

**EFFECTS OF PRIVATE SECTOR INCENTIVES ON CLIMATE CHANGE  
FINANCING IN KENYA**

**BY**

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## DECLARATION

This research project report is my original work and has not been submitted or presented in any university for examination either in part, or as a whole. All other sources of information cited in have been acknowledged.

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## **DEDICATION**

This research project is dedicated to my parents, Mrs. Irene Mulwa and Mr. John Wambua for their continued support and love. God bless you.

## LIST OF ABBREVIATIONS

CO <sub>2</sub>	Carbon dioxide
CSR	Corporate Social Responsibility
DV	Dependent Variable
GDP	Gross Domestic Product
GHG	Green House Gases
ICT	Information and Communication Technology
IIGC	Institutional Investors Group on Climate Change
IPCC	Intergovernmental Panel on Climate Change
IPO	Initial Public Offer
IV	Independent Variable
NAMAs	Nationally Appropriate Mitigation Actions
NAPs	National Adaptation Plans
NEMA	National Environment Management Authority
NPV	Net Present Value
SEI	Stockholm Environment Institute
UNEP	United Nations Environment Programme
USD	US Dollars

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## ABSTRACT

Climate finance generally refers to financial resources invested in mitigation and adaptation measures aimed at reducing emissions through investments in sectors that emit large quantities of greenhouse gases and adaptation that creates a sense of responsibility to different actors as significant financial resources will be similarly required. This study therefore aimed to identify incentives that will encourage the private sector towards contributing to climate change financing and investments in Kenya. The study aimed to create potential links between climate relevant incentives and on sources of both capital and investment trends. The incentives looked at various economic instruments that influence behaviour through price and information instruments that influence behaviour through awareness. This in turn will increase access to finance and strengthen the country's responses to climate change.

The theoretical basis informing this study is drawn from the: Modigliani-Miller Theorem, Modigliani and Miller (1958); Pecking order theory, Myers (1984) - Retained earnings, debt, equity; and the Prospect Theory - An Analysis of Decision under Risk Daniel Kahneman and Amos Tversky, (March 1979). The study was conducted through a structured interview guide in whom 51 private sector companies were interviewed from a total of 85 that were approached. The findings showed that knowledge on climate change, sector, subsidies, intellectual property rights, insurance, training, public procurement, emission reduction programmes, and awareness creation could statistically predict the willingness to invest on climate change by the private, and 88% of respondent were willing to invest in climate change with the preferred investment options included insurance, guarantees and green stocks (equity). Regression analysis was used to find out on the private sector willingness to contribute to climate finance and using investment options and incentives as the independent variables. The study findings showed that the private sector will be champions of climate finance by integrating climate change adaptation and mitigation in their operations as compared to CSR. Further research should be done to establish sectoral incentives and investment options towards climate change mitigation and adaptation in the private sector

**Key Words:** *Climate change finance, incentives, investment options, private sector.*

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the study

Global average temperatures have risen by 0.7 C over the last century and are predicted to continue rising (Campbell et al, 2009). The Intergovernmental Panel on Climate Change (IPCC 2007) projects that temperatures are likely to have risen by 1.1C to 6.4 C by the end of the 21<sup>st</sup> century relative to the 1880 -1999 baseline. In Kenya, it is believed that global warming has resulted into 1 C temperature increase and will increase between 1.3 C to 4.5C by the year 2090 (McSweeney et al., 2009). It is this global warming occasioned by accumulation of greenhouse gases in the atmosphere that leads to climate change.

The impacts of climate change as a result of global warming have far reaching implications which affect different sectors and actors. A few of the notable effects include, increase in extent of drought affected areas, heavy precipitation events which are likely to increase the frequency and will augment flood risk. At lower latitudes categorised as seasonally dry and tropical regions, the crop productivity is projected to decrease for even small local temperature increases (1-2 C), which would increase the risk of hunger. ; Coastal regions are projected to be exposed to increasing risks, including coastal erosion, due to climate change and sea level rise; observed structural and functional changes in ecosystems resulting in substantial changes in species abundance and composition (Alpizar, 2003) (IPCC, 2007).

In order to address the impacts of climate change, world leaders and government have come together under a multilateral framework called the United Nations Framework Climate Change Convention in which there are four approaches deployed, this include: Mitigation, in which measures to reduce and remove greenhouses gases from the atmosphere are deployed; adaptation, in which measures to enable the society and the ecosystems to cope with and remove the impacts of climate change, these two measures are made possible by other two measures which include technology transfer; and financing with the latter being the driving force towards deploying measures and technologies that make both adaptation and mitigation a reality.

Climate finance, which is the focus of this study, aims to reduce emissions through large scale investments, notably in sectors that emit large quantities of greenhouse gases. As an adaptation tool, it creates a sense of responsibility to different actors as significant financial resources will be similarly required to allow countries to adapt to the adverse effect and reduce the impact of climate change. Climate finance generally refers to financial resources invested in mitigation and adaptation measures. Though, there are other schools of thought about what climate change finance is, according to Reyes (2012), there is the ‘climate justice’ definition which refers to it the transfer of public resources from North to South to cover the costs of dealing with the long-term impacts of climate change. The United Nations Framework Convention on Climate Change (*UNFCCC*) sets out the basis for climate finance in similar, if slightly more technical terms. Article 4.3 of that agreement commits Annex II countries (a list that including all members of the European Union, the USA, Canada, Japan, Australia, Switzerland and

New Zealand) to provide ‘new and additional financial resources’ for the ‘full incremental costs’ of addressing climate change.

However, there has since been dynamics in the implementation of the convention which has roped in developing countries to also contribute to climate change finance, for example, developing countries other than the Least Developing Countries may develop their National Adaptation Plans (NAPs) if they so wish and the developed countries may also voluntarily support such measures, on the mitigation front. Developing countries are required to develop their Nationally Appropriate Mitigation Actions (NAMAs) in which they should explicitly declare measures that they would need international support and those that they will address domestically. This essentially means that developing countries like Kenya have no option but to raise finance domestically to address climate change.

Since the advent of climate change movement in 1992, there has been several sources of climate change finance that have been proposed and employed to raise the required finances, largely at the multilateral and within the developed countries level, such finances have in broad sense come from the public and private sources. This study is particularly focusing on Kenya may generate her domestic finances to address climate change and specifically the private sources from the private sector.

### 1.1.1 Mapping Relevant Incentives for Climate Change Financing

In broad terms, the incentives that exist to spur climate change financing have been classified into three categories namely; regulatory, economic and information. Whitley (2013a) developed a typology framework for the incentives categories as shown in table 1.

**Table 1: Typology of incentives for climate change finance**

<b>Incentive category</b>	<b>Examples of the tools applied</b>
Legal instruments (Influences behaviour through legality)	<ul style="list-style-type: none"> <li>• Standards (for processes and products)</li> <li>• Legally binding targets</li> <li>• Quotas</li> <li>• Licenses</li> <li>• Planning laws</li> <li>• Accounting systems (mandatory)</li> <li>• Import/export restrictions</li> <li>• enforcement</li> </ul>
Price based instruments (influences behaviour through price)	<ul style="list-style-type: none"> <li>• Access to resources</li> <li>• Taxes</li> <li>• Levies</li> <li>• Royalties</li> <li>• Direct spending/payments</li> <li>• Lending and guarantees</li> <li>• Insurance (including for bank deposits)</li> <li>• Government ownership (public private partnerships)</li> <li>• Public procurement</li> <li>• User fees/charges</li> <li>• Subsidies and removal of subsidy</li> <li>• Deposit refund systems</li> <li>• Refunded emission payments</li> </ul>
Property Rights Based Instruments	<ul style="list-style-type: none"> <li>• emission reduction credit programmes</li> <li>• ambient permit trading</li> <li>• output based allocation</li> <li>• cap and trade programmes</li> <li>• Copy right and patent protection (intellectual property rights)</li> </ul>



<p>Information instruments (influences behaviour through awareness)</p>	<ul style="list-style-type: none"> <li>• Research and development</li> <li>• Information centres</li> <li>• Statistical services</li> <li>• Awareness campaigns</li> <li>• Transparency initiatives</li> <li>• Training/education</li> <li>• Voluntary performance targets</li> <li>• Certification /labelling (voluntary)</li> <li>• Accounting systems (voluntary)</li> </ul>
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Adopted from: whitley (2013a) and UNEP (2009)

### 1.1.2 Investment Options for Financing Climate Change

The Green Climate Fund report (Business Model Framework: Financial Instruments) of 2013 and Whitley (2014), developed instruments for investment options which investors can employ in financing climate change, such options include: concessional loans, Debts (OTC and market traded, equity (listed and unlisted), guarantees/ loan insurance, insurance, grants including philanthropy and corporate social responsibility.

According to IIGCC (2014) report of 2014, some pension funds are increasing their allocation to low carbon and energy efficiency assets, thereby playing a vital leadership role. Some institutional investors are investing in renewable projects via private equity and infrastructure opportunities. Some banks are shifting their loan books towards financing renewables projects. These actions are having a direct impact on the availability of capital for renewable energy projects. A flourishing green bond market exists and is growing, which is integral to providing the debt capital needed to finance the low carbon transition.

Around USD 293 billion global climate change finance in 2010/2011 was in the form of market rate loans and equity, of which USD 262 billion had been made by the private sector. Green credit lines as well as support for institutional development were also intended to attract local financial institutions to on-lend to projects that would not otherwise be implemented and to favor private sector investment (Climate Policy Initiative, 2012). Public intermediaries enabled investments by filling capacity and viability gaps that prevented private investors from engaging in capital-intensive, riskier, and in the short-term, less profitable ventures. Public intermediaries delivered more than 60% of their financing through concessional loans and about 7% in grant form (Climate Policy Initiative, 2012).

Beyond grants, loans, equity, and debt finance, a variety of risk management instruments help to overcome risk barriers and encourage low-carbon technologies to scale up. Public-private facilities and guarantees to assume regulatory, credit, or perceived technology risks, are just some of the instruments that can remove the risks private actors are not willing or capable of bearing (Climate Policy Initiative, 2012).

### **1.1.3 Climate Change Finance Incentives and Investment Options**

A number of the investment options in climate change may be dependent on the incentives that are in place, for example, taking measures on adaptation can be divided into two categories for considering the role of law in such adaptation: Adaptation that is or can be influenced, motivated, or in certain cases prevented or constrained by the government, through laws, regulations, incentives, and policies with direct or indirect

affects; and Adaptation that is motivated by forces other than the government, recognizing that the private sector responds to signals from the market, utilities and commodities prices, public opinion, and other sources (Flatt & Huang, 2012).

Whereas majority of the financing/investment options depend on the incentives that the government establishes, some of the incentives themselves are direct sources of climate finance for the government, such as taxes and charges. Overall, incentives and financing options are inextricably linked. The private sector would not set up investment options on climate change when there is uncertainty or when there is lack of government commitment and support. When they take such actions on hand, the government will only provide incentives while creating an enabling environment where there is need or opportunity to do the same.

#### **1.1.4 Private Sector involvement in Climate Change Financing**

The private sector is integral to economic and social development in any country and significantly it both contributes to and is impacted by climate change. Globally, the world's 500 largest businesses collectively emitted 4.96 gigatonnes of CO<sub>2</sub> equivalents in 2013, based on reported and estimated emissions. This represents more than the entire European Union's 2010 GHG emissions of 4.66 Gt CO<sub>2</sub>e, and is equivalent to 13.8 percent of worldwide CO<sub>2</sub> emissions of 36 GtCO<sub>2</sub> in 2013 (Nixon & Morehead, 2014). The private sector is not immune to climate risk and impact. For businesses, climate change will likely affect the location, design, marketing and operation of infrastructure, products and services. It will make certain types of business more viable in certain areas,

but will negatively affect most types of business in most areas of the world. It will influence the way socio-economic systems operate and thereby impact on customers and employees (Pachauri, 2010; UNFCCC, 2014).

Suffice to say that the private sector is both a victim and culpable in as far climate change is happening and its impacts, the private sector has made significant contributions to the responses and measures on climate change. In 2010–11 annual global climate finance flows are estimated to have been US\$343–385 billion, and of this US\$217–243 billion derived from the private sector, while the public sector contributed US\$16–23 billion. This represents almost 63% of the total cost. In 2010–11 annual global climate finance flows are estimated to have been US\$343–385 billion, and of this US\$217–243 billion derived from the private sector, while the public sector contributed US\$16–23 billion (Climate Policy Initiative, 2012). The Kenyan private sector is estimated to have invested close to \$150 million in renewable energy projects alone up to 2012 (iied, 2014).

In developed countries, private actors contributed USD 143 billion, with USD 68-70 billion in asset finance. Fifty-five percent of projects were financed on a balance sheet basis while 45% were funded through project-level finance. Commercial banks were the leading providers of project-level debt (77%), while domestic public budgets contributed around 17%, and corporate players contributed around 6%. In developed countries, domestic private actors contributed the most to overall asset finance investment flows - 84% (Climate Policy Initiative, 2012).

In developing countries, private actors contributed USD 85 billion, with USD 64-87 billion in asset finance. Four out of five projects were financed on a balance sheet basis. It was estimated that domestic private actors contributed up to 83% of private investments in developing countries (Climate Policy Initiative, 2012).

Almost three-quarters of total flows were invested in their country of origin. Private actors had an especially strong domestic investment focus with USD 174 billion or 90% of their investments remaining in the country of origin. This demonstrates that investment environments that are more familiar and perceived to be less risky are key to investment decisions, highlighting the importance of domestic policy frameworks in unlocking scaled up climate finance flows (Buchner.et al, 2014).

## **1.2 Problem Statement**

Kenya is faced with a myriad of climate change challenges and problems which include: Variations in weather patterns (reduced rainfall and failed seasons); Frequent and prolonged droughts and diminishing water resources; Floods/flash floods and landslides; Environmental degradation and habitat destruction; Resurgence of pests and diseases; Loss of biodiversity; Severe famine and hunger causing food insecurity; Resource use conflicts (NEMA, 2013). Studies show that the impacts of climate change will cost the country up to 2% of its annual GDP (SEI, 2009). To address the impacts of climate change and avoid contributing to the global greenhouse gas emissions, there is need to invest a substantial amount of funds to finance adaptation to the impacts and arrest greenhouse emissions through financing of renewable and energy efficient technologies.

Kenya has developed a national climate change action plan which will cost KES 235 billion (US\$2.75 billion) a year, split roughly equally between adaptation and mitigation. So far Kenya has been able to mobilize less than US\$1 billion per year (IIED, 2014) which is still less the target by over 50%. The Government of Kenya is proposing to establish a national climate fund whose mandate will be to mobilise financial resources from various sources including public, international, domestic and from the private sector. The proposed fund has heavily focussed on investment instruments that will be used to finance climate change projects. However, the missing link is how the domestic source of finance particularly from the private sector may be tapped to enrich the fund's portfolio.

There are a number of private sector involvements in climate finance largely from the developed countries in which a number policy tools such as regulatory frameworks and market tools have been used to make the private sector contribute climate finance through various investment options, mostly through cap-and trade and carbon tax (Stern, 2008). But, as it is aptly noted by the UNEP (2009) that economic instruments that may work for a set of one problem in one country may not be sufficient to address a more severe problem in another, it is not justifiable to domestic these tools without investigating their suitability in the county. This study therefore aimed to identify incentives that will encourage the private sector towards contributing to climate change financing and investments in Kenya. The study aimed to create potential links between climate relevant incentives and on sources of both capital and investment trends. The incentives looked at various economic instruments which influence behaviour through price and information

instruments which influence behaviour through awareness. This in turn will increase access to finance and strengthen the country's responses to climate change.

### **1.3 Research Questions**

1. What are the main reasons that make the private sector organisations to invest in climate change?
2. What forms of incentives for the private sector lead to climate change financing?
3. What financing options are best suited for the private sector to invest in climate change?
4. What modalities on climate change mitigation and adaptation are the private sector willing to invest in

### **1.4 Research objectives**

The main objective of the study was to assess the effects of incentives and map the investments options for the private sector climate change financing in Kenya.

#### **1.4.1 The specific objectives of the study**

1. To identify the main reasons that make the private sector invest in climate change in Kenya
2. To assess the types of incentives that lead to uptake of climate change investments by the private sector in Kenya
3. To assess the preferred investment options by the private sector in Kenya to contribute to climate change finance

4. To assess the private sector willingness to contribute funds to the national climate change finance.

### **1.5 Justification of the study**

Climate change will have a range of impacts on businesses, including disrupting business operations, increasing costs of maintenance and materials, and raising insurance prices. In other cases, climate change may also offer new business opportunities. The private sector remains a key stakeholder in climate change response measures since they are traditionally the greatest GHG emitters or are greatly impacted by the impacts of climate change.

The UNFCCC report in 2008 (Investment and financial flows to address climate change: an update) noted that “The private sector, too, already invests significantly in many climate change vulnerable sectors and given that the multilateral framework for addressing climate change has since agreed on a framework that will require developing countries like Kenya to also contribute to climate change mitigation through developing and implementing Nationally Appropriate Mitigation Actions within the framework of low carbon development, and some of the actions are not expected to be presented to seek international financial support, it is imperative therefore that the country begins to look for innovative ways of domestically sourcing for finances that would go a long way in financing low carbon development programmes.



Furthermore, Kenya has a five year national climate change action plan that among others targets to establish a national climate fund for financing both adaptation and mitigation projects, and seeks to leverage financial resources from a myriad sources. This research is going to point to the policy makers the potential sources of finances that can boost this fund, specifically from the privates sector and related industries.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This section covers the theoretical framework, a review of empirical study, the role of the private sector in climate change mitigation, some of the innovative sources of private sector funds for financing climate change, Cost of Climate Change and financing in Kenya and summary of the chapter.

#### **2.2. Incentives to climate finance**

Whitley (2014) conducted a study to map out climate relevant incentives and investment at country level whose aim was to provide an updated methodology to support governments and development partners seeking to understand the role of public support in mobilizing private finance for climate compatible development. The approach has been applied to look at the energy sector in Uganda, the agriculture sector in Zambia, and the transport and water and sanitation in Vietnam. Whitley, developed a typology of instruments of industrial policy into three broad categories of incentives that can be used to motivate the private sector to engage in climate change finance investments and these include; regulatory, economic, and information instruments (Whitley, 2013a). This, however, appears to have some degree of differences with the UNEP's (2009) published resource manual on the use of economic instruments for environmental and natural resource management which developed three broad categories of economic instruments namely: price based instruments; property rights based instruments; and legal, voluntary and information based instruments. The UNEP's manual has however, given conditions

in which instruments that would otherwise appear not to be economic would have to fulfill in order to be considered to be economic incentives.

### **2.3. Investment options for climate change**

UNDP paper on ‘readiness for climate finance drawing from experiences in Eastern and Southern Africa (2014), notes that the private sector finance is necessary to supplement public finance to fill the climate finance gap noted that there are two central pillars for the private sector engagement which includes the suitable policy to incentivize climate change financing so that the returns from the investments are attractive and whether the policy are stable enough to ensure these returns.

Asia, (2011) conducted a research on the current state of business engagement on climate change adaptation and identified key barriers to greater private sector involvement. It aimed to initiate a discussion on the business case for adapting to long-term climate change impacts and the need to improve incentives for action. The report linked climate change adaptation to development and outlines ways that businesses can build on existing CSR practices to address adaptation needs in the region’s most vulnerable communities. The study, which focused on South and Southeast Asia (Indonesia, Sri Lanka, Thailand, the Philippines, and Vietnam) examined the role of the private sector in responding to climate change impacts. Among the several findings of the study includes; that there are opportunities to tap into business financing for adaptation. However, business can play an even greater role in climate change adaptation by contributing expertise, effective planning and management approaches, and fast moving innovative capacity; through

responsible business practices, products and services, as well as corporate community investment programmes. Business can help to build resilient economies and societies. National adaptation strategies will be most successful if they bring together partners from government (national and local), civil society organisations, and the private sector. Stakeholder engagement processes therefore need to be wide ranging and include both large and small business.

Capital sources such equity, debt such as bond have been mostly reviewed and flouted by the climate bond initiative paper written by Kidney, Lenaghan and Oliver (2009) dubbed climate bonds- the investment case.

## **2.4. Theoretical framework**

This study was guided by three theories namely, the Modigliani and Miller Theorem, the Pecking order theory and the Prospect theory.

### **2.4.1. Modigliani-Miller theorem**

The theory of business finance in a modern sense starts with the Modigliani and Miller (1958) capital structure irrelevance proposition. Modigliani and Miller, assumes that the firm has a particular set of expected cash flows. When the firm chooses a certain proportion of debt and equity to finance its assets, all that it does is to divide up the cash flows among investors. Investors and firms are assumed to have equal access to financial markets, which allows for homemade leverage. The investor can create any leverage that was wanted but not offered, or the investor can get rid of any leverage that the firm took

on but was not wanted. As a result the leverage of the firm has no effect on the market value of the firm.

Their paper led subsequently to both clarity and controversy. As a matter of theory, capital structure irrelevance can be proved under a range of circumstances. There are two fundamentally different types of capital structure irrelevance propositions. The classic arbitrage-based irrelevance propositions provide settings in which arbitrage by investors keeps the value of the firm independent of its leverage. In addition to the original Modigliani and Miller paper, important contributions include papers by Hirshleifer (1966) and Stiglitz (1969).

A second kind of capital structure irrelevance is associated with multiple equilibria. In models of this kind, equilibrium conditions pin down the aggregate amount of debt and equity in the market. The model does not specify how these aggregate quantities get divided up among the firms. The classic paper is by Miller (1977) in which consideration of both personal and corporate tax determines an economy wide leverage ratio, but there are multiple equilibrium in which debt is issued by different firms.

This research has shown that the Modigliani-Miller theorem fails under a variety of circumstances. The most commonly used elements include consideration of taxes, transaction costs, bankruptcy costs, agency conflicts, adverse selection, lack of separability between financing and operations, time varying financial market opportunities, and investor clientele effects.

As an empirical proposition, the Modigliani-Miller irrelevance proposition is not easy to test. With debt and firm value both plausibly endogenous and driven by other factors such as profits, collateral, growth opportunities, we cannot get a structural test of the theory by regressing value on debt.

However, the fact that there are fairly reliable empirical relations between a number of factors and corporate leverage, while not disproving the theory, does make it seem an unlikely characterization of how real businesses are financed.

A popular defence has been to argue as follows. “While the Modigliani-Miller theorem does not provide a realistic description of how firms finance their operations, it provides a means of finding reasons why financing may matter.” This description provides a reasonable interpretation of much of the theory of corporate finance up to perhaps the 1980s. Accordingly, it influenced the early development of both the trade-off theory and the pecking order theory.

#### **2.4.2. Pecking order theory**

The pecking order theory stems from Myers (1984) who in turn was influenced by the earlier institutional literature including the book by Donaldson (1961). Myers (1984) argues that adverse selection implies that retained earnings are better than debt and debt is better than equity. This ranking was motivated with reference to the Myers and Majluf’s (1984) adverse selection model. The ordering, however, stems from a variety of sources including agency conflicts and taxes.

A firm is said to follow a pecking order if it prefers internal to external financing and debt to equity if external financing is used (Myers (1984). Most firms hold some internal funds (cash and short-term investments) even when raising outside funds. This is so obvious that it is rarely considered in tests of the pecking order. It is implicitly assumed that these funds are held for reasons that are outside the theory, such as for transactions. Accordingly, almost all discussions maintain some version of another things equal interpretation of the relative use of internal and external funds.

A second problem for the definition concerns the preference of debt over equity. As we will see, initial claims for the theory tended to rest on a strict interpretation in which equity is never issued if debt is feasible. As it has become increasingly clear that this strict interpretation is not only more refutable, but actually refuted, proponents of the pecking order theory has moved increasingly to the other things equal interpretation. Different papers invoke different empirical versions of other things equal. The strict interpretation suggests that after the IPO, equity should never be issued unless debt has for some reason become infeasible. This leads to the notion of a “debt capacity.” The debt capacity serves to limit the amount of debt within the pecking order and to allow for the use of equity. Obviously, this raises the problem of defining the debt capacity. The literature provides no agreed upon definition. Several recent papers have used factors commonly employed in tests of the trade-off theory, in order to define the debt capacity.

Pecking order models can be derived based on adverse selection considerations, agency considerations, or other factors. There seem to be a couple of common features that underlie pecking order theories.

#### **2.4.2.1. Adverse selection**

The pecking order is adverse selection developed by Myers and Majluf (1984) and Myers (1984). The key idea is that the owner-manager of the firm knows the true value of the firm's assets and growth opportunities. Outside investors can only guess these values. If the manager offers to sell equity, then the outside investor must ask why the manager is willing to do so.

There are an original owner/operator of a firm and potential investors. Everyone is risk-neutral, and there are no transaction costs and no discounting. All financing is through equity. The firm has some existing assets and it decides whether or not to undertake a project. If the project is to be undertaken, then the potential investors compete in an auction for the right to finance the project. The auction is for a share of equity in the firm that the investor demands in exchange for the necessary funding of the project. Accordingly financing is break-even given the beliefs of the investors.

The firm has assets in place, denoted by  $A_i$ , and access to a positive net present value project that offers a net payoff denoted by  $B_i$ . The subscript "i" refers to the firm's type, which can be either type H (high) or of type L (low). The sum of the assets in place plus the net value of the project is greater for a type H firm than it is for a type L firm. The



two types are equally likely. The firm knows the true worth of both its assets and the project. The investors can only guess about the firm's type. In order to undertake the project, the firm would need to raise  $I > 0$  from the investor. If the project is not undertaken, then the firm's value (denoted  $V_i$ ) is just  $V_i = A_i$ . If the project is undertaken  $V_i$  must be shared with the outside investor. The investor's share of the firm is denoted  $s$ , so the original owner gets  $(1-s) V_i$ . An auction is held among the risk-neutral investors for the right to provide  $I$  in exchange for  $sV_i$ . The winner of the auction expects to break even. There is a unique pooling equilibrium in which both type H and type L firms undertake the new projects if and only if  $(I/V_L) < (B_H + I)/V_H$ . The investor gets a share denoted  $s^*$ , where  $s^* = I / (0.5V_H + 0.5V_L)$ .

The pooling equilibrium conditions allow the investor only to expect to break even on average since both types of firm will undertake the project. Under the parameter value restriction, the new project is sufficiently lucrative that the high type firm wishes to go ahead, despite the fact that the investor is only financing the project on average terms. Thus, all players are willing to follow the suggested strategies.

There is a unique separating equilibrium in which a type L firm undertakes the project and a type H firm does not, if and only if  $(B_H + I)/V_H < I / (0.5V_H + 0.5V_L)$ . The investors get a share  $s^* = I / V_L$ .

In this case, only the low type firm goes ahead with the project. The investor knows that a low-type firm is being financed and therefore demands terms that reflect this fact.

In the pooling equilibrium the asymmetric information does not cause the valuable project to be lost. But if the value of the assets in place is quite high relative to the value of the positive net present value (NPV) of the project, then the firm chooses not to raise any outside funds. In this model, internal financing when feasible would always work. That is to say, such financing would avoid all asymmetric information problems. External equity is sometimes too expensive and the firm will even give up positive NPV projects to avoid it. This is part of the pecking order hierarchy.

As in Myers and Majluf (1984), debt is not formally included in the analysis. If debt were available and risk-free, it would work as well as internal financing. If debt is available and risky, then Myers (1984) argues intuitively that it ought to fall somewhere between retained earnings and equity thus creating the pecking order. The formal analysis of a model with risky debt is not as simple as it seems when reading Myers (1984). When both debt and equity financing are feasible, there are often multiple equilibria, and it is not clear how to select among them. Noe (1988) provides an important analysis of the problem. Cadsby et al. (1998) provide experimental tests of some of the equilibrium selection arguments that have been invoked in financial theory. Path dependence and learning seem to play a more important role than do formal equilibrium selection criteria.

### **2.4.3. Prospect theory: An Analysis of decision under risk**

Prospect theory developed by Daniel Kahneman and Amos Tversky (1979) is a theory of decision-making under conditions of risk. Decisions are based on judgments. Judgments

are assessments about the external state of the world. They are made especially challenging under conditions of uncertainty, where it is difficult to foresee the consequences or outcomes of events with clarity. Decisions involve internal conflict over value trade-offs. They are made difficult when choices promote contradictory values and goals. Prospect theory directly addresses how these choices are framed and evaluated in the decision-making process.

Expected utility theory has dominated the analysis of decision making under risk. It has been generally accepted as a normative model of rational choice and widely applied as a descriptive or economic behavior.

Decision making under risk can be viewed as a choice between prospects or gambles. A prospect

$(X_1, P_1, \dots, X_n, P_n)$  is a contract that yields outcome  $X_i$  with probability  $p_i$ , where  $p_1 + p_2 + \dots + p_n = 1$ . To simplify notation, we omit null outcomes and use  $(x, p)$  to denote prospect  $(x, p; 0, 1-p)$  that yields  $x$  with the certainty is denoted by  $(x)$ . The present discussion is restricted to prospects with so called objective or standard probabilities. The application of expected utility theory to choices between prospects is based on the following three tenets,

- i. Expectation:  $U(X_1, P_1, \dots, X_n, P_n) = P_1 u(x_1) + \dots + P_n u(x_n)$

That is, the overall utility of a prospect, denoted by  $U$ , is the expected utility of its outcomes.

- ii. Asset Integration:  $(X_1, P_1; \dots; X_n, P_n)$  is acceptable at asset position  $W$  if  $U(w+x_1, p_1; \dots; 1-X_n P_n) > u(w)$

That is, a prospect is acceptable if the utility resulting from integrating the prospect with one's assets exceed the utility of those assets alone. Thus the domain of the utility function is final states (which include one's asset position) rather than gains or losses.

Although the domain of the utility function is not limited to any particular class of consequences, most applications of the theory have been concerned with monetary outcomes. Furthermore most economic applications introduce the following additional assumption.

- iii. Risk Aversion:  $u$  is concave ( $u'' < 0$ )

A person is risk averse if he prefers the certain prospect ( $x$ ) to any risky prospect with expected value  $x$ . In expected utility theory, risk aversion is equivalent to the concavity of utility function. The prevalence of risk aversion is perhaps the best known generalization regarding risky choices

## 2.4. Chapter Summary

The theoretical foundations of the study is based on Corporate Social Performance Theory which posits that social responsibility of businessmen refers to the obligation of businessmen to pursue those policies, to make decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society. Given the negative impacts of climate change on the society as a whole, and that the activities of the private sector in their small ways generate greenhouse gases to the atmospheres, climate change global politics of historical responsibility. It has become increasing clear that

states will be required finance climate change mitigation and adaptation irrespective of their historical responsible in terms of emissions and capability. Models indicate additional net economic costs (on top of existing climate variability) could be equivalent to a loss of almost 3% of GDP each year by 2030 in Kenya. This theory is therefore the moral basis of engaging the private to contribute to climate change responses in Kenya.

Private sector involvement in climate change response is not a new phenomenon, in the developed world various strategies have been designed to engage the private sector in limiting extent of atmospheric pollution and further a number of studies have also been done in relation to the most plausible ways of ensuring their contribution such ways have been studied for example by MacKerron et al (2009) in the UK, Asia, Corporate Social Responsibility (2011) in South Eastern Asia, and Whitley (2014) whose approach has been applied in a number of African countries such as Uganda, Zambia among others. Some of the documented incentives include; Debts (Climate Change bonds), Equity (Climate Change stock market), Cap and trade, Grants (Philanthropy, CSR), Taxes (Carbon Tax), Insurance (provision of insurance to climate vulnerable projects and investments, Guarantees. These sources of capital can be realized through three incentive measures namely regulatory means, economic/ market instruments, and information instrument. Whereas it is acknowledged that the instruments that work best for one country may not necessarily work for another country, the Kenya National Climate Fund proposal and the National Climate Change Action Plan Financing component have put forth a generic template that does not specify what would work best for the Kenyan private sector participation. Furthermore, whereas some of the economic or regulatory incentives have the potential of directly generating funds for the government from the

private sector, and that it has been a practice that governments could raise funds through borrowing from the private sector, not necessarily from local banks, the national climate change fund has not given recognition of these potential sources but has taken the usual route of making proposals for creating a good environment for investment by the private sector which in itself while laudable, still lacks the cutting edge of targeting raise the much needed funds from every possible source and avenue.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1. Introduction**

This section includes research design, population under study, sample size, data collection, data analysis, and data validity and reliability.

#### **3.2. Research Design**

The study targeted major private sector institutions (as the population of study) in different sectors that impact and or are impacted by climate change. These are from the agricultural, extractives, manufacturing, energy, transportation, ICT, and hospitality sectors. The necessary data for this study was collected through interview using a semi structured questionnaire.

#### **3.3. Sampling**

Multi- stage sampling was used in which a total of eighty five (85) companies were identified to take part in the study, out of which 51 of them successfully completed the interview and the rest were non responsive, resulting into a success rate of 60%.

#### **3.4. Data collection**

The study involved both primary and secondary data, and utilized a combination of both quantitative and qualitative methods. Prior to primary data collection, secondary was collected through content analysis of government reports, and statutory and regulatory

documents for information on the existing incentives, the outcome of which further updated the primary data collection tool.

Primary data collected in the field from the identified institutions and industries. Secondary data was obtained from government reports, and through the use of the internet to obtain data from credible institutions. Actual data collection was preceded by pretesting of the survey instruments and focus group discussions so as to test the efficiency of the tool, the feedback used to improve the data collection tool. The questionnaire was then administered through a face-to-face interview once the questionnaire design was finalized. Data was gathered from the respondents through testing, their knowledge on climate change and need for financing, eliciting their willingness to pay for climate change financing.

### **3.5. Data Analysis**

Data collected from the field was reviewed for errors and completeness then entered in a coded SPSS spreadsheet and cleaned; which was then be transferred to STATA 11 software for analysis. Data analysis took the form of both descriptive and inferential statistics. For descriptive analysis, the findings were presented in visual forms specifically using graphs, charts, tables and narratives. A correlation analysis was done to establish whether there is a relationship between independent and dependent variables. A regression model was used to analyse the relationship between willingness to contribute to climate change finance by the private sector to the incentives and investment options presented by the market.



### **3.5.1. Analytical Model**

For the purpose of this study, multivariate regression analysis was used to find out whether incentives and investment options had any effect on the private sector willingness to contribute to climate finance.

The multivariate regression model was in the form of:

C.C.F= f (Incentives, Investment Options)

C.C.F=  $\beta_0 + \beta_1 (X_{i_1}) + \beta_2 (X_{2_1})$

Where:

C.C.F= Climate Change Finance

$X_{i_1}$ = Market incentives the private sector is exposed to.

$X_{2_1}$ = Investment options that the private sector is exposed to.

$\beta_0$ = Coefficient of Intercept (constant)

$\beta_1, \beta_2$ = Regression Coefficient for each independent variables

Hence the model specification was:

Climate Change Finance (C.C.F) =  $\beta_0 + \beta_1$  (Incentives) +  $\beta_2$  (Investment options)

### **3.6. Data validity and reliability**

In the development of the data collection tool, expert opinions was be sought to help enrich the study in terms of the appropriateness of the key issues to be covered. In addition, data collection will be preceded by a pre-test among members of the target population.

## **CHAPTER FOUR**

### **DATA ANALYSIS, RESULTS AND DISCUSSIONS**

#### **4.1.Introduction**

This chapter presents a detailed discussion of the results of the study in an attempt to achieve the research objective. The objective of this study was to establish the effect of private sector incentives on climate financing in Kenya. Secondary data was analysed and presented in the form of tables and charts.

#### **4.2.Response Rate**

Eighty five (85) companies were identified to take part in the study, out of which 51 of them successfully completed the interview and the rest were non responsive, resulting into a response rate of 60%.

#### **4.3. Descriptive Statistics**

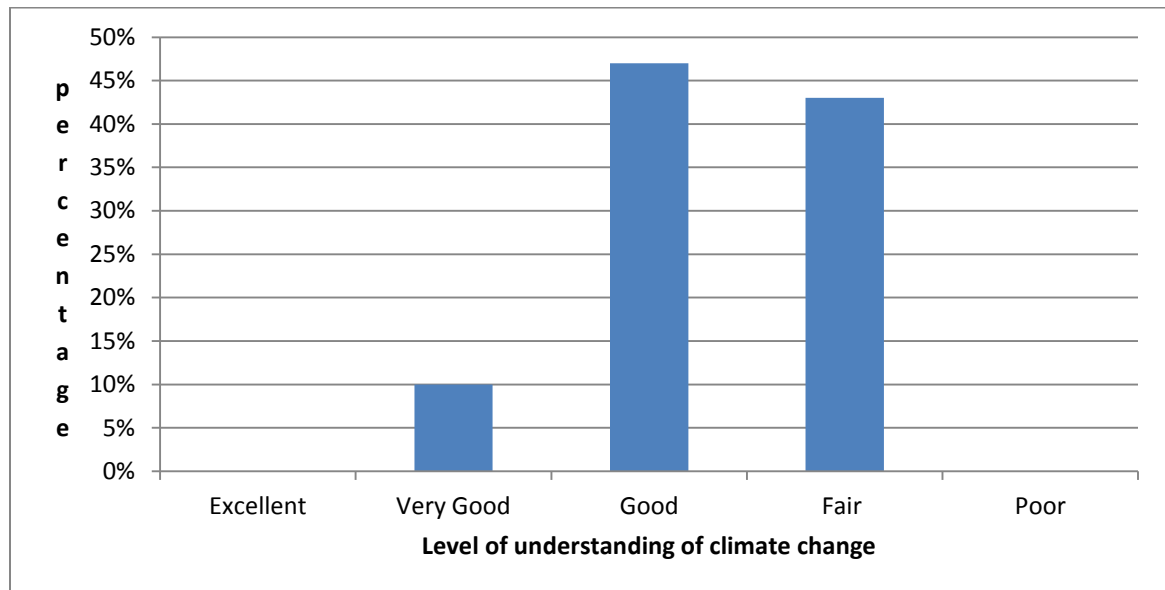
##### **4.3.1. Characteristic of the Companies that Participated in the study**

The youngest company had been in operation for three years, and the oldest one had been in existence for one hundred and nineteen years. Likewise, the company that had least number of employs had 4 (four) staffs and the one with the greatest number had eight thousand (8000) staffs, and the one with lowest turnover had an annual turnover of Kshs. 1 million and the company with highest turnover had Kshs. 164 billion per year. Forty four (44) interviewees reported that they were using electricity in their operations while seven (7) companies did not to respond to the question on their use of electricity, again it

is also forty four companies that reported their use of petroleum products in their operations and 82% reported that they use fossil fuels in their operations while 18% reported that they do not use the fuels.

#### 4.3.2. Awareness of climate change

Majority of the respondents reported to have considerable understanding of climate change, of the fifty one companies' interviewed 47% of them said that they had good understanding of climate change, and another 43% also said that they had average understanding. However, none reported to have excellent knowledge and only 10% said that they had very good knowledge as shown in Figure 1.



**Figure 1: Level of understanding of climate change**

#### **4.3.3. Kind of Climate Change Activities that the Private Sectors Engage In**

Organisations that reported to be undertaking climate change activities were asked the kind of projects they were involved in and they reported a varied categories of projects ranging from involvement in training of smallholder farmers on risk aversion, crop and animal insurance- risk mitigation, incubation of climate change SMEs, financing (technology, innovation models, bankable projects), Information (market intelligence, target market, enabling environment, Agricultural products that sure drought resistant, going more electronic through digitalizing payments with no receipts, waste water recycling and reuse, energy initiatives such as energy saving and use of clean energy, tree Planting, eco-friendly buildings, financing agricultural and livestock, Consultancy service- technical advice- to investment, solar panels- cooking and heating water, and CDM projects.

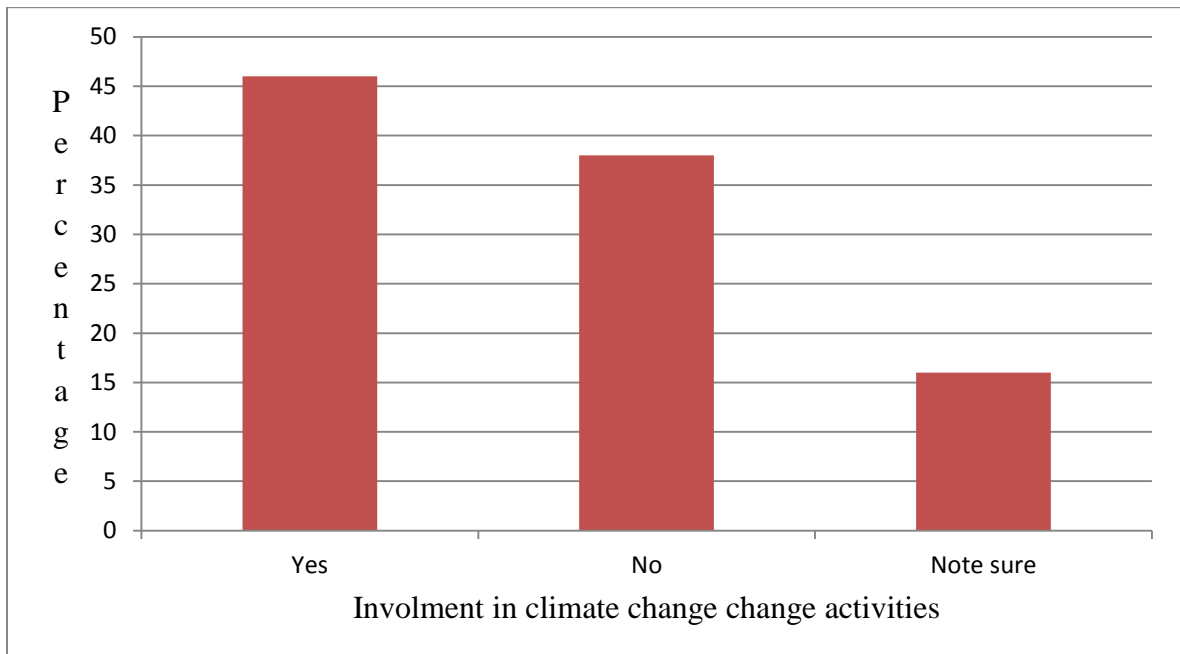
#### **4.3.4. Private Sector Sources of Funds for Financing Climate Change Initiatives**

The sources of funds that the Kenyan private sector use to finance climate change projects and activities include: Insurance (internal sources), Grants from development banks, climate change ventures, Grants, Climate resilient economies programs, Internal sources, Lobbying and advocacy- legislated personal money, Internal cash and development banks, Listed companies received Carbon Credits, , Internal funds.

#### **4.3.5. Investing in climate change response by the private sector**

Out of the 51 companies that were interviewed, twenty reported to be involved in climate change activities, nineteen of them said to have not been involved in climate change,

while eight of them said that they were not sure whether their activities are of climate change nature.



**Figure 2: Involvement in climate change activities**

#### **4.3.6. Reasons why the private sector were involved climate change investment**

A great majority of the companies were involved in climate change investment to be able to avert the impacts of climate change, and these were largely agricultural and insurance companies. The table shows the reasons for investments in climate change by sector.

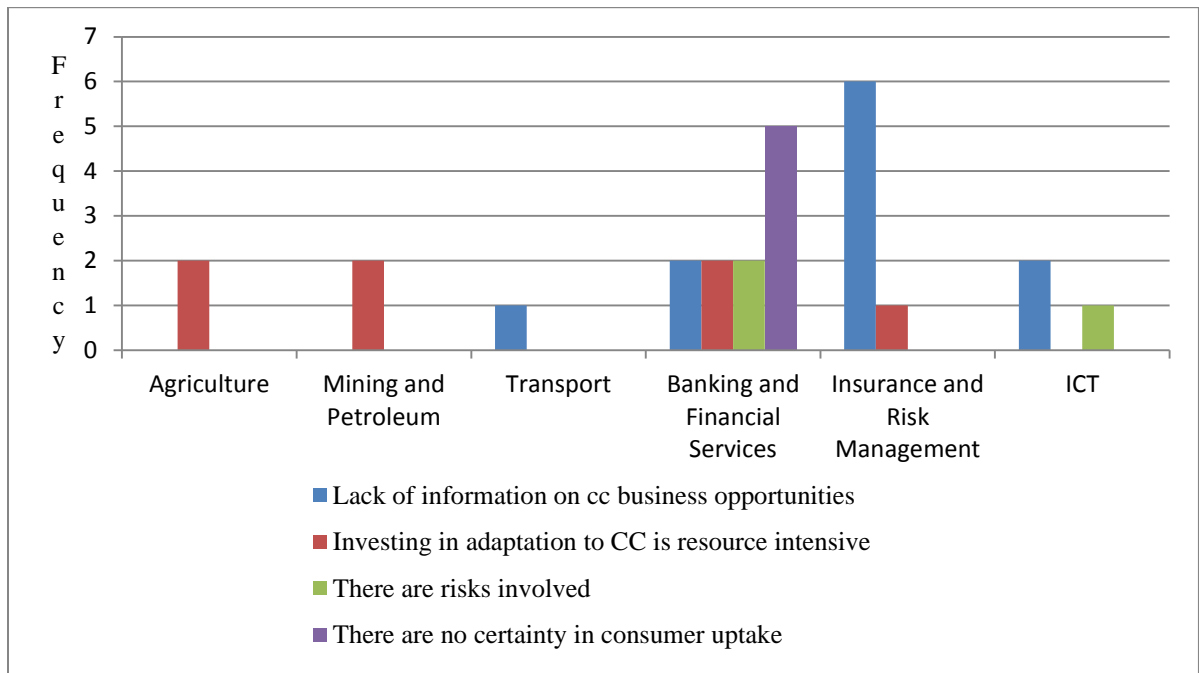
**Table 2: Reasons for private sector involvement on climate change**

<b>Sector</b>	<b>Reasons for investment in climate change</b>
Manufacturing industry	Financial returns, Reduced Operating Cost,
Agricultural industry	Averting Climate Change Risks
Mining and petroleum industry	
Transport industry	Reducing GHG Emissions
Banking and financial services	Reducing GHG Emissions, Availability of incentives by the government,
Insurance and risks management	Averting Climate Change Risks,
Information, communication & telecommunications	Climate Change presents opportunity for innovation
Tourism and hospitality industry	Reduced Operating Cost

#### **4.3.7. Reasons for not getting involved in climate change investment**

Those who reported to not involved in climate change activities cited lack of information on climate change business opportunities most, followed by investment on climate change adaptation being capital intensive. The banking and financial services had the most concerns on climate change with some of their cited reasons for lack of investing on climate change being lack of certainty in consumer uptake of climate change products and services, there are risks involved, investing in adaptation to climate change is

resource intensive, and lack of information on climate change business opportunities which was also a concern for the Insurance and Risk Management sector



**Figure 3: Reasons for lack of involvement on climate change**

**4.3.8. Knowledge of Economic Policy Instruments and Incentives**

In this study, economic policy instruments as incentives that can motivate the private sector to investment in climate change activities included legal incentives, price based incentives, property rights based incentives, and information based incentives. The level of understanding of the incentives by respondents was ranked in Likert scaled of 1 to five, where 1 referred to excellent understanding, 2 was good, 3 was average, 4 was fair, and 5 was poor. Table 3 shows how the respondents reported the level of their understanding of economic policy incentives.

**Table 3: Level of understanding of the various economic policy incentives**

<b>Variable name</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Level of understanding of legal incentives	51	2.823529	1.014019
Level of understanding of price based incentives	51	2.666667	1.10755
Level of understanding of property rights based incentives	51	3.431373	.9644667
Level of understanding of information based incentives	51	2.803922	1.000392

From the mean values of the responses, price based incentives is most understood incentive and property rights based instruments is least understood, and overall, the level of understanding of the policy tools was average.

#### **4.3.9. Preferences of the various legal instruments**

Under the legal instruments component of economic incentives, eight (8) instruments were identified and presented to the respondents in which they were required state whether they would prefer or not those tools as measures that can spur them to engage in climate change activities. Table 4 shows the proportion of the respondents who voted for or against the tools.

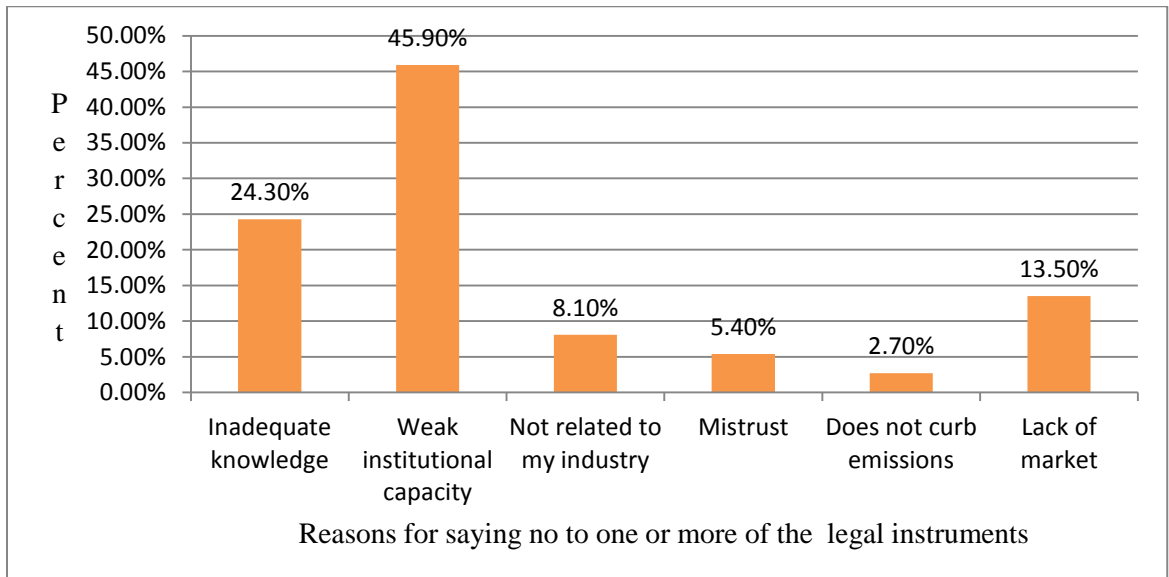


**Table 4: Preferences on legal instruments**

Legal Instruments Preference		
	No	Yes
Licenses	71%	29%
Standards for processes and Products	63%	37%
Legally binding targets	61%	39%
Imports/Export restriction	61%	39%
Enforcements	59%	41%
Planning laws	51%	49%
Accounting systems	49%	51%
Quotas	47%	53%

**4.3.10. Reasons for lack of preference for certain legal investment incentives by the private sector**

Respondents, who said no to one or more of the legal instruments that were presented to them, were asked to give reasons as to why they did not prefer those tools. Over 72% of the respondents said no to one or more of the instruments and the reasons they gave included; inadequate knowledge, weak institutional capacity, not related to my industry, mistrust, policy incentive does not curb emissions and lack of market.



**Figure 4: Reasons for saying no to one or more of the legal instruments**

#### **4.3.11. Preferred Economic Price Based Incentives**

The companies interviewed were presented thirteen price-based instruments and asked their preferences. The most preferred incentive in this category was subsidies receiving a 92% approval, followed by public private partnership at 88% while the least preferred was deposit refund systems which received a backing of 55%, followed by refunded emission payments, and taxes at 57%. Table 5 shows rate of preference for all the instruments.

**Table 5: Preferred price based incentives**

<b>Price based Instruments</b>	<b>Preference</b>	
	<b>Yes</b>	<b>No</b>
Subsidies and subsidy removal	92%	8%
Public private partnerships	88%	12%
Insurance (including for bank deposits)	82%	18%
Public procurement	78%	22%
Royalties	73%	27%
Access to resources	71%	29%
Direct spending/ payments	71%	29%
Lending and guarantees	71%	29%
User fees/charges	69%	31%
Levies	63%	37%
Taxes	59%	41%
Refunded emission payments	57%	43%
Deposit refund systems	55%	45%

**4.3.12. Reasons for Lack of Preferences for some Price Based Instruments**

Participants who reported to not prefer some of the price based instrument were asked to give reasons and their responses are shown in table 6 below.

**Table 6: Reasons for not preferring some price-based instruments**

<b>Statement</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid percent</b>
Lack of linkage to consumer products	1	2.0%	6.7%
Taxes not adequate	2	3.9%	13.3%
Inadequate knowledge	5	9.8%	33.3%
Weak institutional framework	4	7.8%	26.7%
Challenge of administration	3	5.9%	20.0%
Observations	15	29.4%	100.0%
Total Number	51	100%	

**4.3.13. Property rights based instruments**

Property rights based instruments was also another category of incentives whose preference was sought during the interview and both intellectual property rights and emission reduction credit programmes got preferential liking of 76% while ambient permit trading got the least preference at 47% as shown in table 7.

**Table 7: Preferences for property rights based incentives**

<b>Property Rights Instruments</b>	<b>Preference</b>	
	<b>Yes</b>	<b>No</b>
Emission reduction credit programmes	76%	24%
Ambient permit trading	47%	53%
Output based allocation	57%	43%
Cap and trade programmes	52%	48%
Copy right and patent protection (intellectual property rights)	76%	24%

#### 4.3.14. Reasons for not preferring some of the tools

Similarly participants who reported not to prefer certain property rights incentives were asked to give reasons as presented in table 8

**Table 8: Reasons for not preferring some of the tools**

Statement	Frequency	Percent	Valid Percent
Lack of structures	3	5.9	15.8
Inadequate knowledge	5	9.8	26.3
Capacity of capacity in cap and trade	2	3.9	10.5
Weak institutional framework	9	17.6	47.4
Total	19	37.3	100.0
Missing System	32	62.7	
Total	51	100.0	

#### 4.3.15. Information based Incentives

Companies were asked to show their preferences to a list of eight information based incentives, and education/training was the most preferred information tool at 80%, followed by awareness campaigns at 76% while accounting systems was the list preferred at 31%. Table 9 shows the level of preferences for the various information-based incentives.

**Table 9: Preferences for information-based incentives**

<b>Incentive type</b>	<b>preference</b>	
	<b>Yes</b>	<b>Not</b>
Information centres	63%	37%
Statistical services	53%	47%
Awareness campaigns	76%	24%
Training/Education	80%	20%
Transparency initiatives	61%	39%
Voluntary performance targets	59%	41%
Certifications	61%	39%
Accounting systems	31%	69%

#### **4.3.16. Reasons for not preferring some information incentives**

Again those who reported not to prefer any of the information based incentives were asked to give reasons for lack of preference. Some of the respondents stated that unless there was serious commitment by the government agencies responsible for the information centres, then such an incentive may not be helpful due to inaccessibility; other concerns included effectiveness of administering accounting system.

#### **4.3.17. Preferences for the various Incentives**

Respondents were asked to state their order of preferences of the various categories of the incentives in a Likert scale of 1 to 4 where 1 referred to most preferred, 2 preferred, 3 was for moderately preferred, and 4 referred to least preferred. Measures of central

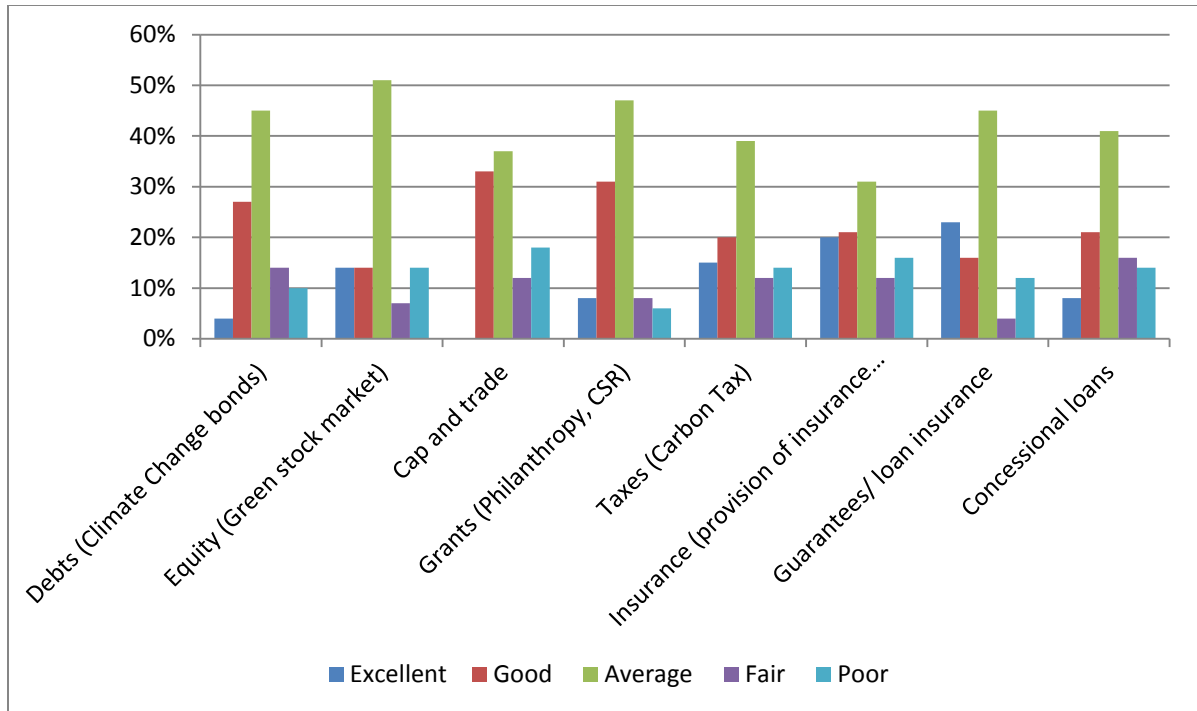
tendencies were obtained, that is the means and the standard deviation as shown in table 10 below. The results showed that the category of legal instruments was the most preferred, followed by price based instruments, information based instruments and property rights based respectively.

**Table 10: Preferences of the various categories of the incentives**

<b>Incentive type</b>	<b>No. Observations (N)</b>	<b>Mean</b>	<b>Standard Deviation</b>
Legal instruments	51	1.67	0.86
Price based instruments	51	1.84	0.90
Property rights based instruments	51	2.63	0.91
Information based instruments	51	1.92	1.07

#### **4.3.18. Knowledge of Climate Change Financing Options**

Participants were presented with a list eight climate change financing options and were asked to rate their level of understanding in a Likert scale of 1 to 5 where 1 was excellent and 5 was poor. Majority of the respondents reported to have average understanding of the options, followed good understanding as shown in figure 5

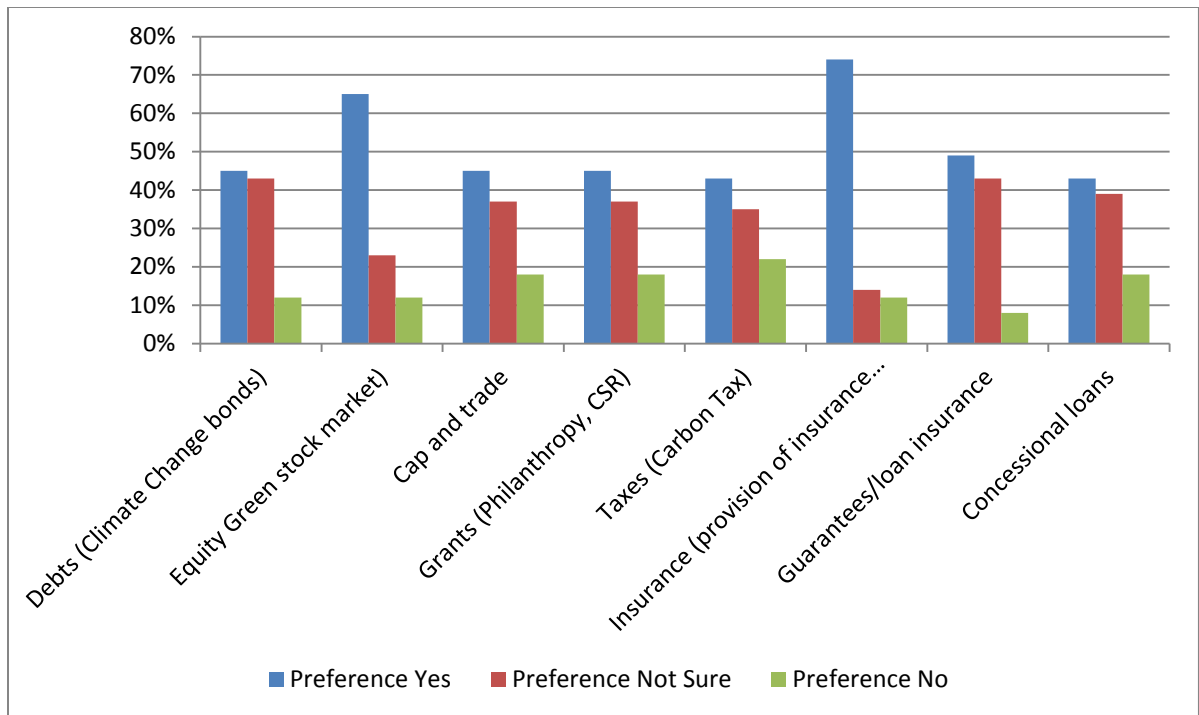


**Figure 5: Knowledge of climate change financing options**

#### 4.3.19. Preferences for the financing instruments

Again participants were asked to give their preferences for the financing options in which they were to state whether they had the options of stating a ‘yes’ for preference, a ‘not sure’ option and a ‘no’ for an outright lack of preference. Majority had preference for provision of insurance, followed by green stocks, and Guarantees. Not sure was always higher ahead of an outright rejection across all the financing options presented as shown in Figure 6

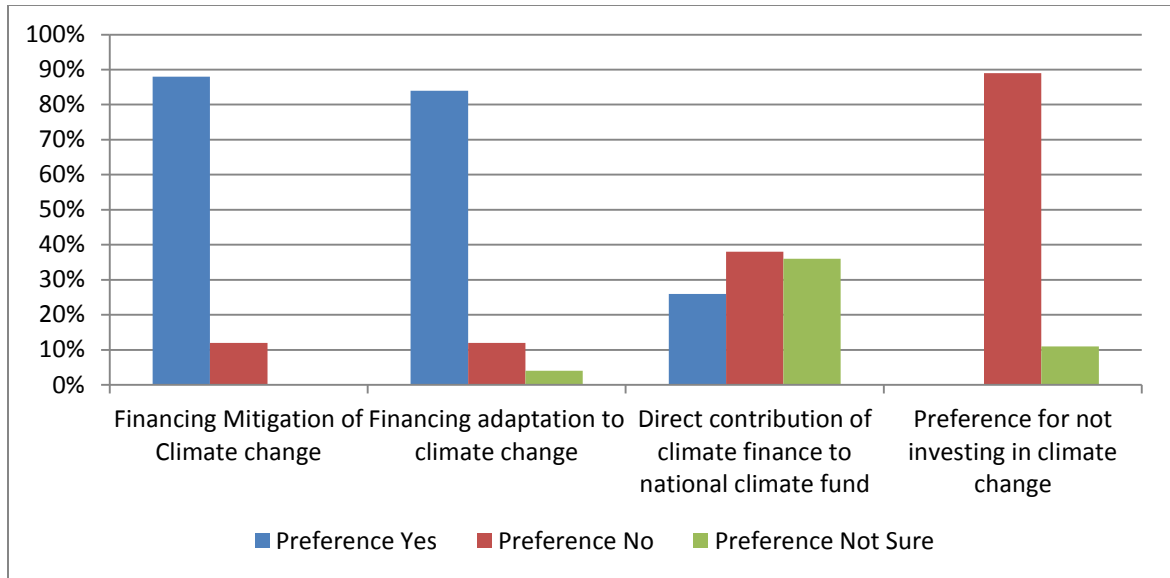




**Figure 6: Preferences for the climate change financing options**

#### 4.3.20. Willingness to Invest on Climate Change

The participants asked if they would be willing to invest in climate change given the availability of various incentives and financing options and the dangers of climate change pose. They were also presented with four options of investments including an opt out where they would not continue with their investment plans without bothering about climate change, and 88% and 84% respectively said they would invest in climate change mitigation and adaptation projects. Only 26% had preference for the third investment option in which proposed for making direct contributions to the national climate change fund set up by the governments while no company stated that they would not invest on climate change as shown in Figure 7



**Figure 7: Willingness to invest on climate change**

#### **4.3.21. Reasons for investing in climate change**

Those who reported willingness to invest on climate change were asked to give reasons as to why they would consider making such investments and some of the reasons given included:

Climate change requires participation of all stakeholders, NGO, Government and Private Sector; Criteria and modalities for contribution; This is where the future is and direct impact will be felt through technologies; Emission reduction is important for the agricultural sector; It is the best option regarding engagement of climate change adaptation and mitigation; Private sector look for quick return, (benefits come in the better) re-forestation that takes a short time. Technology is the easiest way to ensure quick impact on climate change for the private sector; Provides viable solutions towards climate change adaptation and mitigation in the manufacturing sector; Most effective way to achieve desired incentives for climate change fund, private sector may not have control

on government set fund; Finance projects that ease climate change like solar powered machinery; The banking sector can also make policies that finance products that only promote climate finance initiatives; Part of CSR and sustainability in the long term; When you invest in technology that are environment friendly you reduce on the emissions and costs that will help in fighting climate change; Purchase of products that are internationally recognized and compliant to climate change adaptation; Long term sustainability; Investing in climate change adaptive technologies and those aimed at reducing emissions presents business opportunities while addressing climate change; Technologies are easier to adopt.

#### **4.3.22. Direct Contribution to the National Climate Change Fund**

Out of the fifty one companies that participated in the study, only 12 of them said that they would make direct contribution to the national climate change fund, in which six companies preferred purchase of green bonds issued by the national government towards the national climate change fund, four companies said they would prefer their direct contribution through taxes and two companies preferred making voluntary contribution.

#### **4.4. Inferential Statistics**

##### **4.4.1. Correlation Analysis for Investment options, Incentives and Climate Change Finance**

Pearson's correlation analysis was run at 5% significance level aimed at establishing how private sector climate change finance correlates with the market incentives and investment options. The correlation matrix is presented below.

**Table 11: Correlation Results**

	<b>ClimCF</b>	<b>Incentives</b>	<b>Investment Options</b>
ClimCF	1		
Incentives	0.342*	1	
Incentives	0.471*	0.100	1

\*.Correlation is significant at 0.05 level (2- tailed)

\*\*.Correlation is significant at the 0.01 level (2-tailed)

Source: Research Findings, 2015

The results showed a positive correlation existed between climate change finance and the independent variables. However, the strength of the relationships varied. For incentives, the Pearson correlation value was 0.342. Similarly , the Pearson Correlation values for investment options was 0.471. This is an indication that strong correlation exists between investment options, incentives and climate change finance in the private sector.

Further, the significant values( P-value) obtained corresponding to the obtained Pearson Correlation values were 0.019, 0.001,0.000, 0.000. Comparing the obtained significant values with the significance level of the study i.e. 0.05, it can be concluded that the Pearson correlations between Investment options and incentives and Climate Change Finance were statistically significant. Hence it can be deduced that the independent variables significantly contribute to the the private sectors' willingness to invest in Climate Change Financing.

#### 4.4.2. Regression Analysis for Investment options, Incentives and Climate Change Finance

To find out whether investment options and incentives had an effect on climate change finance, multivariate regression analysis was used. The study sought to determine the willingness of contribution by the private sector towards climate change finance accounted for by the incentives and investment options. This was determined by the use of coefficient of determination ( $R^2$ ) obtained on the model summary table. Coefficient of determination ( $R^2$ ) is the percentage of variance in the dependent variable explained uniquely or jointly by the independent variables. The findings are presented in table 13(a) below.

**Table 12a: Regression Model Summary**

Model	R	R- Square	Adjusted A Square	Std. Error of the Estimate
1	.612 <sup>a</sup>	.374	.348	.01864

a. Predictors: (Constant), Investment options, Incentives

*Source: Research Findings, 2015*

As shown in table 13(a) above, the model had coefficient of determination ( $R^2$ ) of 0.374. This means 37.4% of the variations in climate change finance with the private sector were accounted for by the incentives and investment options. Furthermore, there are other factors that account for the remaining variance of 62.6%. Finally, the coefficients of the regression model and the findings are represented in the table 13 (b)

**Table 12b: Regression Coefficients**

Coefficients <sup>a</sup>					
Model	Unstandardized		Standardised	t	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
(Constant)	-.040	.029		-1.354	.182
Incentives	.010	.003	.393	3.423	.001
Investment Options	-.005	.001	-.510	-4.443	.000

a. Dependent Variable: ClimCF

*Source: Research Findings, 2015*

The resulting regression model was:

$$Y = -0.40 + 0.010X_1 + 0.05X_2$$

Where Y= Climate Change Finance, X<sub>1</sub>= Incentives, X<sub>2</sub>= Investment options. The findings indicate that when all the factors are held constant, Climate Change Finance would be – 0.40 units. Further, holding other factors constant, one unit of incentives would change climate change finance in the private sector by 0.10 units. When all other factors are held constant, a unit increase in investment options increases climate change finance by 0.05. Hence the findings revealed that incentives (p= 0.001), investment options (p=0.005) were significant in predicting climate change finance since all P values were less than 0.05.

#### 4.4.3. Test Significance

Analysis of Variance (ANOVA) was used to test for significance of the effect of the independent variables on the dependent variables in the regression analysis. The findings are presented in table 14(c)

**Table 12(c): ANOVA Results**

ANOVA <sup>a</sup>					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.010	2	.005	14.348	.000 <sup>b</sup>
Residual	.017	48	.000		
Total	.027	50			

a. Dependent Variable: ClimCF

b. Predictors: (Constant), Investmentoptions, Incentives

*Source: Research Findings, 2015*

As shown in table 14(c) above, the model predicting the relationship between investment options, incentives and climate change finance was statistically significant. The study established a significant value if  $p=0.000$  showing a statistical significance relationship.

#### 4.5. Summary of findings and discussions

Eighty-five companies were identified for this study out of which 51 successfully completed the interview, and the rest were non-responsive resulting to a response rate of

60%. The companies interviewed ranged in factors such as the numbers of operation, the number of staff members, the turnover rate, use of electricity in operations, the amount of electricity used in operations, use of fossil fuels and the amount of fossil fuels used in driving machinery and conducting other company operations.

From the findings, it is evident that the private sector organizations have good knowledge in climate change enough for integration of climate change and adaptation practices in their operations.

Among the different sectors represented, the agricultural and insurance companies largely avert from the impacts of climate change. Notably, the represented sectors poised different reasons for investment depending on the size of the company, rate of return and their return on investment. This included aspects such as reduced operations, gaining of financial returns, reducing GHG emissions and the availability of incentives by the government. The banking and financial services had the most concerns as there is lack of certainty in consumer uptake of climate change products and services and risks involved with a lengthy Return on Investment( ROI).

Gauging from the statistics presented on the knowledge of economic policy instruments and incentives, the mean values of the responses, price based incentives are most understood incentives while property right based instruments least understood. Overall, the level of understanding of the policy tools was average.



The most preferred incentive in this category was subsidies receiving a 92% approval, followed by public private partnership at 88% while the least preferred was deposit refund systems which received a backing of 55%, followed by refunded emission payments, and taxes at 57 %.

On property rights based instruments intellectual property rights and emission reduction credit programmes got preferential liking of 76% while ambient permit trading got the least preference at 47%. Companies were asked to show their preferences to a list of eight information based incentives, and education/training was the most preferred information tool at 80%, followed by awareness campaigns at 76% while accounting systems was the list preferred at 31%.

On the willingness to invest in climate change given the availability of various incentives and financing options, 88% of the respondents opted not to continue with their investment plans without bothering about climate change and 84% that they would invest in climate change mitigation and adaptation options. Only 26% had preference for the third investment option, which proposed for making direct contributions to the national climate change fund, set up by governments.

Technology is the easiest way to ensure quick impact on climate change for the private sector as it provides viable solutions towards climate change adaptation and mitigation in the manufacturing sector. The most effective way to achieve desired incentives for climate change fund, private sector may not have control on to the government set fund

necessary in financing projects on incremental costs that ease climate change like solar powered machinery. The banking sector can also make policies that finance products that only promote climate finance initiatives. This proves that when you invest in technology that is environment friendly you reduce on the emissions and costs that will help in fighting climate change. This can also be effectuated by purchase of products that are internationally recognized and compliant to climate change adaptation.

Direct contribution national climate change fund as a modality of climate finance was also preferred by twelve respondents out of the fifty one, of which six would opt to buy through the purchase of green bonds issued by the national government and four companies would prefer their direct contribution through taxes while the last two through voluntary contribution.

In correlating investment options, incentives and climate change finance, the results showed that there is a positive correlation between climate change and the independent variables provided. For incentives, the Pearson correlation value was 0.342. Similarly , the Pearson Correlation values for investment options was 0.471. This is an indication that strong correlation exists between investment options, incentives and climate change finance in the private sector.

To find out whether investment options and incentives had an effect on climate change finance, multivariate regression analysis was used. The study sought to determine the

willingness of contribution by the private sector towards climate change finance accounted for by the incentives and investment options.

The model had coefficient of determination ( $R^2$ ) of 0.374. This means that 37.4% of the variations in climate change finance with the private sector were accounted for by the incentives and investment options. Furthermore, there are other factors that account for the remaining variance of 62.6%.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1. Summary of Findings

Majority of financial sources used by the private sector for investing in climate change came from internal sources which is a validation of the pecking order theory which posits that the Internal financing is the first preferred method, followed by debt and external equity financing as a last resort by corporate entities, this is largely due to the assumption that companies prioritize their financing strategy based on the path of least resistance. The theory also states that corporate financing comes from these three sources which are internal funds, debt and new equity (Myers (1984).

As expected, the reasons why the private sector were involved in climate change activities were consistent with the traditional documented ways in which each sector leads to increased emissions or are vulnerable to the impacts of climate change hence. For example the ICT sector reported that their motivation for investments is because of the opportunity for innovation that climate change presents. Likewise, the banking and financial services sector reported mitigation of climate change whose products are usually tradable in the markets hence profit yielding, they also reported their involvement to be due to availability of incentives by the government. The insurance and risk management sector reported that their involvement is on averting climate change risks which can be attributed to the dangers posed by climate change that requires adaptation the impacts. Unlike in the developed countries where cap and trade has been traditionally used for industry players, in Kenya, the private sector seems keener on positive

incentives rather than penalties or incentives that discourage them from taking actions that lead to climate change.

For the investment options, insurance, equity, guarantee, and the green bonds are preferred in that order even though one would expect debts (green bonds) to be ahead of equity in terms of preference. The Green bonds stood at \$ 36 billion in 2014, issued by 73 (seventy three) different issuers globally. The bonds' proceeds are reported to be used renewable energy, energy efficiency, low carbon transport, climate adaptation etc.), and the issuers are categorized into: Municipalities such as Swedish City of Gothenburg and South Africa's City of Johannesburg; Development Banks such as the World Bank which contributed \$ 3.1 billion ; National banks such as Germany's KfW, France's AFD and Netherland's NWB Bank which contributed; Regional banks; and Corporates such as Toyota which contributed \$ 1.75 billion (Climate Bonds Initiative, 2015).) The World Bank for example supported a geothermal project in Indonesia and a project in China aimed at reducing costs through improved energy efficiency in factories using green bonds. Likewise the International Finance Corporation green bonds are supporting a new large scale solar power facility in Mexico that does not require subsidy, and also helping a company recycle e-waste from computers, discarded mobile phones and other electronics in India (World Bank, 2015).

## **5.2.Conclusion**

Climate change financing is a key issue in Kenya as it draws its mandate nationally from the Vision 2030, the National Climate bill, Medium-Term strategies, National Climate Change Action Plan and the National Climate Change Response Plan.

Private sector in Kenya is aware of the risks and opportunities that climate change presents and is therefore willing to make investments towards climate change among others. Whereas it was only 39% of the private sector that were involved in climate change, more than 88% of them are willing to invest in climate change should a conducive environment be put in place. The private sector prefers to invest on climate because they believe that: the right criteria and modalities for contribution can be established; incentives provides viable solutions towards climate change adaptation and mitigation in particularly in the manufacturing sector; technology is the easiest way to ensure quick impact on climate change for the private sector and incentives can make it possible; emission reduction is important for the agricultural sector.

However, considering that there most utilised sources of financing are internal sources, the government need to explore better ways that can make the private sector more profitable and also provide incentives that spur them to find other sources of financing attractive, the study revealed that the most preferred financial strategies include insurance to mitigate risks associated with change, investment in green stocks, and guarantees and the most preferred incentives in Kenya include subsidies, public private partnership, insurance, training, public procurement, intellectual property, and awareness creation.

The financial and banking sectors are also key players of climate change finance as they host the different financial and investment options that the private sector can acquire for purposes of climate change adaptation and mitigation efforts. It is then important for the financial and banking sector to tailor products and services that are climate change sensitive to motivate climate change practices. This also involves devising strategic interventions such as looking at innovation and copyrights as collateral for financing for climate change innovative projects. This is a great motivation especially to young innovators in developing green business ideas, in ensuring sustainability of such projects is achieved.

### **5.3.Recommendations**

The best way to promote private sector investment in climate change is to encourage them create a favourable environment to take up projects that mitigate climate change and adaptation to climate. So as to ensure that climate finance is well integrated and achieved in the private sector, Kenya had adopted the Climate Relevant Expenditure (CRE) as it creates an enabling environment to climate change adaptation and mitigation. Climate finance should then be viewed as the incremental cost of financing as compared to the wholesome financing of a project.

It is also important to address the challenges faced by the private on climate change investments which include lack of information on climate change business opportunities, climate change adaptation being resource intensive, uncertainty on uptake of climate change products and services, a take the following measures that could spur the private

sector to make investments on climate change: provide incentives on subsidies, public private partnership, insurance, training, public procurement, emission reduction, intellectual property, and awareness creation. The different private sectors presented can also be used to in providing tailored incentives that can be supported by the government. The sustainability of climate financing concept in Kenya is important and can also be achieved by creating links between climate finance and sustainable development. This is will answer key questions such as how can public-private partnerships help catalyse and deliver finance for inclusive low carbon resilience development; and To what extent is climate resilient development achieving development impacts? This would be necessary in reviewing partnership between different local stakeholders in catalyzing pro- poor decisions for using climate finance.

The Government of Kenya has made notable progress in accessing multilateral climate funds, as well as in establishing the processes and frameworks and strategies conducive for absorbing available climate change funds. This is reflected in the development of the National Climate Change Strategy, as well as their asserted efforts to establish a National Climate Fund and to pass the Climate Change Bill. However, existing challenges and barriers remain. Domestic knowledge on the amount of global funding available, as well as how it can be accessed, remains limited. One of Kenya's immediate challenges with regard to climate finance is a deficit of qualified experts that can professionally manage the emerging challenges of climate change, planning, policy implementation, and M&E enforcement of the different legal instruments already available in the country. A more



serious problem results from failure of institutions to execute programs that have been budgeted for due to delays in disbursement from donor organizations.

#### **5.4.Limitations of the Study**

The study used multi-stage sampling techniques that is not as effective as true random sampling, but probably solves more of the problems inherent to random sampling. It is an effective strategy though because it banks on multiple randomizations.

Moreover, the private sector environment did not provide sufficient data to conduct a sectorial analysis on incentives and investment options that the private sector companies can adopt to catalyze climate finance.

Data collection for this study was a timely and intensive process as most of the data collected by the private sector was confidential to the respective companies. It was also difficult to get hold of the different respondents as most of them were senior staff who understood the company's operations.

#### **5.5.Suggestions for further studies**

Further research should be done to establish sectorial incentives and investment options towards climate change mitigation and adaptation in the private sector. It will also be interesting to see how Kenya's financial systems, in promoting integrity of management and control mechanisms are able to track the climate change financial flows.

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## **APPENDIX: STUDY QUESTIONNAIRE**

### **UNIVERSITY OF NAIROBI FINANCE AND ACCOUNTING DEPARTMENT**

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#### **EFFECTS OF INCENTIVES ON CLIMATE CHANGE FINANCE BY PRIVATE SECTOR ORGANISATIONS IN KENYA**

#### **INTERVIEW INSTRUMENT**

#### **CONSENT STATEMENT**

**(The following statement must be read to every respondent)**

Dear Sir or Madam

My name is Judith Mulwa. I am a graduate student of Finance and Investment at the University of Nairobi doing a research on financing capacity of climate change, mapping relevant incentives and investment for the private sector in Kenya. In order to meet this object, it is, therefore, important to obtain information from stakeholders such as you. The information is being collected for academic purposes only and there are no personal benefits or risks to your participation. It is possible that some of the information collected may appear sensitive, however, be informed that your name or the name of your company will not be recorded in the questionnaire and information the information will be treated with confidentiality and will not be shared to third parties.

The interview takes approximately 45 minutes. You may terminate the interview at any point if you do not wish to proceed. If you would like to know more about this study, please contact me at 0720 959 040

Consent Granted:      YES:    Proceed with interview

NO: Thank the person and look for next interview. You are required to keep this questionnaire whether the respondent agreed to participate or not



**SECTION A: QUESTIONNAIRE IDENTIFICATION**

County.....Town/City.....Location.....

.....

Date..... Interviewer Name.....

Tel.....Start time..... End

time.....

**SECTION B: KNOWLEDGE ON CLIMATE CHANGE**  
**I would like to know how familiar you are with climate change**

<b>Question 1</b>	
How would you rate your knowledge of climate change? (Tick in the box)	
01. Very good	<input type="checkbox"/>
02. Good	<input type="checkbox"/>
03. Average	<input type="checkbox"/>
04. Poor	<input type="checkbox"/>
05. Very poor	<input type="checkbox"/>
<b>Question 2:</b>	
Which of the following best describe your industry ( Tick one only)	
01. Manufacturing industry	<input type="checkbox"/>
02. Agricultural Industry	<input type="checkbox"/>
03. Mining and Petroleum industry	<input type="checkbox"/>
04. Transport industry	<input type="checkbox"/>
05. Banking and financial services	<input type="checkbox"/>
06. Insurance and risks management	<input type="checkbox"/>
07. Information, Communication and Telecommunication	<input type="checkbox"/>
08. Retail and wholesale enterprises	<input type="checkbox"/>
09. Tourism and hospitality industry.	<input type="checkbox"/>
10. Energy generation industry	<input type="checkbox"/>

<b>Question 3a</b>	
Does your company engage in any activity on climate change? (tick box)	
01. Yes	
02. No	
03. Not sure	
<b>Question 3b</b>	
If yes, list the kind of climate change activities that your company is undertaking and the sources of funds for financing them.	
.....	
.....	
<b>Question 3c</b>	
If yes which of the following best describe why you are involved in climate change activities (tick one only)	
01. Financial Returns	
02. Job creation	
03. Reducing greenhouse gas (GHG) emissions	
04. Reduced operating costs	
05. Averting risks emanating from the impacts of climate change	
06. Climate change presents opportunity for innovation	
07. Existence of good policies and regulatory framework that favour climate change investments	
08. Availability of incentives by the government	
09. Financial products for financing climate change are available and accessible	
10. We identified it to be part of our CSR	
11. Others (please specify).....	

<b>Question 3d.</b>	
If no, which of the following best describe why you are not involved	
01. Lack of information on climate change business opportunities related to my industry	
02. Lack of awareness of the risk climate change pose to my business/industry	
03. Lack of awareness of the greenhouse gases that my business/industry emits	
04. Investing in adaptation to climate change is resource intensive and I am not aware of any incentives for business to consider such investments	
05. Investing in mitigation on climate change is resource intensive and I am not aware of any incentives that can help bridge financing gaps	
06. There are risks involved and there are no proper ways of mitigating the risks	
07. There is no certainty on consumer uptake of climate change investment products or services	
08. Others (please specify).....	

**SECTION C: INCENTIVES FOR CLIMATE CHANGE FINANCING BY THE PRIVATE SECTOR**

*I would like to know how familiar you are with the various tools and incentives for raising funds for climate change*

<b>Question 4</b>	
<b>a.</b> Do you think the private sector should support the government in responding to adaptation and or mitigation of climate change? ( tick box)	
01. Yes	<input type="checkbox"/>
02. No	<input type="checkbox"/>
03. Not sure	<input type="checkbox"/>
<b>b.</b> If you said no to question 8 above, give a reason for your answer in the space below ..... ..... .....	

**Question 5**  
 How do you rate your understanding of the following economic policy instruments that could spur action by the private sector on climate change?

	Excellent (1)	Good (2)	Average (3)	Fair (4)	Poor (5)
01. Legal instruments					
02. Price based instruments					
03. Property rights based instruments					
04. Information instruments					

**Question 6**  
 a. Which of the following of legal instruments would you prefer?

	Yes	No
01. Legally binding targets		
02. Quotas		
03. Licenses		
04. Planning laws		
05. Accounting systems		
06. Enforcements		
07. Import/export restriction		
08. Standards for processes and products		
09. None reason).....		(give

**Question 6b.** If you said no to one or more of the legal instruments, give a reason below

--

<b>Question 7.</b> Which of the following economic price based instruments would you prefer		
	Yes	No
01. Access to resources		
02. Taxes		
03. Levies		
04. Royalties		
05. Direct spending/ payments		
06. Lending and guarantees		
07. Insurance (including for bank deposits)		
08. Public procurement		
09. User fees/charges		
10. Public private partnerships		
11. Subsidies and subsidy removal		
12. Deposit refund systems		
13. Refunded emission payments		
14. None (give reason).....		
<b>Question 7b.</b> If you said no to one or more in 7a above give reasons for the 'no' below		

<b>Question 8</b>		
<b>a.</b> Which of the following Property Rights Based Instruments/incentives would you prefer?		
	Yes	No
01. Emission reduction credit programmes		
02. Ambient permit trading		
03. Output based allocation		
04. Cap and trade programmes		
05. Copy right and patent protection (intellectual property rights)		
06. None (give reason).....		
07. Other (specify).....		
<b>Question 8b.</b> if you said no to one or more in 8a above give reasons above		
<b>Question 9</b>		
<b>a.</b> Which of the following information instruments/incentives would you prefer (you can tick more than one)		
	Yes	No
01. Information centres		
02. Statistical services		
03. Awareness campaigns		
04. Training/Education		
05. Transparency initiatives		
06. Voluntary performance targets		
07. Certifications		
08. Accounting systems		
09. None (give		

reason).....		
10. Other (specify).....		

**Question 9b.** If you said no to one or more of the instruments above, give a reason that below

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**Question 10**

In a scale of 1 to 4, rank the following economic instruments as a tool that is likely to spur the private sector action on climate change in order of your preference with 1 being the most preferred, 2 is for preferred, and 3 being least preferred

	Most preferred (1)	Preferred (2)	Moderately preferred (3)	Least preferred (4)
01. legal instruments				
02. Price based instruments				
03. Property rights based instruments				
04. Information instruments				



**SECTION D: INVESTMENT OPTIONS AND PREFERENCES**

*I would like to know how familiar you are with the various potential sources of funds that can help in financing climate change by the private sector and which ones would you prefer*

<b>Question 11.</b> How do you rate your understanding of the following climate change financing strategies?					
	Excellent (1)	Good (2)	Average (3)	Fair (4)	Poor (5)
01. Debts (Climate Change bonds)					
02. Equity (Green stock market)					
03. Cap and trade					
04. Grants (Philanthropy, CSR)					
05. Taxes (Carbon Tax)					
06. Insurance (provision of insurance to climate vulnerable projects and investments)					
07. Guarantees/ loan insurance					
08. Concessional loans					
<b>Question 12a.</b> Which of the following financing instruments would you prefer to invest in					
	Yes	Not sure	No		
01. Debts (Climate Change bonds)					
02. Equity Green stock market)					
03. Cap and trade					
04. Grants (Philanthropy, CSR)					
05. Taxes (Carbon Tax)					
06. Insurance (provision of insurance to climate vulnerable projects and investments)					
07. Guarantees/loan insurance					
08. Concessional loans					

09. None (give reason).....			
10. Other (specify).....			
<b>Question 12b.</b> If you said no to one or more to 12a above, give reasons for that below			

**SECTION E: PRIVATE SECTOR WILLINGNESS TO CONTRIBUTE TO THE NATIONAL CLIMATE CHANGE FINANCING**

**[READ THIS TO THE RESPONDENT]:**

*Kenya is faced with a myriad of climate change challenges and problems which include: Variations in weather patterns (reduced rainfall and failed seasons); Frequent and prolonged droughts and diminishing water resources; Floods/flash floods and landslides; Environmental degradation and habitat destruction; Resurgence of pests and diseases; Loss of biodiversity; severe famine and hunger causing food insecurity; Resource use conflicts. Studies show that the impacts of climate change will cost the country up to 2% of its annual GDP and up to 3% by 2030. To address the impacts of climate change and avoid contributing to the global greenhouse gas emissions, there is need to invest a substantial amount of funds to finance adaptation to the impacts and arrest greenhouse emissions through financing of renewable and energy efficient technologies.*

*The private sector plays a key role in climate change response measures, in Kenya; a conducive environment for working with private sector has already been established through public and private partnerships policy frameworks. The government of Kenya also seeks to establish a national climate change fund, which will be responsible for financing adaptation to and mitigation of climate change. The fund will be resourced from public sources and through international sources. However, that will not be sufficient, hence the need to look for more innovative ways to engage the private sector in boosting the fund.*

*In this section, you are asked to clarify the mode or level of engage you may prefer in promoting climate change financing in Kenya.*

<b>Question 13a</b>			
Which of the following financing modalities is closest to your view (You tick more than one)			
	Yes	No	Not sure
01. As a private sector entity, I prefer to contribute to climate change financing by investing in technologies, products and services that are energy efficient and or reduce emissions			
02. As a private sector entity I prefer to contribute to climate change finance through investing in technologies, products and services that would help in adaptation to climate change			
03. As a private sector entity, I prefer to make direct monetary contribution to the national climate fund set up by the government			
04. As a private sector entity, I prefer to continue with my investment strategies without bothering about taking any action on climate change			
<b>Question 13b</b>			
If you said yes to 01 and or 02 give reasons			
.....			
.....			
.....			
<b>Question 13c</b>			
If you said yes to 03, which of the following best describe the mode of contribution you prefer			
01. Through a carbon tax			
02. Through a voluntary donation to a national climate change fund			
03. Through purchasing green bonds			

04. Other (specify).....	
<b>Question 13d.</b> If you chose 04, give reasons for the choice	
..... .....	

**SECTION F: ABOUT YOUR COMPANY PROFILE AND CHARACTERISTICS**

<b>Question 14</b> How many years has your company been in operation?	.....
<b>Question 15</b> Number of employees in the company	.....
<b>Question 16</b> What is the annual turnover of your company?	.....
<b>Question 17</b> Do you use electricity in your production or service provision processes	
01. Yes	
02. No	
<b>Question 18</b> Do you use fuel (petroleum products) in your production processes or service provision process	
01. Yes	
02. No	
<b>Question 19</b> How much do you pay per month for your electricity use and how many Kilo warts do you use per month	.....
<b>Question 20</b> How much do you pay (kshs.) for fuel to run company vehicles	.....
<b>Questions 21</b> How much do you pay per month for fuel to operate your machineries?	.....
<b>Question 22</b> What is the professional training background of the person filling the questionnaire in the company?	.....

**THANK YOU SO MUCH FOR TIME AND COOPERATION**