

Arriving at incentives for adaptation or mitigation and designing a framework for it should not be a sole prerogative of public sector stakeholders. Private sector actors must be part of that decision. All with having a common understanding of which private sector company has the expertise to go into adaptation or mitigation must uphold divergent views

At this stage all stakeholders should be able to see their finger prints on the solution to avoid mistrust other stakeholders may have in the whole process to avoid a situation when one would feel he is choosing an option that has been predetermined

Stage five

The last stage is where private sector takes action to implement solution. Since private actors have been part of all process, they have a better understanding and therefore employ efficient and effective ways to implement climate change projects. In essence, they need to owe the solution and owing the solution means building trust. When that happens private sector will be willing to take up a role in terms of advocating for the outcome. Therefore, it is assumed that contributing to the outcome builds an enduring climate change solution

Phase three

The final phase of the collaborative process is to measure outcomes. A thorough assessment of the policy is carried out whether climate change projects have been implemented as intended.

Coming up with good judgement would inform as to whether current policy and incentives be expanded or skewed. Better ways of achieving outcomes are also explored

2.6.2 Theoretical framework of the study

This study hinges on collaborative governance theory. A strong case for adopting this theory is based on a number of reasons, which include the objectives of the study Collaborative governance brings public and private stakeholders together in collective forums with public agencies to engage in consensus-oriented decision-making. Such forums for collaborative discussions results in probabilistic outcomes, which shape the government policy on climate, change mitigation and adaptation. By building collaborative partnerships, actors can come together to build on each other's strengths, to address each other's weaknesses and gaps, while also cross-leveraging resources, knowledge and expertise (Andonova et al., 2009).

Moreover, the uncertainties created by climate change and all its reverberations on humans, environment and the global economy will require multiplicity of sectors to pull scarce resource to address those complex problems. Uncertainty in the face of predictions for extreme and more variable weather conditions; uncertainty about how to use the science at regional and local scales; and uncertainty concerning the extent to which policy interventions will slow the rate of global warming. Dealing with higher levels of uncertainty requires more transparency in how and why public decisions are being made and a greater public understanding of the potential risks at hand. Collaborative governance creates pathways for gathering, translating, and analysing information so that it can be integrated into the deliberative process in a timely fashion. When facing unknowns, we have to weigh the odds of something occurring or not, compare the risks of holding back or moving forward, make measured judgments or leaps of faith. Collaborative governance can help surface those uncertainties, generate broader understanding of their implications, and determine the collective tolerance for risk.

Accountability is inextricable in collaborative governance process as well as climate change. It is often incorporated into statements of principle underscoring the need for shared responsibility as well as shared decision making in collaborative engagement Carlson (2007). Shared responsibility incorporates a dual accountability to both the principles and practice of collaborative governance and to its performance in effective delivery of desired climate change conditions (Emerson, 2009). Collaborative governance provides that aura of environment where conveners, supporters, moderators and all participants commit to ground rules and decision-making protocols that assure inclusion, transparency, informed consent, etc. State and non-state stakeholders commit to work toward practical recommendations, agreements, and settlements that solve collective problems. As part of that commitment, they are also able to establish agreed upon performance targets and processes for determining their progress toward them.

Therefore, collaborative governance theory was used to assess the extent to which state agencies and non-state agencies in Ghana collaborate in the area of climate change policy formulation and implement action in the country. Based on theoretical research findings, the researcher was able to assess the key non-state stakeholder's involvement in climate change policy formulation, the incentives for collaboration, and barriers to collaboration were assessed in this thesis.

The theory was also used to analyse existing relations - positive or negative - among state and non-state actors, formal and informal leadership, especially the power differences that exist among stakeholders and how it contributes or brings on board, the private sector to participate in climate change mitigation and adaptation. In addition, the theory was used to analyse whether actors of both public and private agencies are given enough access to participate in collaborative processes.

Undoubtedly, for Ghana to raise the amount needed for climate change mitigation and adaption at all levels, it needs to adopt a multi-sectorial approach involving the private sector as a key actor. This will allow knowledge sharing, interest and expertise finance, consensus building, explicit and all-inclusive goals and ultimately successful implementation of the National Climate Change Policy. From the forgoing, it is obvious that a value of collaborative governance is most suitable for this study.

CHAPTER THREE

Methodology

3.0 Introduction

This section focuses on the methodology adopted for carrying out the research. This includes the research approach design, study population, sampling technique, sources of data, research instrument and data analysis

3.1 The Research Approach

Qualitative research approach was employed by the researcher to conduct the study. Qualitative research involves the study of subjects in their natural settings whereby the researcher conducts a systematic enquiry into meanings, attempting to interpret and make sense of phenomena and the meanings that people attribute to them (Shank, 2002). In this study, the researcher wanted to become more familiar with the subject matter under study and gain deep understanding on how incentives can be used to attract private sector investment climate change mitigation and describe in detail perspectives of participants on conditions surrounding existing climate change policies

The suitability of qualitative research was on the basis that qualitative research is built on the premise of inductive reasoning rather than deductive. There was no need for hypothesis for the commencement of the research; inductive data analysis was used to provide a better understanding of the interaction of "mutually shaping influences" and to explicate the interacting realities and experiences of researcher and participant (Lincoln and Guba, 1985). However, all quantitative research requires a hypothesis before research can begin. Moreover, Climate change finance is an emerging area of research in Ghana and therefore qualitative research was considered appropriate for the study. Domegan and Fleming (2007) notes,

"Qualitative research aims to explore and to discover issues about the problem on hand, because very little is known about the problem.

Through the qualitative research approach interactive data collection methods, i.e. interviews; it allowed new issues and concepts to be explored to gather data as opposed to quantitative research methods which allows the data to be characterised by the use of statistical analysis (Hittleman and Simon, 1997; Snape and Spencer (2003). Data derived from multiple sources included interviews, written descriptions of private and public sector stakeholders, events, opinions, attitudes and public documents. The choice of qualitative research stems from its non- manipulative nature and its ability to take into account the unperturbed views of the participants as the purpose is generally to aim for objectivity

To sum it up the researcher was the primary instrument of data collection and analysis, which formed the basis for opting for qualitative research approach. There searcher engaged situation, made sense of the multiple interpretations, knowing very well that multiple realities exist in any given context as both the researcher and the participants construct their own realities. Data was collected in a non-interfering manner, thus attempting to study real-world situations as they unfold naturally without predetermined constraints or conditions that control the study or its outcomes. According to Merriam (1998),

she/he engages the situation most often without an observation schedule, and plays a dynamic role in constructing an understanding of the research environment through self-interpretation of what happens thus, qualitative research produces a result which is "an interpretation by the researcher of others' views filtered through his or her own" .

3.2 Research Design

The purpose of the study is to assess the existing incentives necessary to attract private sector to invest in climate change mitigation and adaptation in Ghana. To achieve this purpose case study research method was considered more appropriate. Yin (2003) defines a case study as an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly defined.

The choice of case study was grounded on a number of reasons. First case study strategy is best for gaining a deeper understanding of the research being investigated (Morris and Wood, 1991). Guided by the research objective a case study offered the researcher the opportunity to do an in-depth analysis of the existing climate change policies, gained deeper understanding on the barriers that impede the private sector from investing in climate change activities.

Secondly, case study have peculiar advantage over other research methods particularly when interrogating “how" or "why" questions are being posed, the investigator has little control over events, and the focus is on a contemporary phenomenon within a real-life context (Yin, 2009). Some of the how and why questions posed include; (a) How do green business investment opportunities fit into the organisational objectives of the private sector? (b)How climate policy objectives do clearly articulates the goals of the policy, its implementation and the underlying logic why the policy would produce the intended change? (c) How is climate change policies aligned with government priorities in line with changing circumstances? Why has the private sector adopted a business-as-usual attitude in the face of climate change? It was also appropriate to “explain why certain outcomes may happen more than just find out what those outcomes are” (Denscombe, 1998). This is particularly useful to the present study to unearth why policy would the private sector may or may not collaborate with the public sector in rolling out climate change activities.

Thirdly, Case study methodology is an intensive description and an analysis of a phenomenon, a social unit or, a system bounded by time and place (Berge 2004; Creswell, 1998; Miriam, 1998. The approach would allow the researcher to make deeper analysis of climate change investments and to explain how and why climate change policy is (or not) attracted to the private sector in Ghana.

In conclusion, case study approach because an in-depth examination of incentives in the context the private sector and climate change was vital in understanding private sector participation in climate change mitigation and adaptation. It was in this setting that the incentives are developed and therefore would have been impossible for the researcher to have a true picture of how incentives attract private sector investment in climate change without considering the context within which it occurred. Additionally, the case study enabled the researcher to use multiple sources of data and a variety of research methods to explore the research questions and allowed me the flexibility to collect data from multiple sources and manipulate data in relation to reliability and validity of findings.

3.3 Research Population

Polit and Hungler (1999) refer to research population as an aggregate or totality of all the objects, subjects or members that conform to a set of specifications. Similarly, Wilson (2010) defines research population as "the entire set of cases from which a sample is drawn". The population for this study included key actors from the Ministry of Environment Science and Innovation, Ministry of Lands and Forestry, Crop Services Division – Ministry of Agriculture, Environmental Protection Agency, Real Sector Division –Ministry of Finance, Private Enterprise Federation, Association of Ghana Industries, Ghana Chamber of Commerce and Industry, Atlas and Business Energy Systems, International Centre for Sustainable Development, Abantu for Development, Ghana Investment Promotion Centre, National

Development Planning Commission, Energy Commission, Forestry Commission, Minerals Commission. The above institutions were carefully chosen in view of their significant contribution to climate change policy formulation, implementation and monitoring.

3.4 Sampling Size

Sampling is the process of selecting from a proportion or a subset of a population to be used as a basis for investigating or examining a population to collect data to address a research problem. Holloway and Wheeler (2002) assert that sample size does not influence the importance or quality of the study and note that there are no guidelines in determining sample size in qualitative research. Sampling therefore goes on until saturation has been achieved (Holloway 1997)

For this research, twenty-three (23) respondents were selected and interviewed. The composition of the sample is presented in the below table

Table 3.1 Summary of Sampling Techniques

Institution/Agency	Number of participants	Position /Rank
Ministry of Environment Science and Innovation	1	Deputy Director Focal Person on climate change
Ministry of Lands and Forestry	1	Principal Planning Officer
Forestry Commission	2	Assistant Director Assistant Director
Crop Services Division – Ministry of Agriculture	1	Deputy Director
Environmental Protection Agency	1	Assistant Director
Ghana Investment Promotion	1	Deputy Director
National Development Planning Commission	1	Deputy Director
Energy Commission,	1	Assistant Director
Minerals Commission	1	Assistant Director
Real Sector Division –Ministry of Finance	1	Head of Budget
International Centre for Sustainable Development	1	Project Officer and the Technical Officer – Climate Change
Abantu for Development	1	Project Officer

Private Enterprise Foundation	3	Technical Officers in Charge of Climate Change
Association of Ghana Industries	3	Technical Officers
Ghana Chamber of Commerce	2	Technical Officers
Atlas and Business Energy Systems.	2	Project Officers
	Total: 23	

Source: Authors construct (2016)

3.5 Sampling Technique

The qualitative study approach presents a strong case for the use of purposive sampling in selecting the interviewees (Focal Persons/Schedule officers). Maxwell (2007) defines purposive sampling as a type of sampling which, "particular settings, persons, or events are deliberately selected for the important information they can provide that cannot be gotten as well from other choices". Purposive sampling was used to select key respondents for the study because the researcher needed important information on existing incentives that attract private sector participation in climate change. The responds were selected based on their competence on climate change activities/ programmes in Ghana

3.6 Sources of Data

The study used both primary and secondary sources of data. The primary sources of data consisted of data that have a direct bearing on the study. The data was obtained through in-depth interview with key stakeholder respondents. With the aid of an interview guide

developed in tandem with the research questions and objectives, the researcher was able to solicit views of respondents on the subject.

The researcher interviewed twenty-three (23) respondents including nine (9) from the public sector, fourteen (14) from the private sector, and each from non-governmental organisation and civil society organisation. The interviewees consisted focal persons and technical officers purposively selected based on their experience on the subject matter.

The secondary sources of data were obtained from reports, published and unpublished articles, publications, peer reviewed journals, newspapers, periodicals on climate change financing, as opposed to primary source where interviews were conducted. This included NAMA investment guide, Ghana Investment Guide, National Climate Change Policy, Ghana Forest and Wild Life Policy, National Land Policy were among others. The researcher used secondary data to add more evidence to the understanding of the topic.

3.7 Research Instrument

The researcher conducted fieldwork within a period of three months from February 2015 to June 2016. In-depth interviews lasting 45 to 90 minutes were conducted with key informant stakeholders at the offices of the respondents. This was time consuming and daunting activity however, the richness of the respondents warranted such effort.

In-depth interview approach was chosen because it is suitable for open-ended questioning. Hand written notes of interviewees were taken alongside the voice recording. Boyce & Nealy (2006) notes, in-depth interview are a qualitative research technique that involves conducting intensive individual interviews that with small number of respondents to explore their perspective on a particular idea programme or situation. They further argue that “interviews

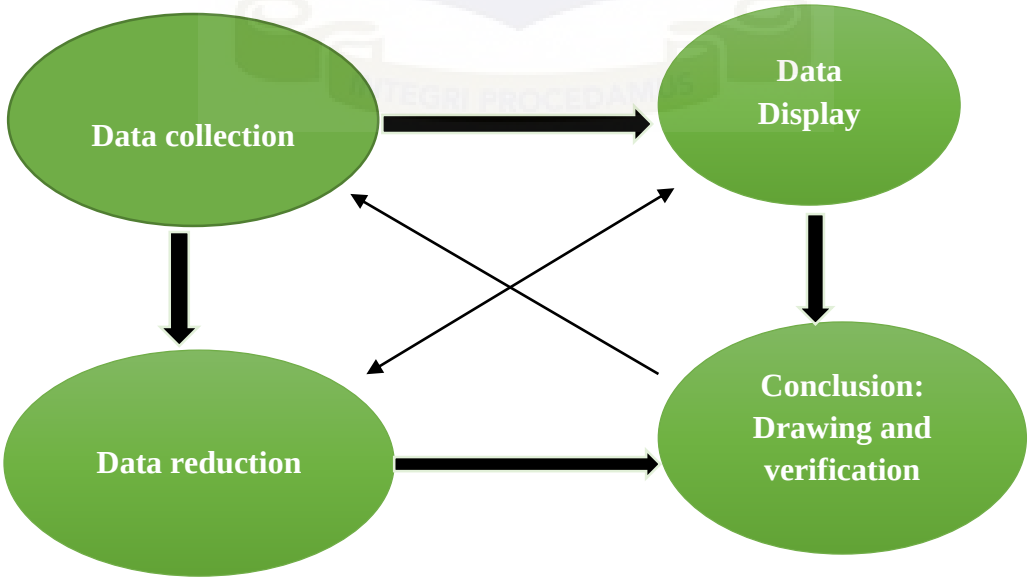
are often used to provide context to other data (such as outcome data), offering more complete picture of what happened in a programme and why these things happen.

To elicit the right responses for the study I developed an interview guide based on research objectives and questions. The interview questions were grouped according to (1) private sector investment opportunities in climate change mitigation and adaptation in Ghana; (2) policies and incentives for private sector participation in climate change financing; (3) challenges the private sector faces in mobilizing financing for climate change related business activities; (4) strategies for improving private sector participation in climate change financing in Ghana. However, follow-up questions were asked to seek clarification on some responses with no predetermined order.

3.8 Data Management and Analysis

Data analysis started simultaneously with data collection (Holloway & Wheeler 2002) guided by the suggestions of Miles and Huberman (1994) for performing qualitative data analysis.

Figure 3.1 Components of Data Analysis



Source: Miles and Huberman, 1994

Fig.3.1 presents an iterative process that involves four phases with each phase impacting on the other and was carried out simultaneously. Phase one to phase four was integrated in this study and their application is outlined as follows:

a. Data Collection

As indicated previously data was collected from two sources, namely primary and secondary sources respectively. Primary date was obtained by interviewing and recording stakeholder respondents. Recording was transcribed verbatim to get the respondents exact words in relation to the themes. This was in line with suggestions aptly noted by Lofland and Lofland, (1995), "it is generally not necessary for you to transcribe every word, examination or pause that occurs in an interview. You do not need to do a verbatim transcription of everything the interviewee said". Additional qualitative data were obtained in the form of documents, summaries, abstracts of documents and hand written notes. This resulted in a large accumulation of data, primarily qualitative.

b. Data display

The data were examined closely and was read over to identify cross cutting themes taken from the research objectives and classified in respect to the research questions to be addressed. Each was also given a title, as suggested by Brown (2010). As these accumulated, they were then separated further into more specific 'sub-categories', each reflecting different aspects of the main themes, and a short name was again given to each. The main themes included; strategies for private sector participation in climate change financing; challenges of private sector in climate change financing; policies and incentives in climate change financing; investment opportunities in climate change; investment opportunities in climate change. All irrelevant

information were discarded but kept for later reference as unexpected findings may call information previously considered unimportant.

c. The themes were then displayed in the form of a tables, diagrams primarily to facilitate the explanation of the themes and also formed the basis for easy analysis. Also codes were assigned to each theme and was be written in the left hand margin and memos in the right, in different colours, so as to aid the visual representation of the data. Smith (2012) defines coding of qualitative data as the process of separating out ideas, so that themes or perspectives relevant to the research questions can be identified. This approach was used to analyse data collected for this study. The data was revisited as many times as possible to cross-check or verify these emergent conclusions. This enables stronger and more meaningful analysis

d. Conclusion drawing and verification

This was achieved by first stepping back to consider what the analysed data mean and to assess their implications for the questions at hand. This involved noting regularities, patterns, explanations, possible configurations, causal flows, and propositions. Conclusions were tested for plausibility, sturdiness, conformability and validity. Validity in this context refers to whether the conclusions being drawn from the data are credible, defensible, warranted, and able to withstand alternative explanations.

3.9 Ethical Considerations

I obtained an introductory letter indicating the purpose of the interview from the University of Ghana Business School. Prior to the interview respondents were approached and the purpose

of the study was explained. Verbal and written consent were obtained and individuals who refused to participate were not forced.

During the interview, respondents were assured that any information given by them would be used solely for the purposes of the research and would not be disclosed to any other person. Consequently, names have not been mentioned in any part of this study. The tapes and written narratives were safely stored and were destroyed after the study (Robson, 1997).

The researcher was sensitive to the participants' emotions when probing questions that could psychologically harm the participants. The researcher told the participants that if they felt that some parts of the interview were too much for them they were free to withdraw from the study or choose not to answer the questions As the study was conducted in the participants' natural setting; there was no intrusion of privacy with regard to information provided.

Another key ethical issue was language. However, respondents were excellent and have a good command over the English language. Therefore, there was no need to employ the services of an interpreter.

3.10 Scope and limitation of the study

The study could have covered a lot more of the private sector organisation. However, the researcher was constrained by time and resources and therefore limiting the study to only four (4) private sector organisations. In addition, since climate change financing in Ghana is relatively new, there is paucity of literature on the subject matter in Ghana. Moreover, the study in its methodological design is limited in terms of generalization since qualitative analysis is associated with limited sample size and some level of human biases.

Finally, key respondents especially from the public sector had very limited time for the interview due to their heavy work schedules. In some cases, some declined in participating in the interview while others, through persuasion consented to be interviewed.

CHAPTER FOUR

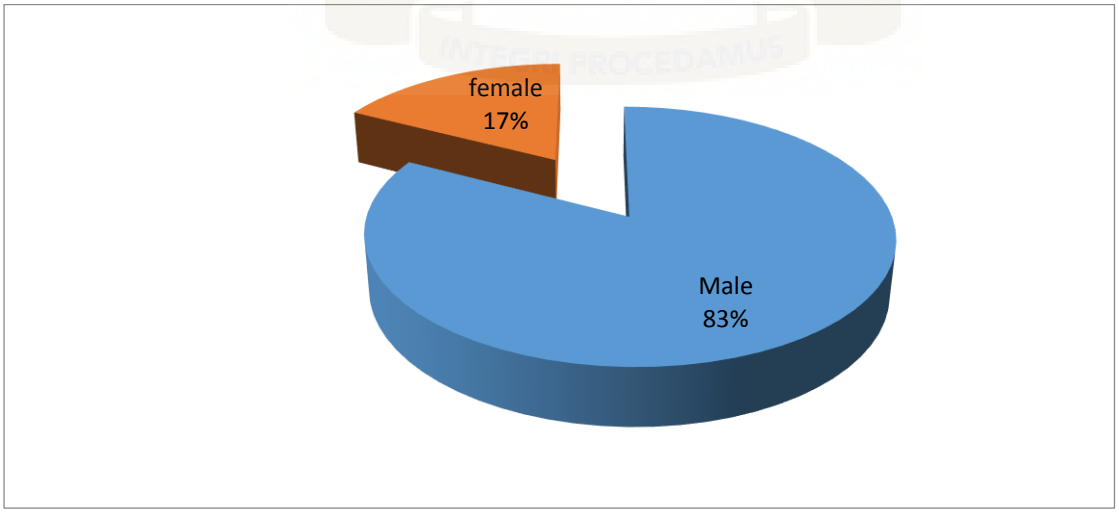
DATA PRESENTATION AND ANALYSIS

4.0 Introduction

This chapter presents and discusses the field data, which assessed existing policies that determine what, and how incentives can attract private sector to contribute to financing climate change phenomenon in Ghana. This analysis was performed in accordance with the objectives of the study. It was structured under the following themes: private sector investment opportunities in climate change mitigation in Ghana; policies and incentives for private sector participation in climate change financing; challenges the private sector faces in mobilizing financing for climate change related business activities, strategies for improving private sector participation in climate change financing in Ghana. The analysis started with a brief information of the background profile of research respondents in terms of their gender, age and work experience. This is presented in the ensuing sections.

4.1 Background of Respondents

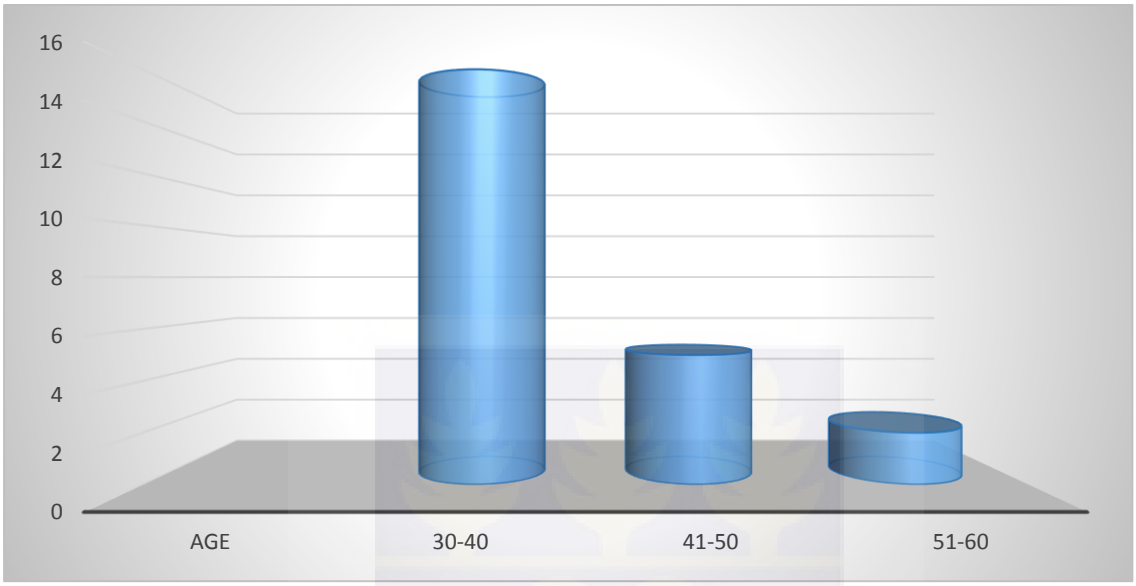
Figure 4.1: Gender of Respondents



Source: Fieldwork, 2016

The study had 19 males representing 83% and 4 females representing 18%. All the 23 respondents have tertiary education.

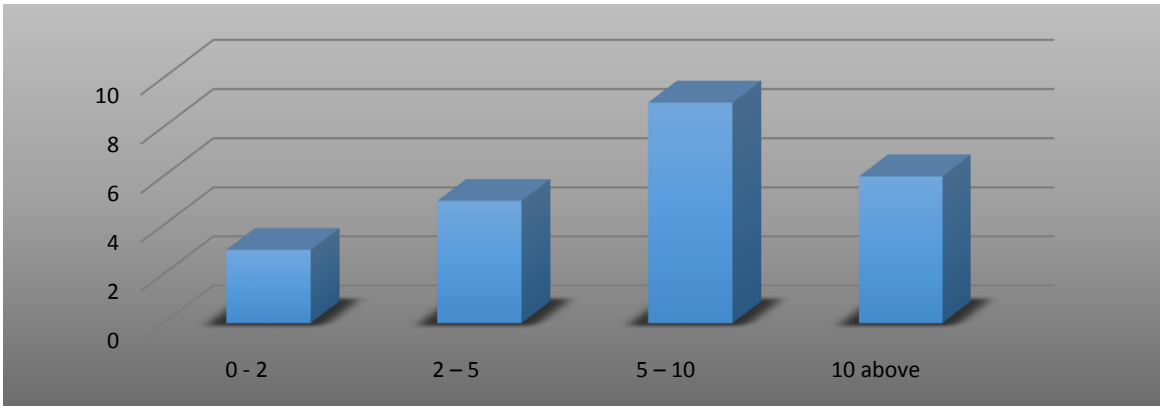
Figure 4.2 Age Range of Respondents



Source: Fieldwork, 2016

From the findings, it was evident that 16 (70%) of the respondents were between the ages of 30-40. 5 of the respondents representing 22% were between the ages of 41-50 whereas 2 of the respondents representing 9% were between the ages of 51-60.

Figure 4.3 Work Experience of Respondents



Source: Fieldwork, 2016

As can be seen from figure four (4) research respondents demonstrated a high level of knowledge and understanding issues relating to climate change mitigation and adaptation in Ghana and specifically private sector participation in responding to climate change.

4.2 Private sector investment opportunities in climate change mitigation in Ghana

The first objective of this study sought to examine the private sector investment opportunities in climate change mitigation in Ghana. This is against the background that private sector investment has become part resource mobilisation in national and international climate discussion (AGF, 2010; Mabey, 2012; UNFCCC, 2012) to tackle climate change mitigation and adaptation. The study found that many opportunities abound for private sectors who are looking for opportunities to invest in climate change solutions such as renewable energy, low-carbon cities, energy efficiency, sustainable forest management, and climate-smart agriculture.

In addition, the adaptation market place presents several opportunities for companies to take advantage emerging markets, develop, and design innovative products aimed at reducing carbon emissions (OXFAM, 2009). The findings of the study show that NAMA and its investor guide the National Climate Change Policy (NCCP) along with the Second National Communication has identified many opportunities where the private sector and industry could benefit from addressing climate change.

> *"…there are many opportunities, there is the NCCP, there is the NAMA and its investor guide and it outlines many opportunities. For example within the transport system; looking at reducing greenhouse gas, within the energy sector; adoption of renewable energy; solar and other sources of energy. Therefore, many investment opportunities can go into climate change. Even investment into manufacturing and waste management…"*

Environmental Protection Agency had this to say:

> *"….in Ghana the opportunities are wide and crosscutting all sectors. Government focuses on policies whereas the private sector is to come with investments. Investment opportunities are in addressing the drivers (slash and burn agriculture, galamsey, excessive fuel wood harvesting, illegal chain saw operation etc.) of deforestation and forest degradation. The investments are in the area of restoration of degraded landscape which has to do with plantation establishments or tree growing….."*

Another respondent from Ghana Investment Promotion confirmed this assertion

> *"Climate change presents opportunities and we need to take action and in taking action we need to move away from current practises. For example coal and oil for producing electricity and go into hydro, solar, REDD+ mechanism etc. Opportunities exist in the uptake of new technology and innovation"*

These responses leads to the conclusion that there exist several opportunities for private sector investment.

4.2.1 Green Business Investment Opportunities

On record it was observed that GHG emissions for the next half century will present opportunity to move the African continent on a green growth trajectory and therefore the Asian Development Bank encourages private sector companies to develop home-grown technologies, designed by Africans, specifically adapted to the unique conditions of the continent, should (ADF, 2015)

The study indicated that Green business was something new to the business community in Ghana and therefore very few private sector companies were harnessing opportunities that are there. For instance, a respondent from the Ministry of lands explained that:

> *"....green investments are a very new area in Ghana's investment portfolio, which is focused more on social and economic development like education, health, infrastructure, roads etc. We have not defined the green economy as it is in the global agenda. So is a new concept. Few people understand this but for the developed countries, it is high on their developmental agenda. Very few companies in Ghana would want to invest their capital into that...."*

Another respondent from Private Enterprise Federation shared a similar view:

> *".....you know companies as I said, are becoming aware of some of these but there have not been a drastic change in realigning their core mandate to fit into this. It is a gradual process, taking place gradually but has been to slow at it...."*

This view was held and expressed by most respondents and reinforces the view expressed by the African Develop Bank (AfDB) in pursuit of green investment. Thus calling on African government to have a differ perspective from that of industrialised countries in pursuit of the green growth agenda which has to be in the context of social and economic development (AfDB, 2012). A green economy agenda should be a systemic approach to the realisation of the land and resource rights of local communities and indigenous peoples and the recognition of their role as stewards of natural resources; improving resource use efficiency and pursuing low-carbon, low-polluting development path and diversifying rural economies; and, in short, it should be a more inclusive approach where the green economy tackles poverty, puts the politics of social and economic justice at the centre of its approach and overcomes the threat of the process being hijacked by corporate interests intent on pursuing 'business as usual" (OSISA, 2012)

Few respondents dissented and rather indicated that going green will not only bring much profit to the private sector but has some environmental benefits such as improving air quality, reducing urban heat, providing recreational opportunities and non- climate benefits. The Project Co-coordinator, Abantu for Development observed that:

> *"……. Green business opportunities present the opportunity for the private sector to achieve these objectives with less environmental consequences and make it possible for the private sector to get access to the needed financial resources and technology required for expansion and retooling of businesses….."*

In support of this observation, Principal Project Coordinator has this to say:

> "…..*going green ensures technology transfer and capacity building. It may also help the private sector reduce the cost of production and increase their profits in cases where technology transfer leads to improvement in energy efficiency. Green business to a very high extend attract the private sector to invest in climate change because the private sector is always looking at the returns to their investments. So if incentives would ensure that at the end of the day they are not worse of and are also gaining something* …"

The researcher personally thinks these sentiments are positive and so the private sector is encouraged to take advantage of such opportunity and participate in green investment which is expected to generate sustainable economic growth, jobs and social benefits, as well as protect its vital natural resources under business as usual scenarios (ILO, 2013; UNEP, 2014)

4.2.2 Energy Generation, Saving and Efficiency

The main aim of the Government's energy strategy is the sustainable exploitation and efficient use of the country's energy resources and power production through: i) Encouraging energy efficiency and conservation practices, a strategy for which the

Government set up the Energy Foundation to lead; ii) Reducing the average wood fuel energy intensity per urban household by 30% by 2015 and by 50% by 2020 and also, reducing firewood intensity per rural household by 10% by 2020; iii) Achieving 1% penetration of solar energy in hotels, restaurants and institutional kitchens using solar water heaters by 2015, and 5% penetration by 2020; iv) Achieving 10% renewable energy contribution by 2010; v) Promoting energy efficiency in the transport sector, deregulating the railway system to permit private sector participation in urban passenger and long distance freight railways systems as well as providing incentives for the promotion of nationwide mass transit transport systems; vi) Achieving high quality and reliable (95% uninterrupted) electricity supply to the industrial sector per annum by 2015 and improving reliability to 98% by 2020.

The Renewable Energy Fund was established by the Renewable Energy Act 2011. The Act is an important milestone in the promotion of renewable energy and with it the government has created the right conditions for investment in renewable energy in Ghana by removing policy uncertainty. There are three policy instruments enshrined in the Act - the Feed in Tariff, the Renewable Energy Fund and the Renewable Portfolio Standard. As a result of the passing of the Renewable Energy Law, the first major scheme to claim payments from Ghana's new feed-in tariff incentive scheme has been announced by the Ministry of Energy.

If the Renewable Energy Fund is to be a plausible and constructive institution in the renewable energy, scene of Ghana it requires work on implementation that includes securing a sustainable source of revenue. The RE Fund aims to mobilize finances to support renewable energy development in Ghana over the next 8 -10 years. The current situation is that there is not enough capacity to implement the projects envisaged in the Act. Waste to energy by pyrolysis; Gas capture from landfills; Renewable energy technology, equipment and services

4.2.3 Reduce, Reuse and Recycle

Ghana's National Environmental Sanitation Policy (ESP) dates far back to 1999 and was revised in September 2010 in consultation with a variety of stakeholders and covers the broad spectrum of environmental sanitation, including solid and liquid waste, industrial and hazardous wastes, storm water drainage, environmental and hygiene education, vectors of disease, and disposal of the dead (GoG, 2010). Metals; Plastics; Building materials; Materials in Transition (MINT); appropriate handing of e-waste. The need for effective large-scale adaptation projects is paramount to Ghana. To address the adaptation issues, four thematic areas have been identified. These are (1) energy and infrastructure, (2) natural resources management, (3) agriculture and food security, and (4) disaster preparedness and response Green Climate Fund Readiness Programme in Ghana (2015)

One discovery that was made in the study as indicated by GIPC was that, investments are in addressing the drivers of deforestation and forest degradation. The drivers of deforestation and forest degradation are illegal chain saw operation, galamsey operation, slash and burn agriculture, excessive fuel wood harvesting, overgrazing and a whole lot that is human induced. Therefore, the investments are either in the areas of restoration of degraded lands scape that has to do with ecotourism, plantation establishment or tree growing in general.

In the agricultural sector, the government through its Ghana Commercial Agricultural Project is making some funds available to support the private sector to invest into irrigation development and other out grower schemes. Governments have even made money available for people to access as grants for climate change interventions. So this study shows that there exist several opportunities for private sector investment opportunity.

4.3 Awareness of Climate Change Investment Opportunities

On record several climate change opportunities for private sector engagement is encapsulated in the NAMA investment guide, National Change Policy(NCCP), National Climate Change Adaptation Strategy (NCCAS), Ghana Shared Growth Development Agenda (GSGDA I and II) among others. Owing the ubiquitous nature of climate change all national development plans are being mainstreamed into national sectoral programmes, including some Metropolitan, Municipal, and District Assemblies (MMDAs). The study found that all public sector have considerable knowledge the investment opportunities and sector assume that private sector I also aware of these opportunities.

"..... Opportunities are known to the private sector. An example is the Seed Grower Policy, which has received much public debate as if government is promoting Genetically Modified foods (GMOs). There are Civil Society Organisations, Non-Governmental Organisations who are either advocating for it against its promotion or implementation of that policy. The media is a platform through which private sector gets to know some of this opportunities. More so, when policies are developed they are not kept in the Ministries. They are made available on the internet and hardcopies are made available to other private sector organisations who make themselves available for it...."

Assistant director, Energy Commission., confirmed this he held that:

"....as I said through our climate change sensitization workshops seminars, websites and publications all information regarding such opportunities are made available for the private sector so to a large extent I would say they are aware....."

On the other hand, most private sector companies see most public sector companies who are custodians of plans and actions are seen to be working in silos and not making information available to the private sector. Consequently, majority of private sector companies do not know

information regarding investment opportunities in climate. Especially, private individuals who have come up with innovation and SMEs who are seeking opportunities to expand. Those few private companies who are aware are those that are members of AGI or PEF. For instance, a respondent from PEF expressed that:

"*…A lot of the private sector companies are not. Those that would be aware are those big associations or companies like PEF*. We *are aware and some of our members. What we do is that when we get the information we pass it to our members and try to educate them*…."

The Technical Officer, ICED, averred this observation:

"….There are few that are actually aware are so not much aware. If am to mention a few I mean companies that are already into it. Companies like Accra Compost & *Recycling Plant (ACARP) collect, sort, process and* recycle *solid and liquid waste to produce organic compost for agronomic purposes in Ghana. So on that fort they are aware of that what the benefits and not only in terms of their profits but societal benefits, what the society also benefits out of the recycling of these things. There is even a paper recycling plant in Accra here and other recycling plans and we know the (AMA). The (AMA) has some recycling plants that people are aware of….."*

Clearly, the above responses show postures necessitating the choice of collaborations governance for this study. , in many cases, climate change policies will require new governance arrangements and involve a wide set of stakeholders, as the response to climate change requires interdisciplinary and cross-sectoral involvement (Bird et al., 2013). The theory promotes multi – governance arrangements, input from a variety of parties to develop innovative solutions to complex problems that cannot be easily solved by a single organisation. As noted in United

Nations global sustainable agenda that governance and partnerships involving public and private actors as key elements for achieving the sustainable development goals Kuhn (2016)

"...now let me tell u what we did 2yrs ago. What we did was to bring together stakeholders both public, private and our development partners. We sit together and came up with a template, which say these are investment in a sector of climate change and in B sector. Now these are the opportunities there for private sector. We then use as a template, a kind of a marketing tool for our members. Telling them these are the investment, this is where u can go. At least to create that awareness that at least you must let people know that these are the opportunities..."

"....climate change phenomenon has not been understood well by a lot of people in both the private sector and the public sector. We always use the word but we do not know what the effects are supposed to be. Because of that, we have not made serious commitment at the national level. Why am I saying that? If you look at our budgetary allocation from Ministry of finance to the environment sector is minimal. Even what we request for, they cut it in several folds to make allowance for other ministries like Education and Health. Commitment is something that we need to step up..."

4.4 Purpose of Private Sector Investment

Most private sector companies who are climate change are not there because wanting to offer solution to some environmental problems. Financing climate change is mainly driven by economic interest because and hence investments are taking place in projects and areas where capital re-turns are highest and best predictable but not necessarily where they are most needed. Grießhaber (2012). The Technical Officer, ICED, confirmed this:

"…profit making being it short term or long term. So these policy and strategies are there to guide the private sector to take advantage of the opportunities that exist. Some of the smart ones see such opportunities to increase their profit margins as they investments. For e.g. government refrigeration replacement programme. It is not the government who imported the fridges for exchange but government made available funds to take out the old fridges not because they are old but because government wanted to reduce the CFC's in the system. He wants to take them out because they contribute to more climate change damage and through that, they were able to develop a scheme that graded the electrical equipment, bringing in efficiency. If government had not done that the private sector would not have respond to that, they would not been proactive. Private sector took advantage of that one and they are making a lot of money…"

In support, a respondent from PEF had this to say:

> *"…because we need to understand that businesses are there to make money but not be philanthropy or charity work …"*

The project coordinator, Atlas and Business Energy Systems sort to explain that although private sector Companies investment into climate change is primarily to make profit there are other non – governmental organisations who into climate change for other purposes. Specifically, he indicated that:

".....all private sector companies investing in such projects aims at having return on their investment. NGOs on the other hand undertake this project for ecological purposes; most of them are into advocacy. The advocacy roles played by NGOs enable rural folks to understand the effects of climate change on their livelihoods…."

Similarly, the Principal Project Coordinator expressed this:

> *"…….most private sector companies are doing tree planting on commercial basis and those that are doing it for environmental purposes (environmental NGOs) and communities who have been sensitized on the benefits they can derive from the forest Form Ghana is a Dutch company that is doing massive tree planting in some degraded forest in the Brong Ahafo region; Nuer Ghana also a foreign company which is into tree plantation on large scale; Eco Planet Bamboo that is doing restoration using bamboo. Though this projects are on commercial basis they are going to sequester carbon, they are going to protect erosion in some areas. Swiss Ghana is also I the western region who are also in tree plantation, Eco PSD, African Forest plantation, and other companies who are into energy biomass production. All private sector companies investing in such projects primarily aims at having return on their investment. NGOs on the other hand undertake these projects for ecological purposes; most of them are into advocacy. The advocacy roles played by NGOs enable rural folks to understand the effects of climate change on their livelihoods….."*

The private point here is that if government sit back with the view that private sector has economic motives and therefore providing them with support may not be a wise economic policy decision, then private sector would look for opportunities elsewhere for investment. When that happen Ghana will lag behind and question is what would be the justification for accessing more funds from say GEF. Absolutely they would have no bases. For the private sector, having a high its return on investment would not change. Therefore, it will be better for government to assume a position of seeing the private sector to be a key player in providing solutions to climate mitigation and adaptation objectives. This is position was echoed by the Assistant Director, Energy Commission:

"……the main purpose is to support Governments and businesses adopt and implement climate change mitigation and adaptation policies, projects and programmes….."

The researcher thinks that the best way to go about ensuring efficiency in the delivery of climate change objectives is that government, as the regulator should put in place measures that can ensure a win-win scenario at both sides of the divide

4.5 Policies and incentives for private sector participation in climate change financing

This objective sought to assess the policies and incentives for private sector participation in climate change financing. The discussion under this section is cantered on the themes: Policies in climate change financing, outcomes of the policies, incentives in climate change financing, and Bottlenecks in implementing climate change financing policies.

4.5.1 Incentives for Private Sector Investment

The private sector requires an attractive environment that promises a high return on investment. A strong policy framework coupled with attractive incentive will serve as a catalyst for the private sector to deliver the necessary technology *at a cost and scale necessary to address climate (W*BCSD, 2008). Many financial tools such as revenue support, credit enhancement, direct investments, and insurance could be used mobilize private finance.

A respondent from the Environmental Protection Agency has this to say:

"Incentives such as the waiver of taxes and duties on green technology will help to minimize the cost of doing business and make the products of green businesses more affordable".

Incentives such as the waiver of taxes and duties on green technology help minimize the cost of doing business and make the products of green businesses more affordable. The findings

also indicated that incentives would ensure that at the end of the day investors are not worse of and are gaining something. Improving Metropolitan, Municipal and District Assemblies (MMDA) infrastructure, sound regulatory environment realised through transparency, longevity and certainty, support from public budgets and fiscal policy as tools can incentivise private sector investment investors to nurture and further develop products and services that are climate friendly and at affordable cost (Hamilton, 2009; High Level Advisory Group on Climate Change Financing, 2010; Mabey, 2012; UNFCCC, 2012; Kreibiehl and Miltner, 2013; Torvanger, Narbel, Pillay and Clapp (2016). Government support to green technology is key to ensure that local green businesses blossom to provide among others employment opportunity. It was further evident that the support protected by the Government towards climate change activities is laudable. The representative at the Forestry Commission added that:

"Incentives would ensure that at the end of the day they are not worse of and are also gaining something I personally think is very positive and so the private sector is encouraged to take advantage of such opportunity and participate in in such activities"

Since in the introduction of fee-in-tariff in Ghana, investment from independent power producers have doubled. This incentive encourages investments in renewable energy by guaranteeing the sale of electricity generated from renewable sources (UNEP, 2015a)

4.5.2 Policies on Climate Change Financing

On record, the right policies to unlock private sector finance were vital to overcome barriers to private sector investments and address market failures. A good policy environment will be

attractive to the private sector to deliver competitive business solutions and lower the risk of investment (WBCSD, 2008)

The study found that there are policies in Ghana on climate change financing. Ghana has the Renewable Energy Law. This law established the Renewable Energy Fund, which provides financial resources for the promotion, development and utilisation of renewable energy sources. A portion of the 2015 Budget Statement paragraph 449 reads**,** "In addition, government will undertake a Climate Public Expenditure and Institutional Review (CPEIR) leading to climate sensitive budgeting in the medium term". Ghana is well placed to make good use of climate finance, given its credible Public Financial Management system and its experience on how best to combine and sequence funding support from donors with national resources to address national priorities (Asante et al. 2015). More so, the intended nationally determined contribution (INDC) is anchored in the anticipated 40-year long-term development, the GSGDA II, National Climate Change Policy as well as the Low Carbon Development Strategy. Many national policies, laws and regulation will support implementation in the first 10-year period and beyond with the possibility of mid-term review in 2025.

Major opportunities are also emerging within the private sector and the Government is considering ways to promote the stronger involvement of the private sector in climate change responses. The Government is also considering the potential for a national financing mechanism or facility that can meet the needs of different themes, such as renewable energy without having a proliferation of funds and procedures. Key to this will be the strengthening of the ability of different parties to secure and use funding well – their absorptive capacity. The National Climate Change Policy clearly outlines what the nation intends to do on climate change. There are Parliamentary Select Committees on Environment, Science and Technology and on Lands and Forestry. These two committees give legislative backing to environmental

related issues in Ghana. Whilst parliamentary select committee on climate change does not exist, there is a Network of Parliamentarians interested in climate change issues.

4.5.3 Climate Finance Opportunity

Ghana's NAMA cover most sectors of the Ghanaian economy and include both specific projects such as retrofit existing hydroelectricity dams and broader policy actions such as intensify public education on energy conservation. Financial provision for funding to bring these projects and policy actions into reality from bilateral and multilateral sources has been made available to private sector for their implementation (PEF, 2014). According to Asante et al. (2015) Ghana has fully recognizes the need to foster the sustainable development priorities identified in the Ghana Shared Growth and Development Agenda I (2010-2013). According to them, the National Climate Change Policy (NCCP) -which gives policy direction of Ghana government's response to climate change (MESTI, 2014) has strong linkages with the current national development policies including the Ghana Shared Growth and Development Agenda II (2014-2017) and the 2014 Coordinated Programme of Economic and Social Development Policies.

The Africa Climate Change Fund (ACCF) has also been established with the aim of is supporting regional member countries (RMCs) in their transition to climate resilient and low carbon development. In detail, the fund has the following aims:

- *Prepare to access greater amounts of climate finance*
- *Address climate change in their growth strategies and policies and also in developing climate-resilient and low-carbon investment plans and projects*
- *Co-finance climate-resilient and low-carbon projects and programs*
- *Receive consolidated information on climate-resilient and low carbon development;*

- *Build the capacity of national and regional stakeholders for climate change and green growth; and*
- *Prepare for and contribute to the Conferences of the Parties of the United Nations Framework Convention on Climate Change (UNFCCC).*

The German government provided € 4.7 million for an initial three-year period. The government of Italy has provided an additional support of € 4.7 million. The African Union through NEPAD, for instance, has for the past two years being disbursing a €3.6million fund for adaptation. Projects attract up to €200,000, but Ghana has not benefited from this programme due to complex and competitive nature of application procedure (Domfeh, 2015)

Private Sector in Ghana has strong feelings with budgets for funding made available to the private sector to finance climate activities. PEF expressed this:

> *"....I can say to you that, this is my priority but in reality, the actions on the grounds, do they really conform to what was said? Priority has been said in all the nice document and statements but then you are the research manager; you go and search for the amount of investment or the activities of the government not done. That is one of the rhetoric about climate change, most of the time some of these things you see are from development partners because it has national recognition attached they treat it with glamour as if government is the one funding it but really behind it and you will see its coming from donor finding and not the government. Take a listen to the various State of the Nation's Address. How many times do you hear the president say anything about Climate Change Policy? They only pay Lips service...."*

Similar view was expressed by AGI:

".....They don't unless you go and look at Africa Development Bank not our Commercial Banks. Nobody will put money into climate change....."

The researcher thinks that procedures and requirements for accessing these funds and opportunities should be made simpler and clearer to make them private sector friendly. More has to be done in the area of public education and sensitization to make the private sector aware of these opportunities and the procedures involved.

4.5.4 Accessing Climate Change Finance

In this study, several sources for funding exist on the continent of and beyond Africans to design home –grown technologies that will support a low-carbon growth path for Africa (ADF, 2015) Accessing climate funds is characterized by onerous application requirements complexity in funding mechanisms Westermann and Kennedy (2009) . Direct access to climate finance has been advocated for to reduce transaction cost associated with large number of Intermediaries. Specifically the adaptation has come out with the novelty of give institutions based in developing countries direct access to financing for projects through National Implementing Entities (NIEs). Senegal, Benin and South Africa have all established NIEs. Senegal was the first to seek direct access, and appointed an NGO experienced in coastal resource management to act as its designated NIE (Nakhooda, Caravani, Bird, Schalatek and Stiftung, 2011). This is brought into much sharper focus by PEF

> *"…if we are going to assess green climate funds through an international accredited entity and then the Ministry of Finance says Ministry of environment bring me the proposal to go and submit for evaluation. Private sector bring your proposal, bring your evaluation then let me submit it for funding for you to do what you want to do. How can you say the Ministry of Environment bring proposals for funding? Can we open up and say that private sector these are the opportunities given to you based on the climate change policy. Some areas that have been earmarked, those in line with that are also in line with the green climate fund strategic areas. Private sector provide us*

with proposals, evaluate them give it to the Ministry of Environment to select those that are viable, submit to us and then we can well send it forward. This is the right approach but you can't tell the Ministry of Environment to submit the proposals and they are not responsible for this…"

The respondent from Ministry of Agriculture added that though the above suggestion help, government needs to ensure that the complexities in the procedures are addressed. Specifically the Assistant Director expressed that:

"The procedures and requirements for accessing these funds and opportunities should be made simpler and clearer to make them private sector friendly. More has to be done in the area of public education and sensitization to make the private sector aware of these opportunities and the procedures involved".

Nevertheless, transparency in funding process was a cause of disagreement for most public sector stakeholders who were interviewed. For instance, the Director GIPC had this to say:

"…Unfortunately, the private sector always accuses government for not being transparent but they are rather not transparent. So if the private sector can cooperate with government and be transparent, they stand a chance of receiving funds from government to implement their activities better than they are doing now. Not only the local NGO's but also the international ones who operate within the country and government does not even know how much they have secured to implement the project on climate change and the government cannot go to them and ask how much funds they are using to implement projects on climate change because it's an international NGO, meanwhile the local NGO's wouldn't do it too. There are international institutions that still require an introductory letter from government to enable it release funds so if the

private sector does not collaborate with government, these additional resources cannot be mobilized…"

4.5.5 Effectives of policies and incentives

In this study, the National Climate Change Policy was identified, as a new policy happens to be the blueprint for all climate actions. It has essentially implementation was addressed.

The TO, Association of Ghana Industries has this to say:

"….*The national climate change policy is fairly new last year right, you know the policy clearly outlines what the ministry or the nation intends to do and some of the areas and some of the opportunities that we be it transport energy, agriculture. It only outlines that but these should be another step in looking at the implementation of the policy. You know if you just set the policy, and the issue of implementation is left out just like how you said it in your introduction, you talked about private sector collaboration. We are looking beyond having one – on – one interaction we have been involved in the preparation of the climate change policy and then the question is to what extend where businesses involved in preparing this policy? Is it just consultation that you call me to come and validate a document; you know a document that I take two or three days to come and validate. We need to sit together, come out with key pointers let us all understand that this is where we want to go as a nation this is what we want to do. So I think the policy itself is good. It's a good document that outlines a lot of intervention that the government wants to do but beyond this is the issue of implementation…"*

Here, the call for collaborative arrangement is reiterated and the researcher endorses such call. The point is that proper collaboration helps to reduce policy gaps. Framework to assess climate change policies needs to address the issue of implementation (Bird et al. 2013). Ultimately, the effectiveness of any policy is measured by its outcomes, as 'no matter how effective a policy may be at achieving certain goals in principle, it is useless if it cannot be implemented'

(Thomas & Grindle, 1990). To allow for implementation, a policy should be costed should have explicit, time-bound objectives and be supported by relevant instruments, including economic and regulatory measures as well as administrative norms. Furthermore, if climate change policy is going to ensure the effective delivery of finance, it needs to come with a set of implementing instruments and regulations: a complete 'policy package'. Climate change mitigation and adaptation need to be mainstreamed into all development policies, programmes and activities, and funding decisions to achieve sustainable development (Agarwal & Perrin 2008).

4.6 Barriers in Implementing Climate Change Policies

On record barriers which hinder private sector are external to an organization and or individual, and others are internal and based on perceptions and experience. (Moser and Ekstrom, 2010) political and macroeconomic stability, regulatory environment, development and operation of new technologies, and capacity to utilize investments as some of the obstacles associated with green investment in developing countries World Economic Forum (2013). Many of the barriers to low carbon growth, mitigation financing and technological transfer in developing countries are the same as the existing barriers to investment thus lack of access to finance and high costs of doing business Surminsk et al. (2013). Even though there are policies and incentives that are meant to encourage private sector participation in climate change, financing respondents were of the view that there were some challenges

The TO, ICED has this to say

> "……*capacity for the private sector business to actually identify the opportunities and know where to go for funding. If I don't identify the opportunity at the end, it will be lost not because maybe i fail to see it, as one, and what are some of these places that I can go for funding to support myself. The other one is funding or financial support to*

be able to invest. Tax exemptions are bureaucratic, cumbersome; sometimes it takes a long time to be processed. Climate funds take a long time to assess at the global level…."

Similarly, another respondent from Energy Commission has this to say:

"……some of the key challenges we face are cumbersome application process for climate finance, inadequate technical capacity in developing good project proposals for funding, Stringent requirements for project impact monitoring, verification and reporting and lack of information in the about funding sources for climate change activities……"

Another finding had to do with setbacks within the NCCP that hindered the private sector to take up opportunities. AGI expressed that:

".....this has to with poor information dissemination and sensitisation, Inadequate stakeholder consultation during policy development, Inadequate financial and technical support for the private sector for green business investments and lack of awareness of opportunity and understanding of the technical solutions available as well as their financial benefits....."

It was also found that private sector lacked capacity to undertake climate change activities particularly in implementation process. Ghana Chamber of Commerce articulated that:

".....of course, the structure as in the form that, if you develop a policy and the private sector say they don't have the capacity being the human resources or even the financial resources, then the policy that we have not implemented well. So if the structures within the private sector are not well addressed or synchronized well that means that the policy is prepared without

taking into cognisance the structures within the private sector. They have this GEF the capacity building readiness to grow programme and I asked the number of private sector they have trained. They only train the ministries, their staff but what about the private sector?..”

Really, a range of market failures exist, creating barriers for private sector action and requiring government intervention. Some elements of climate risk management have public good character (Fankhauser et al., 2013), triggering questions about: public versus private action, incentivizing versus crowding out, social protection versus free-market responses (Surminski et al. 2013).Often private sector engagement in climate projects is voluntary, and ad hoc, based on marketing or cost-cutting measures. It was also identified that there is a lack of clarity on the risks that climate change poses for sectors and how the private sector can partner with the government on climate change issues. The private sector feels largely separate from the national actions taken on climate change, and moreover, the Government is unclear on the potential private sector entities that could be strong partners in their efforts. Barriers to private sector participation are:

- Unpredictable government policies (not far ranging enough)
- General deterioration in business environment (taxes, high interest rate, high business cost, high cost of utilities)
- Inertia because of experience from CDM (bureaucratic, high upfront and transaction cost, its complex nature - improvements lately CDM loan scheme, standardize baseline etc.)
- “Scepticism” about missing the train again.
- Lack of awareness of opportunity.

The private sector also expressed a lack of regulatory certainty that could drive incentives for climate change-related investments. Regulations, subsidies, feed-in tariffs and other tools could

be useful to the Government to attract private sector investment, as well as a formalized pathway for public-private partnerships. Some companies discussed their desire to collaborate with the government but did not know how to initiate a partnership. A key next step would be to map the various private sector value chain actors and activities and develop a platform to strengthen public private partnerships**.** This could include not only identifying and implementing regulatory mechanisms to drive private sector investment, but also national programmes such as certification of private sector actors as "climate friendly" or partnerships on specific projects.

CHAPTER FIVE

SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

5.0 Introduction

This chapter presents the summary of key findings, conclusions and recommendations.

5.1 Summary of Major findings

The study sought to explore options by assessing incentives and policies capable of providing the necessary leverage in attracting private sector investments into mitigation and adaptation programmes in Ghana. To bring this into a sharper focus, key informant stakeholders form state, para-statal and non-state organisations around which issues climate change actions revolved were selected. Furthermore, investigation of this study stated from February 2015 to June 2016 in Accra where all organisations were headquartered. Moreover qualitative research method was adopted for the study and through purposive sampling, in-depth interview was conducted on 23 respondents to make up primary data. Secondary was gathered from reports, policy briefs, journal articles etc. Guided by Miles and Huberman suggestions for performing data analysis, primary and secondary was analysed. This section summarizes the key findings of the study and is presented thematically in accordance to the objectives.

5.1. 2 Private sector investment opportunities in climate change mitigation and adaptation.

The study revealed that some of the investment opportunities in the mitigation of climate change include ecotourism, solar technology, renewable energy, tree crops, cashew plantations, mango, citrus, cocoa, rubber plantations among others. The study found that most private companies in teak plantation or reforestation were mostly foreign companies who have

collaborated with their Ghanaians counterparts in undertaking projects. The study established that most private companies were not interested in taking up climate change opportunities due to the long gestation period on return over their investment. Those that showed much interest and valued opportunities created by government for private sector to developed lacked awareness and capacity. Most of the investment opportunities for the private sector most especially under REDD+ were found to be in addressing the drivers of deforestation and forest degradation. The companies involved are mostly from Netherlands and have invested their pension monies into tree planting. Furthermore, it was found that many financial opportunities exist for private sector institutions for mitigation and adaptation projects. Besides, private sector preferred private-to-private engagement as against private-to-government collaboration with the feeling that government actions is based more on favouritism. It was also established that tracking of adaptation and mitigation projects across the country was difficult. In fact, the Ministry of Finance have no database on private sector companies who are into mitigation or adaptation the across the country.

The results also indicated that the main purpose of investment opportunities in climate change mitigation and adaptation is to support government the private sector to adopt and implement climate change mitigation and adaptation policies, projects and programs. Green investment opportunities fit into the objectives of private sector. The study observed that private sector aims at producing at lower cost, increasing revenue and seeking capital for expansion, green investment presents the opportunity for the sector to achieve these objectives with less environmental consequences.

5.1.3 Policies and Incentives for Private Sector Participation in Climate Change Financing.

From the evidence gathered it is visible that Ghana has ratified most international conventions on climate change and has performed creditability in all Conference of Party meeting of the UNFCC. Government intent in responding to climate change is high. This is evident in the by the numerous polies that exist. Chief among these pol ices is the National Climate Change Policies. The NCP has linkages with the current national development policies including the Ghana Shared Growth and Development Agenda I & II and the 2014 Coordinated Programme of Economic and Social Development Policies. These policy documents acknowledge their coherence with the NCCP in order to achieve the country's objectives on climate change. Nevertheless, all these policies failed to capture in detail, the role private sector has to play in achieving policy objectives. An overarching finding was that private sector is mentioned in passing in most policies. Moreover, the study found that commitment does not match up to the actions expected from government. Furthermore, amendment of Act 634 to allow over- aged vehicles into the country with penalty was found to be counterproductive to efforts in bringing levels of greenhouse (GHG) emissions down.

Also the research findings established that incentives that attracted private sector to participate in climate change are tax rebate and addressing market failures, access to finance, establishing a sound and clear regulatory framework, education, skills development and capacity building and stakeholder engagement. Moreover,

5.1.4 Challenges the private sector faces in participating in climate change.

The findings of the thesis indicate that the private sector faces challenges in mobilizing funds for climate change activities. It was found that application process involved to secure climate change funds is cumbersome. Just a handful of private sector have information on funding

sources with majority lacking information on funding sources. The study established that requirement for project impact monitoring, verification and reporting was stringent. More so, it was found that private sector do not have capacity to developed proposals this is arising from the fact that proposal for these funds required some technical detail. Again, SMEs in particular lacked funds to pursue their innovation. It was equally established that banks were unwilling to give loan to private sector companies to undertake climate change projects. It was established that most climate change activities require some form of investments, adoption of technology and capacity building, which is too expensive, or beyond the financial capacity of businesses. In addition, it was established that private sector lacked the right calibre of human resource who have the technical expertise to carry out climate change projects.

5.2 Conclusion

In view of the findings adduced vis-à-vis the research objectives, some conclusions drawn are indicated.

It can be concluded that there are some investment opportunities exist in the mitigation and adaptation for private sector. However, the private sector companies do not know these opportunities thus, refuelling the argument that information sharing by most ministries, departments and agencies are still weak and poor. This validates the perception by most private sector companies that government agencies prefer to work in silos. In addition, the rhetoric touted by government on climate change are inconsistent with actions. Moreover, trust level of private sector companied doing business with government is on the low side

In addition, the main purpose of investment opportunities in climate change mitigation is to support government the private sector to adopt and implement climate change mitigation and adaptation policies, projects and programs.

5.3 Recommendations

Based on the findings and conclusions the following recommendations are suggested

First and foremost, government should have an open door policy to the private sector as well as deepening transparency in its operations to booster confidence level of private sector. In addition, sensitization and educational campaigns should be deepened to create awareness of the opportunities that exist with regard to climate change mitigation and adaptation and the procedures involved. More so private sector should seek constant dialogue with state to define opportunities early.

Secondly, the procedures and requirements for accessing funds should be made more transparent, simpler, and clearer to make them private sector friendly. Private sector should negotiate with government to redefine incentives for investment because some investment have long gestation period.

Thirdly, since banks may not be ready to grant loans to SMEs for climate change activities 1% out of the petroleum revenue could be set aside for mitigation and adaptation activities. Private sector companies who have capacities should position itself well to take advantage of every opportunity that comes.

Finally, Private sector needs to 1)see climate change finance as a viable financing option 2) Build capacity in the area of climate finance and proposal writing 3) Be prepared to adopt new and green technologies 4) be prepared to accept change and make green production part of their investments.

Multi-sectoral collaboration between the public sector, private sector and the non-governmental organisations should be strengthened to champion the cause of climate change financing in Ghana.

5.4 Areas for Further Studies

Considering that climate change research is a new area of scientific investigation in Ghana, this study has laid the foundation for more in-depth research in future

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APPENDIX A

Interview guide

Section A: Demographical Data

1. Sex: a) Male [ ] b) Female [ ]

2. Educational Qualification:

a) SSCE [ ] b) Technician [ ] b) Diploma [ ] c) HND [ ]

d) Bachelor [ ] e) Masters [ ] f) Others (specify) ….....

4. Age Range

a) 20 – 30year [ ] b)31-40yrs [ ] c) 41 – 50yrs [ ] d) 51 – 60yrs [ ]

Section B: Private sector investment opportunities in climate change mitigation in Ghana

1. What is your understanding of investment opportunities in climate change mitigation?
2. How did you get to know of these investments opportunities?
3. Kindly list the investment opportunities you know
4. What is the purpose of the investment opportunities?
5. How do the green business investment opportunities fit into the objective of the private sector?
6. To what extent does the green business investment opportunity benefit the private sector?
7. How does private sector value investment opportunities in climate change mitigation?

8. What are your views of the private sector in green business investment opportunity?

Section C: Policies and incentives for private sector participation in climate change financing

1. Which are the policies to address climate change issues in Ghana?
2. How effective have policies and incentives been to climate change financing?
3. To what extent have those incentives attract the private sector to participate in climate change?
4. What are the bottlenecks within the climate change financing policies that makes it difficult for the private sector to invest in climate change?
5. Does the content clearly articulate the goals of the policy, its implementation and the underlying logic for why the policy would produce the intended change?
6. Has the policy been implemented as intended?
7. Did the policy produce the intended outcome or any unintended outcome?
8. Are there better ways better ways of achieving these outcomes and objectives?
9. Is the policy still aligned with government priorities in the line of changing circumstances?
10. Should the current policy and incentives expanded, contracted or discontinued?
11. Is there any case to establish new programmes?

Section D: Challenges the private sector faces in mobilizing financing for climate change related business activities

1. What are some of the key challenges facing the private sector in mobilizing funds for climate change activities?

2. Is the private sector financially challenged in the implementation of climate change related activities?
3. Do the current structures within the private sector allow getting involved in green business activities?
4. Does the private sector have the needed skills and the required competences to enable them

Section E.: Strategies for improving private sector participation in climate change financing in Ghana.

1. How could the private sector position itself to qualify for government/donor funds for green business activities?
2. How should the current procedures involved in accessing funds for green business activities be improved to enable private sector participation?
3. What do you think should be done by the private sector to enable participate effectively in climate change financing in Ghana?