UNIVERSITY OF NAIROBI

THE ACCEPTABILITY OF THE USE OF CARBON TAXES FOR CLIMATE CHANGE MITIGATION IN KENYA: A POLITICAL ECONOMY ASSESSMENT

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DECLARATION

Declaration by the candidate

"I declare that this dissertation is my original work and has not been submitted elsewhere for examination, award of a degree or publication. Where other people's work, or my own work has been used, this has properly been acknowledged and referenced in accordance with the University of Nairobi's requirements".

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DEDICATION

Dedicated to my family whose unyielding love, support and encouragement have inspired me to pursue and complete this research.

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ABSTRACT

Sustainable economic growth in Kenya is threatened by her vulnerability to climate change. Incidentally, the major contributors to Gross Domestic Product growth in Kenya are also the highest greenhouse gas emitters. This raises questions on the efficiency of the current models to foster long-term prosperity and green growth to achieve Vision 2030. A policy that would put an appropriate price on carbon can therefore be considered as a viable solution to decouple emission growth from economic growth. Empirical research data for the same in various countries build the case for a well-designed carbon tax, the essence of which is to provide an incentive for the polluters themselves to find the best way to reduce emissions, rather than having a central authority determine how pollution reduction should be done. A political economy approach of analysis was taken to investigate the acceptability of a carbon tax introduction in Kenya within the existing regulatory and institutional framework for climate change mitigation. Extensive policy document review was conducted and structured interviews were performed to gather expert opinions on the carbon tax acceptability within the existing national circumstances of the country. A comprehensive stakeholder analysis was used to determine beneficiaries and non-beneficiaries and map out interests and influences that would determine successful implementation. A PESTELI (Political, Economic, Socio-cultural, Technological, Environmental, Legal and Industrial) framework analysis was used to draw out specific external factors that would influence policy uptake. It was found that hesitation in acceptability was derived from the lack of sufficient information available on policy operations and subsequent impacts both of which can be addressed by comprehensive impact analysis and full engagement of all stakeholders. Transparency of fiscal objectives the policy is aimed at achieving in the design and formulation stages is necessary to enhance acceptability. The perception of unfairness in the choice of taxation as a suitable carbon dioxide pollution regulator was mollified by the suggestion that revenue reimbursement will be earmarked to green spending. A mixed approach policy was recommended.

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LIST OF SYMBOLS

$MtCO_2e$	Metric tons of carbon dioxide equivalent
CO_2	Carbon dioxide
CH4	Carbon monoxide

ABBREVIATIONS

AU	African Union
BAU	Business as usual
BC	British Columbia
CAC	Command and Control
CCD	Climate-Compatible Development
CDM	Clean Development Mechanism
CGE	Computable General Equilibrium
CER	Certified Emissions Reductions
COP	Conference of Parties
ETS	Emission Trading System
EU	European Union
EIs	Economic Instruments
EFR	Environmental Fiscal Reform
EMCA	Environment Management Coordination Act
ETS	Emission Trading System
ETR	Environmental Tax Reform
FiT	Feed-in-Tariff
GDP	Gross domestic product
GEF	Global Environment Fund
GKI	Greening Kenya Initiative
GHG	Greenhouse Gas
GOK	Government of Kenya
GTBR	Green Tax Budget Reform
INDC	Intended Nationally Determined Contributions
IPCC	Intergovernmental Panel on Climate Change
INDCs	Independent Nationally Determined Contributions
ITMO	Internationally Transferred Mitigation Outcomes
KCF	Kenya Climate Fund
KNCPC	Kenya National Cleaner Production Centre

KRA	Kenya Revenue Authority
LUCF	Land Use, Land Use Change and Forests.
LPG	Liquefied Petrol Gas
MEA	Multilateral Environment Agreement.
MBIs	Market-Based Instruments
MOENR	Ministry of Environment and Natural Resources
MTP	Medium Term Plans
NAMA	Nationally Appropriate Mitigation Actions
NAP	National Adaptation Plan
NC	National Commitment
NCCAP	National Climate Change Action Plan
NCCRS	National Climate Change Response Strategy
NEMA	National Environment Management Authority
NRs	Natural resources
OECD	The Organization for Economic Co-operation and Development (OECD)
ODK	Open Data Kit
PEA	Political Economy Analysis
PES	Payment for Environmental Services
PFM	Public Finance Management
PPP	Polluter Pay Principle
REDD	Reducing Emissions from Deforestation and Forest Degradation
UNCED	United Nations Conference on Environmental Development
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention for Climate Change
VAT	Value Added Tax
WTP	Willingness to Pay

DEFINITION OF TERMS AND CONCEPTS

Agenda 21: A comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations system, governments, and major groups in every area in which humans impact on the environment.

Carbon dioxide equivalent (CO2e): A way to place emissions of various radiative forcing agents by accounting for their effect on climate on a common footing that is for a given amount of GHGs, the amount of CO_2 that would have the same global warming ability, when measured over a specified time period.

Carbon market: A trading system through which countries or other entities may buy or sell units of greenhouse gas emissions in an effort to meet their national limits on emissions, either under the Kyoto Protocol or under other agreements.

Carbon price: The price for avoided or released CO_2 or CO_2e emissions.

Carbon tax: A levy on the carbon content of fossil fuels.

Climate Compatible Development: Development that minimizes the harm caused by climate impacts, while maximizing the many human development opportunities presented by a low emission, more resilient future.

Co-benefits: The positive effects that a policy or measure aimed at one objective might have on other objectives, without evaluating the net effects on overall social welfare.

Common but Differentiated Responsibilities: A principle enshrined as Principle 7 of the Rio Declaration that acknowledges that all states have shared obligation to address environmental destruction but denies equal responsibility of all states with regard to environmental protection.

Conference of the Parties (COP): The supreme body of the United Nations Framework Convention on Climate Change (UNFCCC) that currently meets once a year to review the Convention's progress.

Crowding in: The mobilization of private sector finance for innovative investment projects through public sector (co-)financing of these investments.

Earmarking: When tax revenues are set aside to fund a specific programme (also referred to as hypothecation).

Economic instruments work by internalizing environmental costs and externalities through increasing the prices that individuals and industries must pay to use resources or to emit pollutants. They are labelled as "economic" because the objective is to induce, through economic policy, changes in behavior of economic agents, compelling users to take into account the estimated costs and benefits of alternative actions open to them.

Environment Fiscal Reform: It is a strategy that redirects government's taxation and expenditure programmes to create an integrated set of incentives to support shift to sustainable development practices by implementing existing fiscal instruments such as full cost pricing of natural resources, taxation, charges, tax rebates and exemptions, smart subsides and other forms of incentives, for environmental management.

Environment Tax Reform: Reform of the national tax system where there is a shift of the burden of taxes, for example from labour to environmentally damaging activities, such as unsustainable resource use or pollution.

Equi-marginal Principle: Least-cost means of achieving an environmental target when marginal costs of all possible means of achievement are equal for example, cost-effectiveness, can be used to find least-cost means of adhering to a proposed regulation. The **First Equi-marginal Principle** states that net benefits are maximized when the marginal benefits from an allocation equal the marginal costs. Allocations are said to be Pareto Optimal if no other feasible allocation could benefit at least one person without any negative effects on another. The **Second Equi-marginal Principle** requires that when we consider environmental policies, we want to use the policy which achieves pollution reduction at least cost.

Externality When a person is in a condition that he affects the welfare of others but neither pays nor gets paid for it, an externality results. If the impact is adverse, it is termed a "negative externality", if favorable, it is termed a "positive externalities".

Green economy: An economy that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.

Greenhouse gases: The atmospheric gases responsible for causing global warming and climatic change.

Green economy in the Kenyan context refers to a shift towards a development path that promotes resource efficiency and sustainable management of natural resources, social inclusion, resilience, and sustainable infrastructure development.

Green growth means fostering economic growth and development, while ensuring that natural assets continue to provide the resources and environmental services on which human well-being relies.

Intended Nationally Determined Contribution (INDC): INDCs are submissions from countries describing the national actions it intends to take to reach the Paris Agreement's long-term temperature goal of limiting warming to well below 2°C. Once a country has ratified the Paris Agreement, its INDC is automatically converted to its NDC (see below), unless it chooses to further update it. INDCs are thus only used in reference to countries that have not yet ratified the Paris Agreement.

Leakage: Partially offsetting increases in CO_2 emissions in other countries without carbon pricing as energy-intensive, trade-exposed firms relocate away from countries with carbon pricing.

Lock-in: Lock-in occurs when a market is stuck with a standard even though participants would be better off with an alternative.

Market-Based Instruments (**MBIs**): Policy instruments that use markets, price, and other economic variables to provide incentives for polluters to reduce or eliminate negative environmental externalities.

Nationally Determined Contribution (NDC): Submissions by countries that have ratified the Paris Agreement which presents their national efforts to reach the Paris Agreement's long-term temperature goal of limiting warming to well below 2°C. New or updated NDCs are to be submitted in 2020 and every five years thereafter. NDCs thus represent a country's current ambition/target for reducing emissions nationally.

Political Economy: A branch of the social sciences that focuses on the interrelationships among individuals, governments, and public policy.

Progressive refers to a tax that increases as a larger proportion of the total amount taxed as that sum increases.

Regressive tax- A tax that takes a higher percentage of earnings from lower-income people than those with higher incomes.

Sustainable Development: Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.

Taxes are compulsory payments to the government (appearing as receipts in the budget) without the return of anything specific to the taxpayer. **Explicit taxes** are the ones where the object of taxation is the carbon content of the fuel used e.g. carbon taxes. **Implicit taxes** are the ones where the object of taxation is either the weight, volume or energy content of the fuel e.g. water charges, electricity charges.

Vested interests in the context of institutional theory (or stakeholder theory) arise in all government institutions (or interest groups) where certain people or groups benefit from what the institutions do or make possible through the services they provide (or that are provided to them), the supplies they purchase (or that are purchased from them) or the jobs they fund (or jobs availed to them).

Vision 2030 - Kenya's economic blueprint that seeks to Kenya into a newly industrializing, middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The world is grappling with the challenge on how to end poverty while recognizing that development and environment are intertwined. A clean and protected environment is a prerequisite to any strategy developed for the reduction of poverty, with the most modern and important problem facing it today being that of climate change, Stern (2006), that affects mostly the population least responsible for its occurrence. Schneider and Kuntz-Duriseti (2010) posit that many countries are struggling with different developmental challenges such as low literacy levels, high population and unemployment, and climate change only aggravates these further. Climate change acts as a multiplier to these problems (Furman, 2008), where markets to address these societal risks are absent.

The ability of the current models to foster sustainable development has been called into question in light of the continued concern over climate change and global recession. The growing realization that national environmental problems cannot be studied in isolation of these macroeconomic problems necessitates the analysis of climate change from a macroeconomic viewpoint. Carbon taxes specifically, have in recent times attracted significant debates surrounding global warming because they price each unit amount of carbon dioxide emitted (Pearce, 1991). They are designed with the aim of reducing emissions resulting from the use of fossil fuels for the production of energy in different sectors of the economy. By incentivizing pollution agents on the use of fossil fuels, the polluter is given lee-way to choose whether to pay the pollution tax or abate altogether. The aim of taxing carbon emission is to generate revenue to finance public sector activities, for example in the implementation of a green economy in a non-inflationary way, and to encourage internalization of external costs.

Developing an understanding on why the government should consider introducing carbon taxes policy tool to address the dual environmental and economic issues faced in Kenya today will enhance its future acceptability as the policy tool of choice to reduce growing emissions.

Despite the known potential benefits of a carbon tax such as regulation of greenhouse gas (GHG) emission, low administrative and compliance costs, revenue generation, transparency and the facilitation of a green economy through the enhancement of sustainable development, it is clear that the use of carbon taxes is not prevalent in most countries. For example, although its adoption has been seen in Costa Rica, Mexico, Chile and South Africa, full implementation has not been effected. World Bank report (IDS, 2013) reveals that in other countries such as Brazil, Colombia and Indonesia, there have been considerable progress made in the implementation alongside the pursuit of "readiness-related" activities. In Zimbabwe, the implementation of the carbon tax was unsuccessful due to its design features that affected implementation and the effective collection of revenues. Tonderayi (2012) expresses in detail how many opposed the tax citing lack of convincing scientific proofing of the damage verses charges imposed leading to its overall ineffectiveness. Markedly, developing countries have exhibited lower adoption rates of implicit carbon taxes (OECD, 2015) compared to developed counterparts. This was evident when Uganda, Senegal, Mali, Mozambique, Niger, Morocco and Peru adopted implicit carbon tax.

Various economists such as Baumol and Oates (1971, 1988) and Pearce and Turner (1990), have recommended the use of explicit carbon taxes due to their efficiency and effectiveness in reducing pollution as compared to the use of environmental subsidies and regulations. Such recommendations are biased towards economic and technical perspective and in most cases do not incorporate the political perspective.

This study attempts to provoke deeper discussions on the acceptability of the use of carbon taxes for climate change mitigation in Kenya. Such discussions may provide impetus for more thorough work in this area. Sustainable development is premised on decision-making approach focused on the trade-offs between social, economic and environmental factors rather than an optimization of any single factor. There may exist trade-offs between a carbon tax policy and other macroeconomic goals or other public policy goals nevertheless, the pursuance of future development objectives ought not to be at the expense of future economic growth. It is believed that this work will help policy makers assess the proposed tax and design future reforms that are optimal given Kenya's present circumstances.

Secondly, in Kenya, emissions trading system has been favoured over taxes in addressing pollution. In order to develop support in favour of the implementation of such a reform, it is important to comprehend views and incorporate the interests of affected stakeholders in tax policy, which is susceptible to the influence of either ideas or vested interests. Climate policy in particular must be established through political processes (Olson, 1984; Black, 1987; Downs, 1957; Buchanan & Tullock, 1999; Arrow, 1970). These processes invoke classic set of challenges in public choice. For example, preference must be given to manufacturers with political power, as they can present stumbling blocks to environmental regulation if their interests have not been incorporated in the design of policies. Effectiveness of carbon tax instrument can also be hampered when the public lack sufficient knowledge on the benefits of the instrument and when there is hostile lobbying from fossil fuel users (Brännlund & Persson, 2010).

Finally, the success of climate policy uptake is dependent on the integration of these policies with existing development policies and policies targeting non-climatic issues (Schneider, Rosencranz & Niles, 2002). Part of the assessment of the effectiveness of a climate policy should include a weighing in on competing risks and a consideration on how objectives from other policies may complement or compete with the new policy. Policymakers considering the use of a taxes to control pollution must primarily decide on the overall goal of its implementation and the nature of the existing system.

In climate change and energy, Kenya has already defined clear policy objectives. These include setting target on GHG, uptake of renewable energy and energy savings. Kiringai, Ndung'u, and Karingi (2002) suggest that facilitation of Environment Fiscal Reforms (EFR) requires a review of existing environmental and tax landscape with an aim of prioritizing environmental protection and conservation and identifying shortcoming that exist within the system that could be enhanced by the tax approach proposal. For example in the case of building on an existing reform such as Value Added Tax (VAT) , stopping exemptions for and the zero-rating of environmentally harmful goods could spur innovations in energy and industrial technologies thereby encouraging their market penetration.

The G8 Action Plan for Africa includes plans for tax reform and provides latitude for a broad range of EFR measures. Identification and alliances in favour of EFR are deemed necessary. This has

necessitated the need for alliances and prioritization of support measures for EFR measures in Africa, more so in the context of poverty reduction.

1.2 STATEMENT OF THE PROBLEM

Vulnerability to climate change in Kenya presents a major threat to the country's sustainable economic growth. This is compounded by the realization that 70 percent of the employment base in Kenya and approximately half of its Growth Domestic Product (GDP), is driven by natural resource-related sectors such as forestry, agriculture, water supply, energy, mining, fishing and tourism (GOK a, Ministry of Environment and Natural Resources, 2015). According to UN DESA, UN and UNDP (2012), Kenya's development path has been complicated by climate change which have direct impacts on these sectors that are the key drivers of the economy thereby affecting the realization of Kenya's sustainable development course in the long run.

In realization of the imminent challenges faced, Kenya has undertaken to transition to a Green Economy Strategy of development that is in line with Vision 2030. According to GOKc MOENR (2015), Kenya declared in her Intended Nationally Determined Contributions (INDCs) that she is committed to "reducing GHG emissions by 30 percent which is 143 $MtCO_2e$ (metric tons of carbon dioxide equivalent)) relative to business as usual levels by 2030 and in line with its sustainable development agenda". It is suggested by Baumol and Oates (1988) that explicit carbon taxes are effective in such cases and thus they ought to be given consideration to ensure polluters are tasked to take full account of the social cost of their actions on the environment. This will ensure that they do not to back track on the mitigation efforts already in place amidst growing emissions from mitigating sectors and to ensure that the country eventually meets its emission targets as earlier pledged. The expected outcome here would be that individuals and businesses switch away from the production and use of carbon intensive goods and services and instead resort to the use of low-carbon alternatives. This would reduce the levels of carbon emissions in the long-run as Kenya continues to industrialize.

A political economy approach provides a useful tool to comprehend the terrain of power in climate governance and the political landscape surrounding climate policy that is necessary to maneuver around in order to influence change and to expand the scope for climate-compatible development

(CCD). Currently the role played by the political economy in climate governance in Kenya towards meeting set mitigation goals is a nascent area, with few studies being documented. Politicians across parties have accepted the intellectual case for Environment Tax Reform (ETR), but not the political case (Ligthart, 1998). As a result, this study focused on the power, institutions and stakeholder's dynamics that come into play when effecting climate policies in an environment where competing objectives exist.

It is projected that the coming years will be a period of transition to inclusive green growth. Tools such as carbon taxes will grow in dominance in the future. Though currently at an infancy stage, carbon-pricing schemes will be factored more into decision making processes. It is critical and appropriate therefore, that governments put consideration into avoiding the risks of getting locked into high-carbon infrastructure, which may include investigating additional measures that can be employed to reduce existing climate risks.

1.3 OBJECTIVES OF THE STUDY

GENERAL OBJECTIVE

The overall objective of the study was to assess the political acceptability of the use of carbon taxes for climate change mitigation in Kenya.

SPECIFIC OBJECTIVES

The specific objectives of the study are:-

i. To analyze social and economic trade-offs in the adoption of carbon taxes.
ii. To identify the interests of key stakeholders in climate policy implementation and determine the factors that influence support for carbon taxes.
iii. To explore the complementarities between a carbon tax policy and the existing national development policies.
iv. To explore the integration of a carbon tax policy with the existing tax system.

1.4 RESEARCH QUESTIONS

i. Are there social and economic trade-offs in the adoption of carbon taxes?

ii. What are the interests of stakeholders in climate governance in Kenya and what would influence their support for carbon taxes?
iii. Is the existing environment enabling to the implementation of a carbon tax?

1.5 JUSTIFICATION OF THE STUDY

Achieving sustainable development is a challenge for most developing nations. In Kenya, it is reported by GOKd, Ministry of Planning and National Development (2003) that Kenya experienced robust economic growth in the last fifteen years. GOKi (2012) highlights further the inability of afforestation and reforestation programmes to keep up with the pace at which the Nation forests are being destroyed. The Government therefore has realized that unless something is done to curtail environmental degradation, Kenya will be unable to achieve sustainable economic growth in future. The Government has stressed the importance for sectors to adopt low carbon trajectories to ensure the ambition for attaining Vision 2030 is not curtailed as a result of high emissions (GOKf, 2007). As such, Kenya has put in considerable efforts to build on its National Climate Change Response Strategy (NCCRS) (GOKg, 2010), the National Climate Change Action Plan (NCCAP) (2013 – 2017) and the National Adaptation Plan (NAP) (GOK, 2003). These plans suggest various low carbon climate resilient development pathways that are in line with the achievement of Kenya Vision 2030.

Economists have argued that climate mitigation strategy should include a credible carbon pricing mechanism. In reality, carbon pricing forms a limited part of many climate change strategies as evidenced by the realization that only 12 percent of global GHG emitting countries adopted the instrument by 2015 (World Bank, 2015), and even where adopted, the measures have been limited due to political reasons.

A national carbon tax would be useful in addressing emission in a low cost and efficient manner. By providing a new revenue stream, driving new clean development investments, and reducing the impacts of climate change on the key drivers of the economy, a carbon tax is believed to be a tool that can take on the country's three most pressing challenges: the climate crisis, the budget deficit and unemployment.

1.6 LIMITATIONS OF THE STUDY

The study was limited in terms of information availability. Accessing certain primary source data such as the appropriate information on how taxes alter behavior of households and industries was challenging. Confidentiality of data was guaranteed to ensure the respondent was free to voice their true opinion on subject matter throughout the interview process. In addition, the researcher was thus compelled in some cases to base some analyses on old surveys.

Firms were reluctant to disclose information on production and potential abatement costs which are requirements when it comes to designing an appropriate regulatory regime. At this early stage of carbon tax research, this data would go to highlight whether there is a proper existing incorporation of environmental damage in the market prices of carbon intensive goods and services, information which would enrich the work but was not mandatory to fulfill the objectives set out.

Existing grey areas in the current tax system makes it a challenge for people to understand its' operations limiting the number of suggestions that could have been given to improve the system in an environmentally sensitive manner. This concern was brought to the attention of relevant officers who participated in the survey who later acknowledged that there are ongoing discussions within the Government apparatus on ways of simplifying the system further.

There were also concerns about the tremendous increase in the number of county levies imposed and a lack of clear understanding on their uses which influenced the respondents' opinion on any further future taxes suggestions. By explaining the revenue-recycling properties of the carbon tax, the effect of this concern was minimized.

Another area of limitation was on the adequacy of stakeholder participation. A multi-stakeholder focus group discussion would have enabled a deeper discussion on the various arguments in favour of or against the implementation of explicit carbon taxes, a forum that was not realized due to budgetary and technical constraints. This has been recommended as a necessary step towards building coalition in favour of the tax, one that the implementing authority will have to factor in during the policy formulation stage.

1.7 SCOPE OF THE STUDY

The coverage of this study was on the carbon producing sectors of the Kenyan economy. These included the Energy sector (where carbon emissions occurs through the combustion of fossil fuels (coal, natural gas, and oil) for energy, Transport sector (where CO_2 emissions arise from the combustion of petroleum-based products like gasoline) and Industry/Manufacturing (where incineration of municipal waste involves the generation of emissions).

1.8 CONCEPTUAL FRAMEWORK

This study was guided by the conceptual framework in Figure 1.1 depicting the relationship between the dependent variable (acceptability of carbon tax policy) and independent variable (the political economy).

The acceptability of a carbon tax policy requires the identification and analysis of potential beneficiaries and non-beneficiaries and the determination of their interests in relation to the policy. This is particularly important where broad-based support is necessary to ensure policy uptake of a carbon tax tool. From empirical data in countries that have implemented this type of policy, it has been found that acceptability is influenced by these six factors: the effects of the tax on distributional equity, the perceived impact of the tax on existing national taxes, existing international obligations and on international trade; the commitment expressed by the Government on mitigation and the views held by the implementing stakeholders and institutions on the tax effectiveness.

There exists inter-dependencies among various sectors in the economy in a real and physical sense thus the adoption of new technologies require public acceptance. That is to say, the political economy of climate policing in Kenya will determine the public acceptance of the carbon tax policy. The political economy is made up of stakeholders, institutions involved in climate policy formulation and implementation and the influence the two have on adoption of the carbon tax. To explore acceptability, the study attempted to understand the perspectives and interests of affected stakeholders and institutions involved in supporting the proposed change by analyzing the policy's political attractiveness and feasibility against the six mentioned factors that determine acceptability.

A carbon tax relayed as fossil fuel taxes will thereby increase the cost of CO_2 emissions and enhance the application of the polluter pays principle. In the short run, it is expected that there will be intensive incentivization in innovations and diffusion in the uptake of more energy-efficient and low-carbon technologies. The expected outcome in the long run will be reduced emissions, the primary goal of climate change mitigation thereby leading to the transition to a green economy.

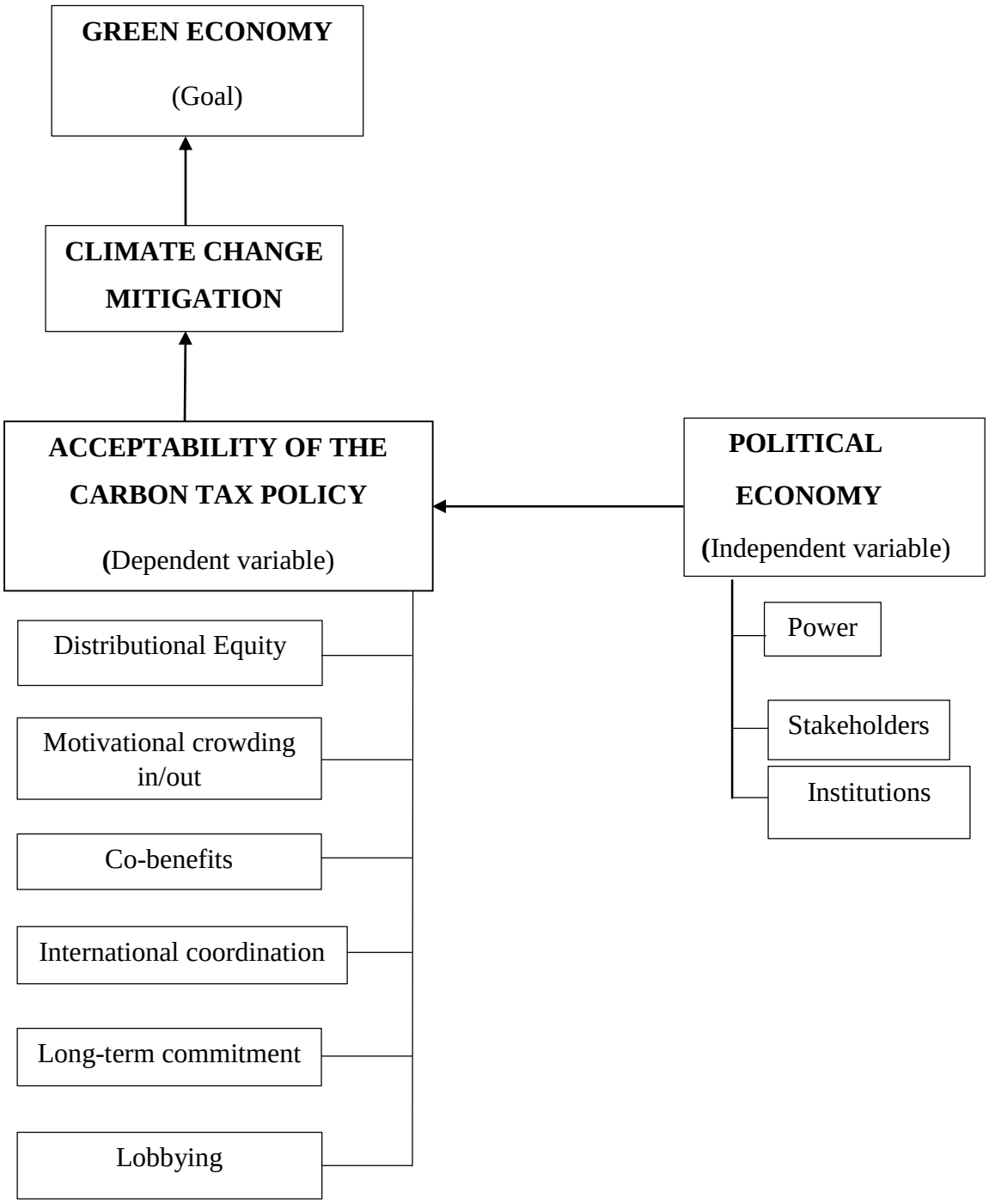


Figure 1. 1: Conceptual Framework of the Political Economy Assessment of the use of carbon taxes for climate change mitigation in Kenya

Source: Author, 2019

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter focuses on the guiding principles of economic instruments, the existing types of environmental taxes in Kenya and analyzes previous studies on the suitability of the use of carbon taxes for climate change mitigation in various countries.

2.1.1 TRADE-OFFS IN THE ADOPTION OF CARBON TAXES

The suggestion of the employment of carbon taxation as the best approach to address climate change has been looked into by many authors amongst them being Goulder and Pizer (2005), Bovenberg and Goulder (2002), Aldy et al (2003) and later Stern (2008). Stern (2006, 2007) concludes that taking strong and deliberate mitigation action against climate change, is both consistent with aspirations for growth and development and good economics for all nations.

There exists a perception that carbon pricing instruments enhance in-equitability through their regressive distributive effects in the economy which have consequently encouraged significant resistance from various players in their use for mitigation. Boccanfuso, Estache and Savard (2011) examined the equity effects of environmental taxation, specifically in developed countries. Nevertheless according to the principle of Common but Differentiated Responsibility applied to nations, it is to be expected that there should be an effective system in place to ensure equitable sharing of the responsibility to reduce GHG emissions, based on the acknowledgment of the highly unequal distribution of emissions by various agencies and on their projected future emissions.

In the pursuit of sustainable development goals where it is found that development strategies are conflicting or policy objectives are competing, a choice must be made as to which government objective should receive the priority. According to the OECD, (2003c) “fiscal concerns advocate tax systems that are as neutral as possible, not affecting the decisions of the economic agents, by broadening tax bases, flattening rate structures and integrating or aligning different tax rate structures to avoid arbitrage opportunities.” Cost internalization is in most cases a first means that initiates another means, behavioral change, in order to accomplish a specific objective, for example welfare maximization (Hahn & Hester, 1989). Economic instruments and financial compensation

may be counter-productive in achievement of intended goals where the policy would provoke anti-environmental behavior as a result of the implementation of a policy. Goeschl and Perino (2012) describe such instances with Bazin, Ballet and Touahri (2004) reiterating how others may feel frustrated with the policy to the point of becoming less responsible with the attitude of 'since I pay, I can consume and thus pollute'. This has led to an assumption that carbon pricing may in the long run be ineffective.

According to Norregaard and Hill (2000), a conflict consequently results in these situations where corrective taxes end up affecting fiscal goals. In the cases of Austria and the Nordic countries, for example, where these taxes have successfully been implemented, they observed that increased excise taxes on leaded gasoline resulted in the disappearance of this fuel from the market. Consequently, consumption patterns changed driving up a preference for alternative cleaner fuel while keeping intact a fairly stable and large tax base (in this case, unleaded gasoline).

To promote acceptability of carbon taxes therefore, it's important to draw attention to the potential co-benefits that are likely to be realized in the adoption of carbon taxes, including improved health and improved energy efficiency. The concept of Nationally Appropriate Mitigation Actions (NAMAs), adopted by many developing countries including Kenya, is connected to this idea of co-benefits.

It is noteworthy to mention that quite often, environmental goals are seen as secondary to economic goals (Milne, 2003). However, environmental problems are best studied alongside macroeconomic problems which quite often results in trade-offs between public policy goals. In the case where environmental taxes are touted as suitable instruments to correct environmental externalities, the outcomes expected are not only beneficial to the environment but rather to the economy as a whole for example in revenue generation. In literature, this notion is called the "double dividend hypothesis" Ligthart (1998). A general equilibrium approach therefore is usually undertaken to investigate the economy-wide effects of such policies.

A Computable General Equilibrium (CGE) model can offer an economy-wide quantitative distributive impact analysis on the potential trickle down effects that would result in an economy on the introduction of a carbon tax. For instance, Boccanfuso et al (2009) performed a

distributional analysis of energy taxes in Senegal using the same micro simulation model and arrived at slightly regressive results. Micro-simulation models have also been applied at the household level for analysis of the same. Labandeira, Labeaga and Rodríguez (2009) for example, analyzed the effects of an energy tax on household welfare and economic efficiency and arrived at regressive results.

Some attempts to simulate carbon taxation effects have been undertaken by various scientists including Bye, Kverndokk and Rosendahl (2002); Go´mez-Plana, Kverndokk and Faehn (2003) and Labandeira, Labeaga and Rodríguez (2009) who concluded amongst other things that the model was unable to capture indirect effects and was inadequate in addressing key issues. This was attributed to the fact that the models formula or algorithm was designed in a manner that overlooked specific aspects of developing economies like market size and the informal economy (Boccanfuso et al (2011); Peichl (2009); Bovenberg and de Mooij, (1994)).

2.1.2 INTERESTS OF KEY STAKEHOLDERS IN CLIMATE POLICY IMPLEMENTATION AND ADOPTION

Before the Paris Agreement came into effect, negative perceptions about the potential drawbacks of the implementation of a carbon tax had influenced negative lobbying especially from energy-intensive industries who have over the years enjoyed favorable treatment that resulted to super normal profits. The Paris Agreement provided a platform for environmental organizations to come out strongly to stress the benefits of carbon pricing. Thus in recent times, there has been a shift towards 'green organizations' as opposed to 'brown industries.'

Industrial sector players often present vociferous effective resistance to climate policies (Jenkins, 2014; Murphy, 2002) due to the perception that they would in the long run lose considerably in the event that carbon pricing policies are implemented. Such players often hold high stakes in for example fossil energy extraction and production, concrete production and fuel refining.

According to Kotchen, Boyle and Leiserowitz (2013); Leiserowitz et al. (2013) and Villar and Krosnick (2010), it's commonplace to have voters express limited tolerance for measures that they perceive will impact negatively on their welfare (such as tax or energy price increases). The

challenge has been the perception that the instrument will transfer considerable amounts of money from businesses to public administrations. Gawel, Strunz and Lehmann (2014) and Karplus (2011) add that command-and-control regulations and subsidies for example have in the past been given preference to taxes due to their ability to allow for transfers of rents. Lately however many businesses have come to the realization that carbon pricing policies give a variety of options either to pay the requisite pollution charges or abate based on what they see fit as a least cost alternative.

A stakeholder analysis approach is a very useful tool in identifying all parties involved and to identify potential beneficiaries and non-beneficiaries and vested interests necessary for the conduction of carbon policy research all through to its implementation. It aids in defining proper ways of stakeholder engagement (National Collaborating Centre for Health Public Policy, 2012). The report generated from this exercise is useful in that it can be used later in further research areas to create policy impact where there is need to understand the positions of various actors and highlight their interests so as to know how best the research should be presented to garner their support.

2.1.3 COMPLEMENTARITIES BETWEEN A CARBON TAX POLICY AND THE EXISTING NATIONAL DEVELOPMENT POLICIES.

Concern arises when ensuring that a policy proposed fits within the existing global situation. The main concern here is carbon leakage and free riding. To address international policy coordination, Nordhaus (2008) proposes the formation of a climate club where members implement trade agreements regardless of the carbon content of the traded goods to attract noncomplying countries to join. In addition, border tax adjustments can be necessitated to motivate other trade partners to introduce carbon pricing as well.

Negotiations therefore are necessary to garner worldwide commitment of nations in order for carbon taxation to be successful. Long term commitment is also required to make climate policy effective.

Since the 1990s, Kenya has expended significant efforts to improve its' climate policy effectiveness. In 2005, Kenya ratified the Kyoto protocol under Non-Annex 1 countries, going ahead to submit its First National Communication (NC) to the UNFCCC in 2002 (Ministry of

Environment, Natural Resources and Regional, 2015). Through subseque`1nt operational developmental policies, Kenya took necessary steps to mainstream climate change considerations into development activities.

Already, there exists a strong legal framework in the larger framework of national development, that supports carbon pricing mechanisms. The Constitution of Kenya, 2010, forms the basis for Kenya's climate change policy framework. The Energy Act 2006, Energy Management Regulations 2012 and Environmental Management and Coordination Act (EMCA) 1999 just to mention a few are some of the legislatures that give a promising avenue to establish carbon pricing in Kenya.

Furthermore, Kenya became party to the Kyoto Protocol Agreement in 2005. Although country emissions are deemed low, Kenya has actively participated in compliance through carbon trading in the International Emission Trading System (ETS) as stipulated in Article 17 of The Protocol (United Nations, 1998). As of January 2013, Kenya had registered 11 projects under the Clean Development Mechanism (CDM) market.

Paragraph 6.2 of The Paris Agreement (of which Kenya is signatory) encourages "voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes (ITMOs) towards nationally determined contributions" (United Nations, 2015). Similarly, paragraph 6.3 suggests that "The use of internationally transferred mitigation outcomes (ITMOs) to achieve nationally determined contributions under this Agreement shall be voluntary and authorized by participating Parties". These paragraphs present ample latitude for countries to create an international carbon market. Cooperative approaches therefore that would fall under the two paragraphs 6.2 and 6.3 that promote formation of regional carbon markets are a promising avenue to accelerate the global ambition to reduce GHG by 50 percent by 2030.

2.1.4 INTEGRATION OF A CARBON TAX WITH THE EXISTING TAX SYSTEM

In Sandmo's (1975) paper, he explains how the successful costing of an externality-creating commodity (such as a commodity with high CO2 emissions) through taxation depends on the other taxes in the system. Article 209 of the Constitution of Kenya 2010 spells out which of the two tiers of Governments are mandated to impose taxes (and the types of taxes applicable) and/or raise revenue (GoKi, National Council for Law References, 2010). National Government is solely responsible for the imposition of custom duty, income tax, excise duty and value added tax in the country. County governments on the other hand are empowered to impose entertainment taxes, property taxes and any other tax as authorized by Article 209 (3). It is noteworthy that the tax structure in Kenya is skewed towards income taxes and Value Added Taxes (VAT) as the two largest source of total tax revenue.

According to UNEP (2014), Kenya has employed several green fiscal policy tools in various sectors of the economy such as Water, Forestry, Wildlife, Mining, Fisheries and Energy (see Appendix A.5) that accrue significant revenues for the government. In 2014 for instance, colossal amounts equivalent to about 7.3 per cent of total revenues, have been collected from fuel taxes. Other than the determination of a suitable tax base and tax rate for the carbon tax and the suggestion for the best use of revenues, the existing infrastructure appears to be well developed to accommodate the proposed reform.

2.2 SITUATION ANALYSIS OF GHGs IN KENYA

Globally, in terms of absolute and per capita, Kenya is considered a low emitting GHG country as reported by USAID (2017). The total GHG emissions in 2013 were 60.2 million $MtCO_2e$, totaling 0.13 percent of global GHG emissions. IPCC (2007) estimated the contribution of agriculture due to methane from enteric fermentation in livestock to account for 95 percent of agriculture portion of emissions with the remaining being taken up by methane emissions from sugar cane and rice production. Energy is recorded second largest GHG contributor in the country majorly from the transport sector, the largest consumer of petroleum products (emitting 65 percent of total CO_2) and

from household / cottage industry and biomass burning (CH_4 emissions). [1] Industry and manufacturing sector come third primarily due to CO_2 process based emissions from cement and lime production (MOENR, 2002a).

Kenya, a signatory to the United Nations Framework Convention on Climate Change (UNFCCC), has already undertaken and published two climate change study reports, the First and Second National Communications (NC) to the Conference of Parties (MOENR, 2002a, 2015). In line with the requirements of the Kenya First NC document (MoENR, UNEP & GEF, 2002a), Kenya was required to develop, update periodically, and submit to the Conference of the Parties (COPs), national inventory of all anthropogenic GHG emissions not controlled by the Montreal Protocol as stipulated in paragraph 1 of Article 4.

To help mitigate climate change impacts in the transport sector, the government through its First NC prioritized the use of mass transit, improved traffic management, compulsory vehicles inspection, setting of environmental standards and incorporation of fuel efficiency in driving schools curricula, promotion of non-motorized transport, and improved parking arrangements in major towns.

The concept of Nationally Appropriate Mitigation Actions (NAMAs) adopted by many developing countries including Kenya is connected to the idea of co-benefits.

2.2.1 TYPES OF ENVIRONMENTAL TAXES USED IN KENYA

Kenya has scaled-up efforts towards greening various sectors to strengthen productivity and competitiveness. Initiatives such as recycling and reuse, eco-labelling, energy-efficiency audits and the production of eco-friendly materials have been incorporated to enhance resource-efficiency and clean production processes.

[1] CO_2 emissions from the burning of biomass are considered to be carbon neutral and are thus not included in the official inventory.

More so, there are various types of implicit taxes that are used in various sectors of the Kenyan economy (see Appendix A.5) that fall under either of the categorizations made by Gee (1996) of environmental taxes that is:-

a) Cost-Covering Charges

These are charges that are used to preserve the depletion of capital stock at a particular level. These charges ensure that those utilizing the natural resources as a source of livelihood contribute to or cover the cost of monitoring or controlling its over-use. In Kenya, user charges are employed in water provision and solid waste collection and management imposed in mining, oil and in fisheries.

b) Fiscal Environmental Taxes (Payments for Environmental Services (PES)

According to Kagombe (2014), Payments for Environmental Services (PES) is "the practices of offering incentives to communities, farmers or landowners in exchange for managing their land and resources for providing environmental services". PES is based on the beneficiary pay principle and is most promising in situations where the providers are poor while the buyers are well off. In Kenya, PES has been piloted in Malewa river in Naivasha, Nyando and Yala river basins, Sasumua dam in Nyandarua and Kapingazi in Embu.

Incentive taxes (Pigouvian taxes), another type of environmental tax, are the center of this study. The level of incentive taxes applied here is dependent on the estimated cost of the environmental damage that is reflected in form of a price signal. As described by Baumol & Oates, 1988, these taxes can take one of the three forms; First Best taxes, Second Best taxes and Third Best taxes.

2.2.2 THE POTENTIAL OF GOVERNMENT CREATED MARKETS IN ADDRESSING CLIMATE CHANGE IN KENYA

According to Manne and Richels (1997), effective global response to climate change constitutes pricing of carbon through the use of various economic instruments, enhancement of low carbon innovations and removal of energy efficiency barriers including awareness creation on coping with climate change impacts.

The idea of 'welfare diagnostics', which constitutes the analytical background for our analysis, is expoused in Jakob and Edenhofer (2014). The fundamental idea of this approach is to promote the use of market-based instruments to enhance socio-economic (Jakob, Michael & Edenhofer, 2014). In furthering this approach, Jakob, Michael, and Steckel (2014) outline a three-stage process focused on striking a balance between the pressing need of achieving sustainable development. This approach requires that first, there exists a clear understanding of the policy dimension and trade-offs therein, secondly, fiscal policies be put to use to control natural resource exploitation and finally, the revenues generated be earmarked for human development projects.

There exists a number of policy instruments in Kenya today that apply these principles namely: Kenya Vision 2030, Climate Change Act, 2016, National Policy on Climate Finance which is based on the Constitution of Kenya 2010, and its Medium Term Plans (MTPs) and Public Finance Management (PFM) Act, 2012, (as amended 2014) and various other sectorial policies and international treaties and obligations.

The way forward given the commendable strides made thus far in climate adaptation and mitigation in Kenya is for the country to set a positive example by using the environmental taxation regime to accelerate the shift to a low-carbon economy using the carbon tax instrument to incentivize this shift.

2.3 THEORETICAL FRAMEWORK

The idea of reducing pollution through taxes (externality taxation) was introduced under Welfare Economics in the early 20th century by Arthur Pigou in the 1960's. Externality taxation studies are believed to have been developed under microeconomics since the 1970s, where the idea of using tax instruments to reduce pollution was popularized (Andersen, 1994). Soares (2011) later went on to isolate and discuss the four main concepts and theories in externality taxation that is Internalization of External Costs (Pigouvian theory), the Polluter Pays Principle, the Least Abatement Cost Theory and the Double Dividend Hypothesis. These fall under two major currents of academic thought, mainly the Theory of Ecological Modernization and the Anglo-Saxon field of environmental economics.

2.3.1 The Theory of Internalization of External Cost

There are several economic theories underpinning pollution taxation. Pigou (2002), concerned with welfare maximization, built a theory of economic efficiency that suggests that "national dividend, and consequently welfare, would be increased to an optimal level if external environmental costs were fully internalized". The reasoning behind this proposal was that there be a proper allocation of costs to environmentally damaging activities and the resultant impacts thereby allowing equalization of both social benefits and social costs associated with those activities. An externality is said to occur when an unregulated free market results in an inefficiently high quantity of production of any good. A negative externality that occurs as a result of the good harming the environment, can be corrected by a tax which is equivalent to the harm caused. Since the Pigouvian model aims at neutralizing the difference between the marginal social net product and the marginal private net product (Pigou, 2002), it is recommended by economists such as Cropper and Oates (1992), Bovenberg and Goulder (1996) and Fullerton, Leicester and Smith (2010) that the tax rate be set at the amount of the marginal external costs per unit of pollution.

2.3.2 The Polluter Pays Principle (PPP)

According to Stevens (1994), "PPP emerged during the outset of modern environmental policy, in the early 1970s, when the government was asked to implement positive action to protect the environment". Simply put, the principle states that the polluter should pay for the pollution caused through internalization of the environmental externalities that result due to production and consumption. For the principle to work efficiently therefore, subsidies are simultaneously discouraged. Krämer (1992) pointed out that the main aim of PPP is ensuring that the environmental damage caused by fossil fuel usage is not borne by the public authorities (for example, the taxpayer) rather it is borne by the polluter. PPP is a critical interface between international trade and environmental policy in underpinning ecological modernization concepts (Milne et al.. 2000).

2.3.3 The Least Abatement Cost Argument

The 'least abatement cost' rationale is a collection of arguments that leads to a single conclusion that was developed around the Second Equi-marginal Principle. The logic here is "taxes allow pollution abatement at least cost". Soares et al. (2010) through their investigation found that when presented with the choice to pollute and pay or to abate, some producers opt to for abatement as the most efficient option whereas others opt for better production efficient technologies by choosing the most profitable strategy for their businesses that would attract least cost of implementation (abate). Either way, the desired level of pollution is attained at a lower total cost (static efficiency) and at a continuous economic incentive (dynamic efficiency).

2.3.4 The Double Dividend Hypothesis

The double dividend rationale presents a 'revenue neutral approach' to environmental taxation that asserts that a win-win outcome (Fredriksson & Sterner, 2005) can be realized where a green tax is implemented. The outcome would be both an improvement of environmental quality (the first dividend) and an increase in revenue generation (second dividend). The first dividend is often referred to as the green dividend whereas the second dividend is called the blue dividend. This outcome can only be realized within a country that runs an efficient tax system (Milne, 2003).

Heine, Norregaard, and Parry (2012) observed that theoretically, there is a potential conflict between the environmental goal and the revenue raising property of the tax. If a carbon tax is truly effective and reduces emissions, by shifting fuel consumption to less carbon intensive fuels, the revenue raised could be relatively small. They further noted that if significant revenues continue to flow from the tax, this may indicate that longer term environmental goals are not being achieved and stricter, more effective measures are to be called in in order to change fuel consumption patterns. Several countries have to date implemented environmentally-related taxes based on the expected double-dividend benefits.

2.3.5 The Coase Theorem

Ronald Coase (1960) developed the Coase theorem that states "when property rights are clear and enforceable, when all economic agents have full information, and when transaction costs are low, there is no need for government intervention to correct externalities, because the economic agents can bargain to achieve a Pareto optimal allocation of resources. Further, the ability of the economic agents to achieve the Pareto optimal allocation doesn't depend on which economic agent is given the property rights". The role of the government in this case is to make the environment resemble, as closely as possible, a "private good" in the eyes of its users so as to set a price for it. This would be the price that the free-market system could use to compensate parties.

2.3.6 Theory of Change

The main purpose of the Theory of Change is to describe why a desired change is likely to occur in a specific context. In particular, the theory focuses on filling in or mapping out the missing links between a change or policy initiative and explaining how it facilitates the realization of the desired goal. This is realized by identifying the long-term goal and pre-requisite conditions that are required to attain the desired objective. One of the benefits of this approach is the integration of the intended intervention logic into the implementation context.

For this study, the Theory of Change was based on the assumption that influencing the desired change requires both 'advice' and 'advocacy'. A sound understanding of the political economy is thus required in order for the change to take place effectively.

Theory of Change will be applied especially during the pilot phase up to the implementation phase of the policy to provide lessons where vested interests or institutional barriers may prevent change from happening or on the contrary. It will highlight those factors in the political economy that will enable positive change.

2.3.7 Climate governance and organization theory

Climate governance was proven to be a viable option at the global level (Atkinson & Klausen, 2011) as seen by the success of COP 21 in Paris in 2015. Like any other policy, climate policy is formed through "socially mediated pathways that depend on scientific knowledge," (Corfee-Morlot, Maslin & Burgess, 2007). It is communicated through various forms of media and interfaced between political system and private sphere. Burstein (1991) explains how policies further emerge as an outcome of formal organizations and how the interrelationships among them can be informally organized by formal rules.

Organization theory helps in explaining the politics surrounding climate policy and the influence by both public and private organizations. The important features from this perspective include "a system that is adaptive to the changes and developments in its environment, a process that is designed and structured to allow interaction, and an emphasis on the dynamic nature of communication and important role of integration of individual and organizational interests" (Haque & Rehman 2014). "Information" in the new organizational landscapes in climate change is used to influence public perception in the 'war of positions' so as to take advantage of opportunities through the use of modern communication networks (MacKay & Munro, 2012). Banerjee (2012) also draws us to the importance of comprehending the political economy of climate change bearing in mind the vested interests of interconnected institutions and players that/who form political powers that can exclude less powerful groups from participation of policy design and implementation.

2.3.8 The Theory of Interest Groups or Public Choice'

Public choice theory is characterized by competition between opposed interest groups that expend their political capital to secure popular policies in political exchange markets. Among the assumptions made by public choice economists is that people acting in the political marketplace are concerned solely by their self-interest regardless of whether they are voters, politicians, lobbyists, or bureaucrats. They argue that where the allocation of goods and services by the free market is not Pareto-efficient (market failures), an intervention by the government may not always correct the situation as desired due to inherent "government failure".

Public choice theory applies a microeconomic perspectives of market exchange to political and policy problems. It is a theory of interest group politics that assumes that a government awards policy goods to those who lobby best for their interests. Anthony Downs's approach of policy selection (1957) describes the way in which governments select policies to appeal to a winning coalition of voters.

2.3.9 Neo-Utilitarian Democracy Theory

The neo-utilitarian view of democracy stems from the view that the world is made up of free and equal individuals capable of making their own decisions of which they should be held responsible. Neo-utilitarianism (sometimes referred to as market liberalism) takes a strictly formal approach to public policies in which it views markets as more democratic than political.

Although it is understood that human knowledge is imperfect, the theory proposes that citizens require protection from the state more than they do from themselves. It explains that the state cannot however decide for individuals what could be in their best interest, hence, the best way to define the public interest is by satisfying the preferences of the individuals.

Neo-utilitarian theorists argue that market-like processes should produce more efficient less expensive solutions to public policy problems without sacrificing the quality of results because they are self-reinforcing. Markets provide information that lead to constant improvement and feedback on the workings of the policy.

CHAPTER THREE

METHODOLOGY AND DATA

3.1 INTRODUCTION

In this chapter, the research design, the population, sampling technique, instrument for data collection, validation of the questionnaire, administration of the instrument and method of data analysis is discussed.

3.2 RESEARCH DESIGN

The study follows a survey research design because it is the best to fulfil the purpose of the study. The data obtained from the survey questionnaire was able to describe, compare and explain the respondents' knowledge of the topic and their attitudes to the responses already in place. Additionally, the "usage of survey data compliments existing data from secondary sources", thus ensuring validity and reliability of results.

A qualitative approach was used owing to the fact that the study is largely exploratory in nature. Expert opinion method was employed to gather opinions or perceptions about the acceptability of the use of carbon taxes in the existing Kenyan regulatory and institutional framework for climate change mitigation. Expert method is widely considered by several authors (Bogner, Littig & Menz, 2009; Lewthwaite & Nind, 2016; Muskat, Blackman & Muskat, 2012), to be the best for collecting, analyzing and evaluating information from competent and experienced experts on a subject matter which can then form the basis decision making. The method is useful where the information about the object of research is unavailable or where the information is inexact, such as in this case where there is no existing carbon tax policy (Iriste & Katane, 2018). Iriste and Katane (2018) recommend expert method use to create forecasts of various scenarios or where the matter is ideally new and there isn't any equivalent available. They suggest that it allows one to receive valuable recommendations from accumulated experiences and competencies thereby improving policy design before its experimental application. Professional experts were at the centre of this research.

3.3 POPULATION OF THE STUDY

The target population consisted of professionals from various fields from the Ministries including National Treasury and Planning, Environment and Natural Resources and Trade and Industrialization, parastatal bodies such as research institutes, manufacturers, private sector organizations, academic institutions and from consumer organization such as contractors and consumers. These key representatives of these institutions who participated in the study are individuals perceived to have information relevant to the study objectives.

3.4 SAMPLING TECHNIQUES

We purposively sampled across the spectrum to obtain a wide variety of input. Purposive sampling technique was used because it would allow for selection of information rich observations that provided the necessary depth and breadth the study required. Sample members were selected based on their demonstrable experience and knowledge on climate change mitigation, industrial emissions and/or tax implementation.

In addition to this, snowball sampling was used where the first contact study subjects would recruit or recommend future subjects from their acquaintances whom they felt would give valuable insights into the issues discussed in the questionnaire.

At the outset, the exact sample size was not determined prior to carrying out the study. Cases were selected gradually until the data saturation point was reached. According to Glaser and Strauss (1967), the origins of saturation points in qualitative research lie in grounded theory. Growing literature continues to critically examine the concept of saturation (e.g. Bowen, 2008; O' Reilley and Parker, 2013; Walker 2012; Nelson, 2016), whereby it is likened to the notion of theoretical sampling that allows the researcher to combine sampling, data collection and data analysis instead of treating them as separate stages in a linear process (Bryman, 2012 pp 18.). Guest et al. (2006) refer to a saturation point as the gold standard by which purposive sample sizes are determined in health science research.

Going by Urquhart (2013, pp.194) definition of saturation that is "the point in coding when you find that no new codes occur in the data", where it was found that there was repetition of stories among participants, with no new information being remitted, that was determined to be the data saturation point. This was at the 213th respondent.

3.5 INSTRUMENTS FOR DATA COLLECTION

3.5.1 Questionnaire

A structured questionnaire was prepared to aid in conducting focused interviews. Questions probing respondent's perception on introduction of a carbon tax were arranged in 5 sections in accordance with the research objectives (a detailed form of the interview guide and questionnaires are presented in Appendix A.1). Due to the broad range of expertise targeted, semi-structured interviews were also used. The questionnaires were administered using both face to face approach and electronically (via email and mobile phone applications) where a link was created that directed the respondent to the virtual questionnaire they could easily fill out and submit on completion via Open Data Kit (ODK) technology. All the responses were automatically submitted to a server that had the database for the research study. The data was then exported into MS Excel where the analysis was done. ODK collects and manages data immediately digitizing and storing answers as they are keyed in, making it easy to analyze.

The questionnaire was structured in a 4- point or 5 – point Likert scale fashion, ranging from "strongly agree" through "agree", "undecided", "disagree" to "strongly disagree" and in some sections "Not at all important", "Slightly important", "Important", "Fairly important" and "Extremely important" to also a 4-point rating running from "Strongly support", "Somewhat support", "Somewhat oppose" to "strongly oppose".

Section 1 of the questionnaire was designed for filtration purposes to measure the respondents level of comprehension on climate change including their understanding of the climate change phenomenon, its causes and impacts, the respondents attitudes to climate change, their perceptions on the importance of various actions to combat climate change and their willingness to take action to address climate change. This was necessary to test the respondents' suitability as an 'expert'

respondent to ensure the study collects information that is rich both in depth and breadth. As a result, from the 213th respondent who had successfully filled and submitted the questionnaire, a total 150 useful submissions were obtained. It was found that the 65 respondents filtered out did not have the required comprehension on subject matter to give valuable insights.

Distribution and submission of questionnaires took place between 10th January 2019 - 30th April 2019. Interviews took place in the offices and lasted 30-45 minutes on average. During the conduction of the interviews the respondents were free to express their views on ETR and climate mitigation in Kenya.

3.5.2 Stakeholder analysis tool

This is an essential planning tool used to evaluate groups involved in a policy issue or debate so as to determine their influence or importance to/in a policy issue or debate. The tool aids in defining the best approach to engage stakeholders so as to ensure positive impact of the policy. Later in the research, the tool is useful when one wants to plan who to make aware of the policy prior to introduction, to determine positions and interests held by actors, and to plan how to frame the proposal so as to appeal to the larger interest group.

3.5.3 Political Economy Analysis (PEA) Tool

We employed the Water Aid country strategy tool to develop a PEA cube representing Kenya's political economy for climate policy. Following the methodology of Water Aid (2015), an analysis of how environmental reform happens from the national to the local level was conducted.

3.5.4 Validity and reliability of instrument

A number of variables have been established for credibility (the equivalent to internal validity), transferability (corresponding to external validity), dependability (analogue to reliability) and

confirmability (analogue to neutrality and objectivity) in quantitative inquiry.[2] Following Patton's (2002) suggestion, systematic data collection procedures were employed during fieldwork, conducted desk reviews and interviews and ended with systematic analysis strategies of data using stakeholder analysis, political economy analysis and strategic planning tools. This ensured that the methods were rigorous enough to guarantee credibility of results. Focusing on triangulation theory (interpreting data from different perspectives) as postulated by Patton (2002), the method of *triangulation* was used to authenticate the data collected.

Because the sample was fairly representative of the relevant sectors, external validity was also ensured.

Finally, the researcher remained objective throughout the research to ascertain credibility and validity of results. Face to face interviews contributed a great deal to face validity. Snowball technique employed whereby the respondent would direct the researcher to other useful informants also provided evidence for validity.

3.6 METHODS OF ANALYSIS

3.6.1 Political Economy Analysis Procedure

A brief political economy analysis (see the report on Appendix A.3) was conducted to aid in the understanding of the strategies that would be necessary to effect the ETR. In the politics of policy change, the dynamics of institutional stability in relation to the vested interests wielded by the implementing agencies will determine acceptability. This notion is rooted in political institutions field's classic works. The core questions and discussion points were:-

[2] Refer to Sayre (2001) and Patton (2002) for more information on the judgment of qualitative studies.

Core Question 1: Define Kenya's main characteristics?

The researcher analyzed the deep-rooted factors underpinning Kenya's political economy. Here, the most important events in the country's climate policy history, what the structure of the economy was, which sectors are most significant, source of government revenue, how geopolitics influences national politics and economics and the roles of external actors were determined.

Core Question 2: Where does power lie?

Analysis of the power relations in the political, social, and economic spheres to understand the nature of power relationships was undertaken. What does the institutional and regulatory framework look like currently? A summary table (appendix A.3) detailing the most important factors captured was created.

Core Question 3: Why are things this way?

The researcher enumerated the formal and informal rules which shape stakeholder's interests and actions. Lessons drawn from the questionnaire together with the data from the document review were used together with the findings here to analyze the power possessed by relevant actors so as to understand how existing institutional strategies can be aligned with future climate polies.

Core Question 4: Which ways of thinking shape public policy and debate?

What are the dominant ideologies and values which shape views in the sector or industry?

Core Question 5: Which way forward?

By synthesizing all the above sections, a PE cube that draws the route towards change was plotted along the following dimensions:

a. Stability: how stable Kenya is both politically and economically.

b. Governance culture: whether governance is based on formal institutionalized procedures or informal relationships.

c. Developmental vision: the extent to which powerful groups are united to achieve a common developmental vision.

Suggestions on how one could work out more tactically were mentioned whereas interactions with the existing relationships put into consideration. The researcher attempted to identify available entry points and pathways of change and discussed the pros and cons of each tactical approach.

3.6.2 Stakeholders Analysis Procedure

The following steps were undertaken for the stakeholder analysis:-

i. Potential stakeholders were identified and listed based on their roles including in raising public awareness, which often involves translating scientific and technical knowledge into actionable forms, lobbying, influencing business investment decisions, and monitoring and implementing agreements and policies.
ii. Identification of stakeholder interests (both overt and hidden) in relation to the carbon taxation and climate policy in general was done. The first section of the questionnaire marked "Your institution strategy" was designed to draw this information from the respondent. Additionally, various open-ended questions in later sections were designed to validate the answers given in Section 1.
iii. Assessment of the likely impacts (positive, negative, unknown) of the proposition on each of these interests was assessed.
iv. From the information gathered, a stakeholders' map was created to indicate the relative priority the tax would have on each stakeholder in terms of meeting their interests (both household and firm interests). Categorization of interests is done in terms of the level of "Influence" (how powerful) a stakeholder has, and their "Importance" (those whose needs and interests are a priority to the successful implementation of the policy) as shown in Fig. 3.1.

v. A summary stakeholder report of discoveries was generated (see Appendix A.2)

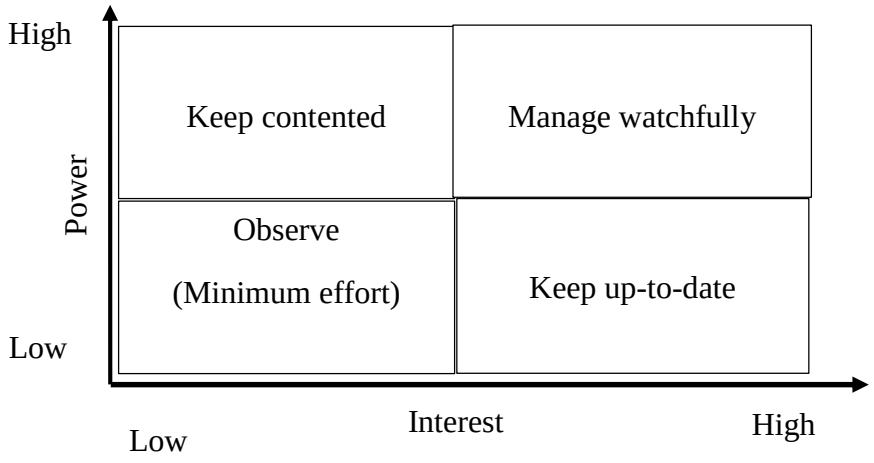


Figure 3. 1: Power/Interest grid for stakeholder prioritization

Source: Mendelow (1981).

Based on the results from the policy document reviews and the stakeholder analysis, a stakeholder map and institutional framework that would facilitate the adoption of carbon taxes was generated and included as part of the stakeholder report (Appendix A.2).

3.6.3 Policy Desk Review Procedure

The study followed the methodology given by O'Leary (2014) and Bowen (2009) for desk reviews:-

i. A list of policies to explore was created (e.g. samples, population, participants, respondents).
ii. An organization and management scheme for the data was developed.
iii. The authenticity of documents (originality) to ensure data quality was assessed.
iv. The policies' biases in relation to effective climate change mitigation was explored.
v. Copies of relevant excerpts to be discussed under the objectives as annotations in the results to compare with the questionnaire findings were made.

Using the triangulation technique to authenticate findings, the results obtained here were compared with those recorded in the stakeholder report. Employing the interview technique, the desk review

document were treated like the respondent and explored to draw out possible synergies or complementarities contained therein which were similar to the principles governing carbon pricing instrumentation and implementation. The information extracted from these documents was cited where necessary in sections discussing the objectives to elucidate primary findings.

3.6.4 PESTELI Analysis Procedure

Developed from the PEST model, the PESTELI framework is used to analyze the key factors (Political, Economic, Socio-cultural, Environmental, Legal and Industrial) as shown in Figure 3.2, that influence an organization, project, programme or policy from the outside. It gives the "big picture" of the environment in which the policy is to be implemented. This PESTELI model relies on the premise that multiple types of evidence and methods are required to produce a rounded understanding of the politics surrounding a situation.

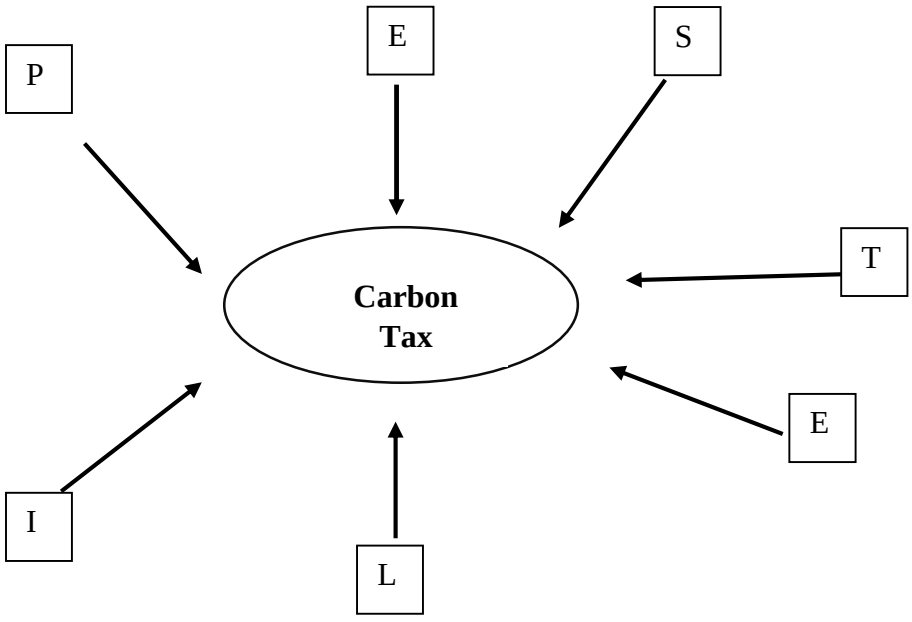


Figure 3. 2 : **Impact of political, economic, socio-cultural, technological, environmental, legislative and industry factors on carbon tax policy.**

Source: Author (2019)

The steps undertaken were as follows:-

i. The researcher identified appropriate sources of information and gathered the information using the questionnaire. The open-ended sections allowed room for the respondents to raise

important issues that were later grouped under the PESTELI template (see Table 3.1). The issues raised would aid in diagnosing factors that would hamper the acceptability of the climate policy.

ii. The findings were analyzed identifying strategic options.

Table 3. 1: PESTELI Template

<table>
<tr><td colspan="2">Political
The political forces and influences that may affect the performance of the policy</td><td colspan="2">Economic
The nature of the competition faced after implementation and the financial resources available within the economy.</td></tr>
<tr><td colspan="2">Socio-cultural
Demographic changes, trends in the way people think, work, and live.</td><td colspan="2">Technological
New approaches to doing things and tackling problems. Novel ways of thinking or of organizing.</td></tr>
<tr><td colspan="2">Environmental
The wider ecological system that interacts with the organization.</td><td colspan="2">Legislative
Relevant legislation</td></tr>
<tr><td colspan="4">Industry
A review of the attractiveness of the policy to existing industries.</td></tr>
<tr><td>Analysis Factors</td><td>Potential Impact</td><td>Type</td><td>Importance</td></tr>
<tr><td>PESTELI</td><td>High – H
Medium – M
Low – L
Undetermined - U</td><td>Positive - +
Negative - –
Unknown - Un</td><td>Critical – C
Important – I
Unimportant – Uni
Unknown - Uk</td></tr>
</table>

3.7 ETHICAL CONSIDERATION

Respect for the dignity of research participants was a priority therefore the respondents were requested for consent. Respondents were fully informed of the objectives of the study and the possible use of the information obtained from them. Confidentiality of data was ensured with answers used only for purposes of the research. The analysis was further generalized to avoid situations where responses could be attributed to a particular respondent. The respondents were also informed that if they so wished to voluntary withdraw at any point of the study, they were free to do so.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 INTRODUCTION

In this chapter, the results of the study are presented and discussed with reference to the objectives set out.

4.1.1 Social demographic variables

As explained in the methodology a total 150 useful submissions were obtained which formed the sample of the research.

The respondents were categorized into 3 groups based on their area of specialization:-

a. Practitioners in Natural Resource Management (NRM), Climate and Weather experts and related fields.
b. Economists, Tax experts, Financial experts and related fields.
c. Other practitioners for example industry experts who do not fall into either of the two categories above but are valuable.

The targeted sectors and industries that participated in the survey are as indicated in Appendix A.6. Majority of respondents in all categories came from the Government (59 respondents), followed by Private sectors (37 respondents) and NGO's (20 respondents) as depicted in Figures 4.1 to 4.3 below. The distribution of respondents across the various industries as indicated in Table 4.1 was such that the highest number of respondents in the NRM category (8) came from Government, 24 percent, and the least (3) from Construction (9 percent). In the Others category, majority of the sample 37 percent (24) came from Services whereas 5 percent (3) were in the Construction and Services industry. Finally, majority of respondents in the Financial Experts category were Government officials 42 percent (22), whereas the least 4 percent (2) were in Energy and Utilities. The highest number of respondents by occupation in the various categories included businessmen and women, climate scientists and accountants (in NRM experts), project managers, data analysts and researchers (Other experts), accountants, tax agents and economists (financial experts). The

proffessionals who least participated in the survey were those in the communication and construction industries.

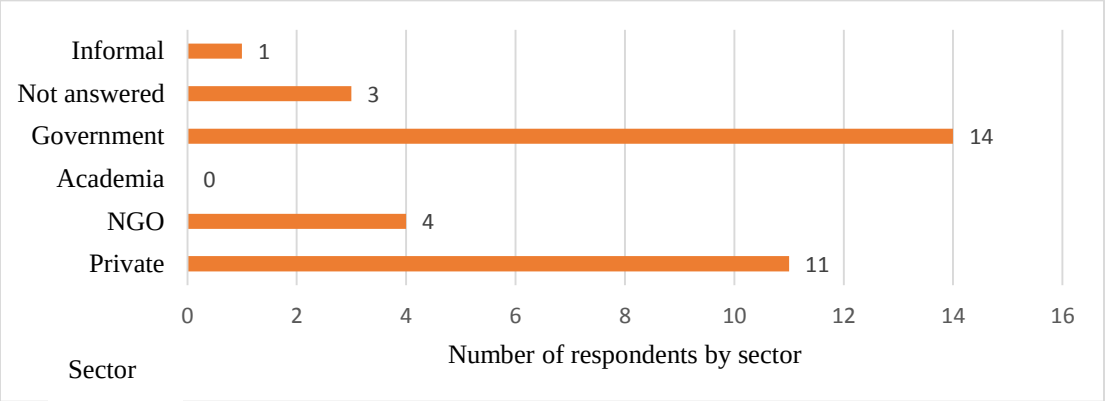


Figure 4. 1: Survey Representation by Sector : NRM, Climate experts and related fields category (Total respondents, 33)

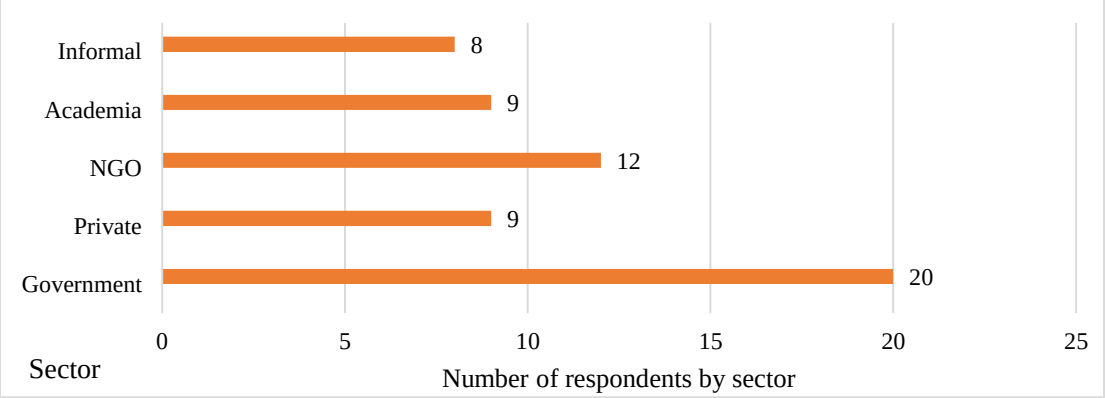


Figure 4. 2: Survey Representation by Sector : Other experts category (Total respondents, 64)

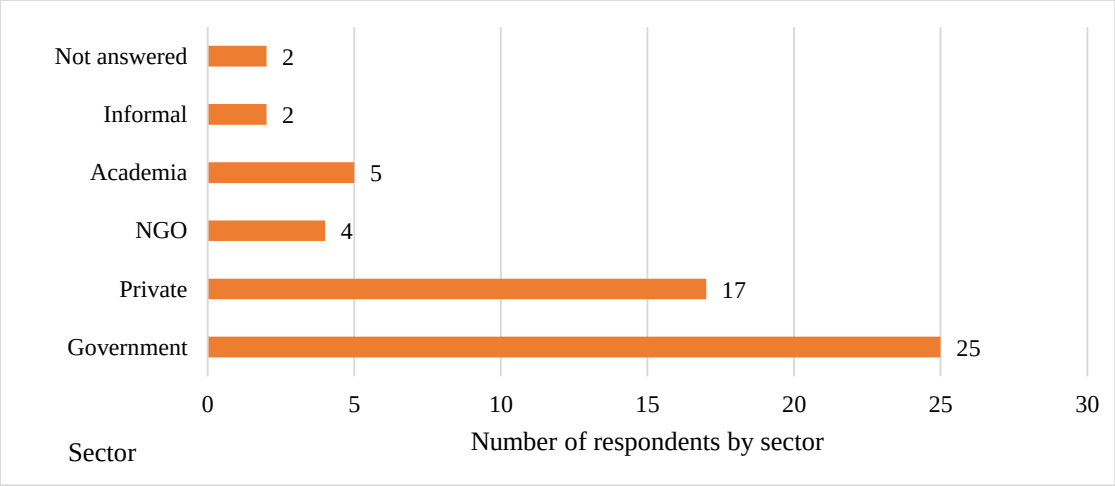


Figure 4. 3 : Survey Representation by Sector: Economists, Tax experts and related fields category (Total respondents, 53)

Table 4. 1 : Percentage industry representation of sample

INDUSTRY	NRM EXPERTS	FINANCIAL EXPERTS	OTHER EXPERTS	TOTAL percent
Agro-industries	12%	5%	14%	31%
Energy and utilities	15%	2%	16%	33%
Manufacturing	15%	5%	10%	30%
Construction	9%	0%	5%	14%
Services	15%	42%	37%	94%
Communication	0%	0%	6%	6%
Public	24%	42%	13%	79%
Not answered	10%	4%	0%	
	100%	100%	100%	

4.1.2 Contextual factors

It was established that the factors that influence the development of policy apart from high-quality evidence, experience, expertise, and judgment of decision makers include the resources available, the values upheld, habits and traditions and pragmatics and contingencies. Table 4.2 and 4.3 show the summary of factors that are key strategies in the attainment of institutional goals and that can

potentially affect the acceptability of a carbon policy, expressed in percentage. Those that scored highly were prioritized as most important in achievement of institutional objectives while conversely those that were scored low were of less importance. We find that to the NRM group of experts, managing carbon leakage and reducing greenhouse gases are of extreme importance whereas to the Financial experts, allocating revenues and managing carbon leakage are extremely important. Managing competitiveness however is considered equally importance to Other experts.

These results are meaningful because institutions inevitably generate vested interests from certain groups that reap benefits from what the institutions do, thus these strategies are determinants (both in the political and technological contexts) of the general acceptability of the citizens to a carbon tax instrument. The degree of importance given to each strategy will enable one to understand the influence pre-existing organizational goals will have on the adoption of the tax by the various institutions. Vested interests can strongly incentivize the protection of those institutions faced with threatening reforms.

Table 4. 2: Institutional strategy with highest ranking score across the sample

Institutional Strategy	Respondent Category	Degree of Importance (percent score)				
		Not at all important	Slightly important	Important	Fairly important	Extremely important
Managing competitiveness	NRM, climate experts and related fields			32%		
	Tax experts, economists and related fields			44%		
	Other experts					45%
Managing carbon leakage	NRM, climate experts and related fields					45%
	Tax experts, economists and related fields			33%		
	Other experts			41%		
Reducing greenhouse gas reductions	NRM, climate experts and related fields					45%
	Tax experts, economists and related fields			33%		
	Other experts			41%		
Managing carbon leakage	NRM, climate experts and related fields					65%
	Tax experts, economists and related fields					38%
	Other experts				34%	
Minimizing market instability	NRM, climate experts and related fields			42%		
	Tax experts, economists and related fields			27%		
	Other experts			42%		
Allocating revenues	NRM, climate experts and related fields			39%		
	Tax experts, economists and related fields					35%
	Other experts			36%		
Creating links between systems	NRM, climate experts and related fields				30%	
	Tax experts, economists and related fields			29%		29%
	Other experts				36%	
Following up-to-date global policy developments	NRM, climate experts and related fields			61%		
	Tax experts, economists and related fields					58%
	Other experts					52%

Table 4. 3: Institutional strategy with lowest ranking score across the sample

Institutional Strategy	Respondent Category	Degree of Importance (percent score)				
		Not at all important	Slightly important	Important	Fairly important	Extremely important
Managing competitiveness	NRM, climate experts and related fields		7%			
	Tax experts, economists and related fields					5%
	Other experts		2%			
Managing carbon leakage	NRM, climate experts and related fields	3%				
	Tax experts, economists and related fields	7%				
	Other experts					16%
Reducing greenhouse gas reductions	NRM, climate experts and related fields					3%
	Tax experts, economists and related fields					11%
	Other experts				8%	
Allocating revenues	NRM, climate experts and related fields				10%	
	Tax experts, economists and related fields	9%				
	Other experts	5%				
Minimizing market instability	NRM, climate experts and related fields					6%
	Tax experts, economists and related fields				5%	
	Other experts	6%				
Creating links between systems	NRM, climate experts and related fields				7%	
	Tax experts, economists and related fields				20%	
	Other experts				2%	
Following up-to-date global policy developments	NRM, climate experts and related fields				3%	
	Tax experts, economists and related fields			20%	20%	
	Other experts				8%	

4.1.3 Perceptions on climate change

To understand the respondents perception on climate change impacts and global warming, the researcher posed questions on perceived causes, perceived impacts and the expected role of the administration in addressing the phenomenon. Questions had been designed to gauge the

respondents' level of awareness on the impacts of climate change and the level of concern attached to the issue which would elucidate their Willingness-to-pay (WTP) for carbon or bear the costs of mitigation. The researcher attempted to explore whether citizens understood the connection between climate change and fossil fuels, what their opinions were on the role of the government in regulating GHGs and how effective the administration had been in GHG regulation. This section attempted to bring out the respondents views on whether the proposed change would be welcome and if the citizens were optimistic about the future. If so, then the concept of carbon taxation should be presented as new, modern, and aspirational. If people feel that climate change has been damaging and are pessimistic about the future then taxation can be presented in a form that validates and restores traditional values.

Based on contructivist epistemology which holds that reality is what the respondents generally perceive it to be, the researcher found in all categories that the majority were reasonably knowledgeable of climate change and its impacts and that they generally understood how environmental taxes influence behavioural change. Many however required more information to understand further the implementation of a carbon tax and its' resultant effects on their businesses and the households.

To test the financial expert's perception on the causes of climate change, the respondents were asked whether they believed the pattern of weather had changed in recent times and if so whether they believed the change was human imposed as a result of energy consumption. The results are shown on Fig. 4.4. 89 percent (47 respondents out of 53) stated that they had observed the pattern of weather was changing with 90 percent (48 respondents) stating that they believed this change was as a result of human activity. 71 percent (38 respondents) added that they believed the higher the energy consumed, the higher the climate change impacts.

Asked whether they believed the Kenyan administration was managing emissions effectively, 98 percent (52 respondents out of 53) agreed that Kenya had a responsibility to play in reduction emission, 69 percent (37 respondents) adding that the Kenyan administration had put in constant and considerable efforts in mitigation and adaptation (see Fig. 4.6). 2 percent however disagreed with the notion that it was Kenya's responsibility to reduce emissions citing the current emissions as being relatively low. 17 percent (9 respondents) stated that as a result of low emissions, there

were no considerable measures in place. 15 percent (8 respondents) did not know whether any mitigation/adaptation measures were already in place.

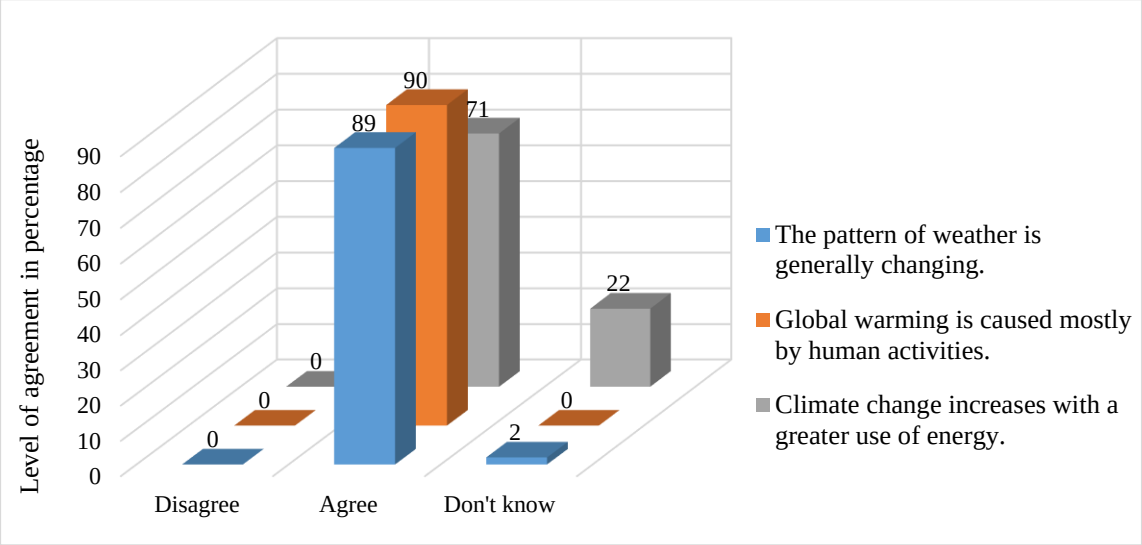


Figure 4. 4: Financial Experts Perceptions on climate change causes

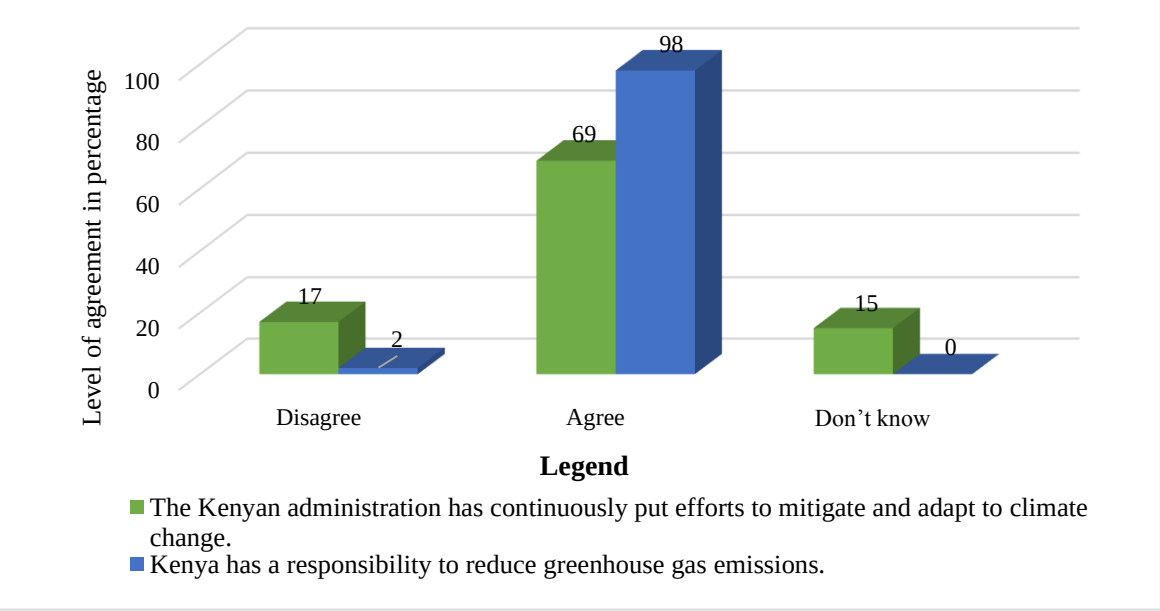


Figure 4. 5: Financial Experts Perceptions on Government efforts towards mitigation and adaptation

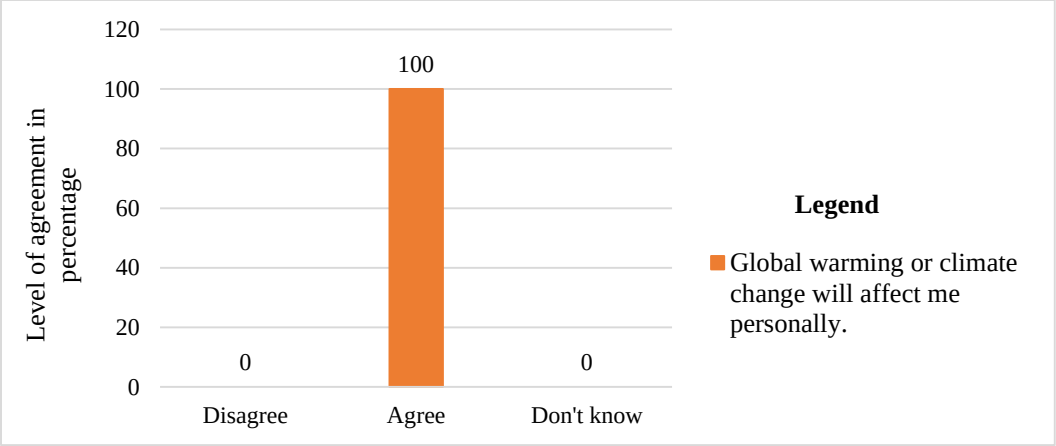


Figure 4. 6: Financial Experts Perception on individual effect of climate change

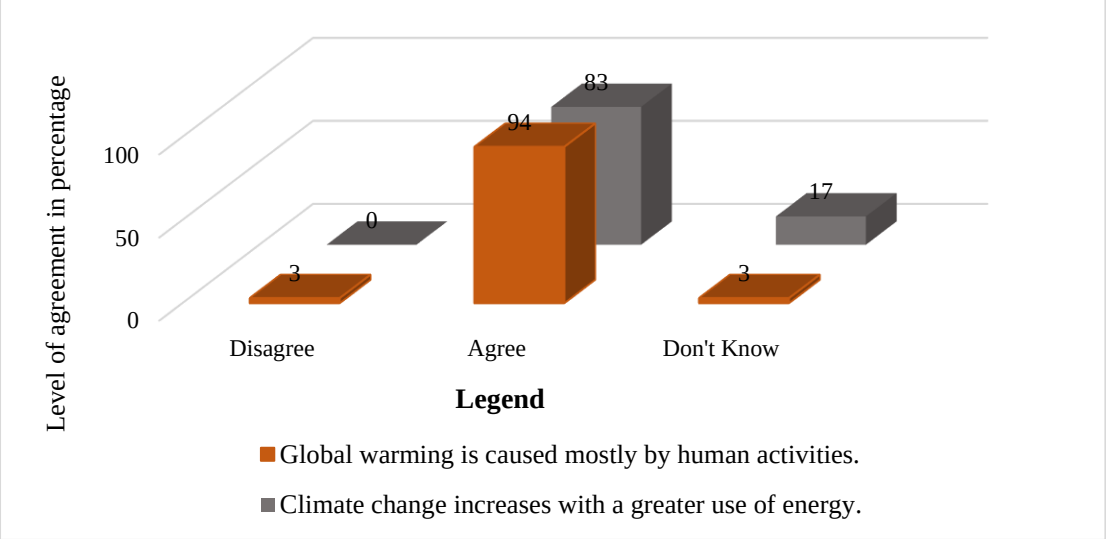


Figure 4. 7: NRM Experts Perceptions on climate change causes

From Fig. 4.8, it is found that 94 percent (31 respondents out of 33) of the NRM experts agreed with the notion that global warming occurs due to anthropogenic activities, however, 3 percent (1 respondent) disagreed whereas 3 percent (1 respondent) stated they didn't know. 83 percent (27 respondents) of this sample further stated that climate change increases with greater energy usage, no one (0 percent) disagreed. 17 percent (6 respondents) were undecided.

As indicated in Fig.4.8, 75 percent (25 respondents out of 33) from the NRM category of experts suggested that the Kenyan administration had continuously put effort in combating climate change, 15 percent (5 respondents) differed with this view. However, majority (97 percent representing 32

respondents) reiterated that Kenya had a responsibility to curb growing emissions while 3 percent (1 respondent) disagreed.

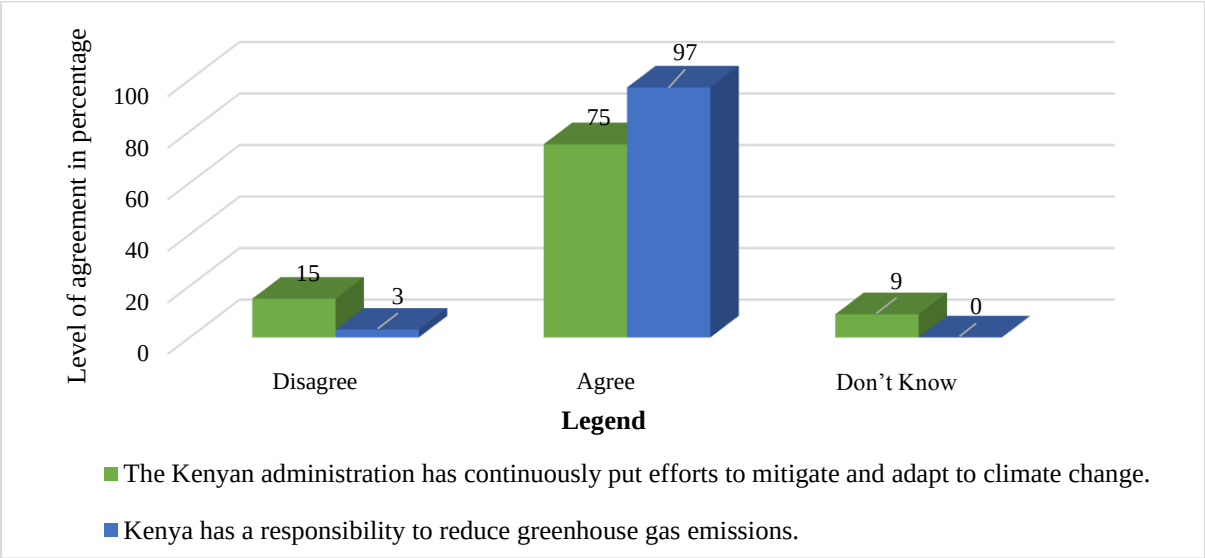


Figure 4. 8: **NRM Experts Perceptions on Government efforts towards mitigation and adaptation**

In Fig. 4.9, we see that 97 percent (32 respondents) of this sample agreed that global warming would affect them personally whereas 3 percent (1 respondent) stated that the impacts would not directly affect them.

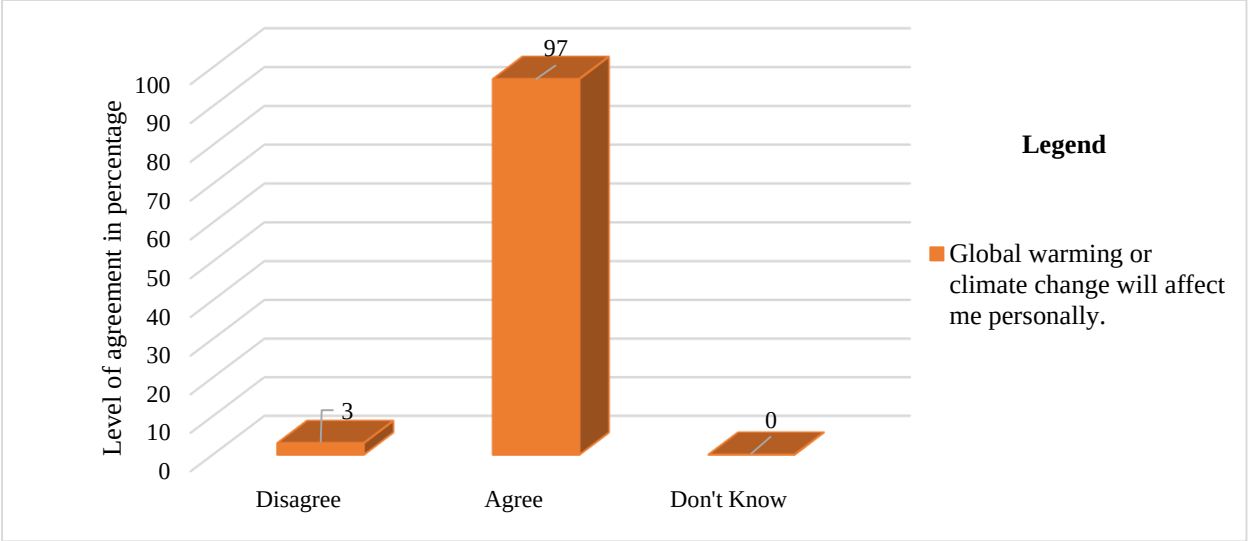


Figure 4. 9: NRM Perception on individual effect of climate change

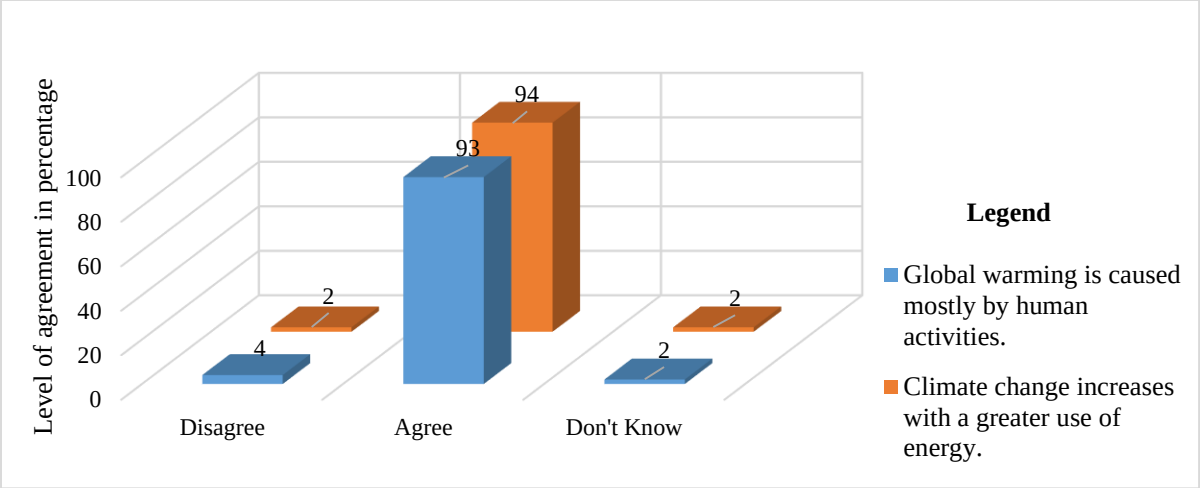


Figure 4. 10: Other Experts Perceptions on climate change causes

When asked to give an opinion on the causes of climate change, 93 percent (60 respondents out of 64) of the Other experts' category respondents were in agreement with the notion that anthropogenic activities were the cause of global warming, 4 percent (3 respondents) disagreed whereas 2 percent (1 respondent) was undecided (see Fig. 4.10). 94 percent (60 respondents) expressed that climate change increase was directly proportional to energy usage while 2 percent (1 respondent) differed with this position.

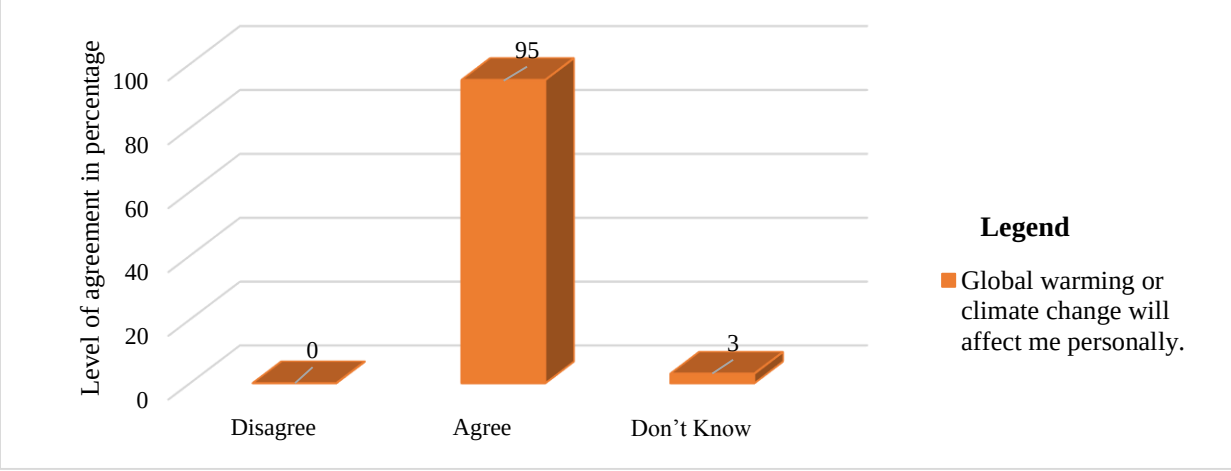


Figure 4. 11: Other Experts Perception on individual effect of climate change

It was found that 95 percent (61 respondents out of 64) of the respondents in the Other experts category stated that they believed that climate change would affect them personally (Fig. 4.11). 3 percent (2 respondents) were undecided.

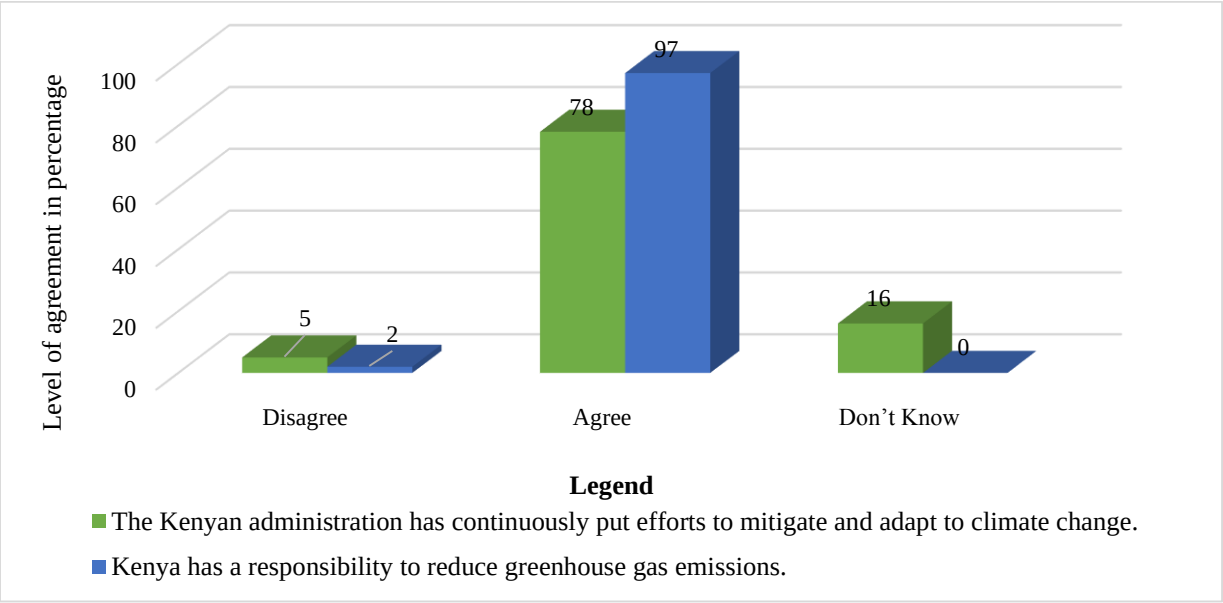


Figure 4. 12: Other Experts Perceptions on Government efforts towards mitigation and adaptation

97 percent (62 respondents out of 64) of the Other category of experts stated that Kenya had a responsibility to reduce emissions with 78 percent (50 respondents) expressing that the administration had put in considerable effort towards mitigation and adaptation (Fig. 4.12). 16 percent (10 respondents) didn't have any knowledge as to any efforts made thus far. 2 percent (1 respondent) didn't think Kenya was obligated to curb emissions.

4.2 PERCEIVED SOCIAL AND ECONOMIC TRADE-OFFS IN ADOPTING CARBON TAXES

To determine the perceived trade-offs from adopting a carbon tax, we measured the level of agreement the respondents had to possible outcomes of the policys' introduction as shown in Figure 4.13 - 4.16 including the perceived impact on clean energy technologies and its' effects on emissions and on behavioral changes.

The perceived trade-offs in the introduction of carbon taxes were:-

i) the nation would meet its' national emission targets,
ii) there would be an increase in the growth of clean energy initiatives,
iii) the amount of greenhouse gases would reduce,
iv) carbon taxes would enhance behavioral changes in households and industries and
v) expected rise in basic necessities.

When asked whether an increase in fossil fuel taxes would decrease the demand for fossil fuel energy (see Fig. 4.13), 49 percent (30 respondents out of 53) from the financial expert category, 63 percent (21 respondents out of 33) from the NRM expert category and 53 percent (34 respondents out of 64) from the Other experts category agreed with the notion. The trade-off in adopting the carbon tax here were perceived to be an increase in fuel taxes which would to lead to an increase in the cost of production of goods and services that utilize fossil fuel energy resulting into a perceived decrease in their demand. The feedback would then be a decrease in fossil-intensive goods supplied and consequently an overall decrease in fossil energy usage.

However, 22 percent (12 respondents out of 53) in the financial expert category, 21 percent (4 respondents out of 33) in the NRM expert category and 8 percent (5 respondents out of 64) in the Other experts category disagreed with this suggested outcome stating that a further increase in fuel taxes would have far reaching economic effects that would in the end not result in the tax achieving its overall goal, that of GHG reduction.

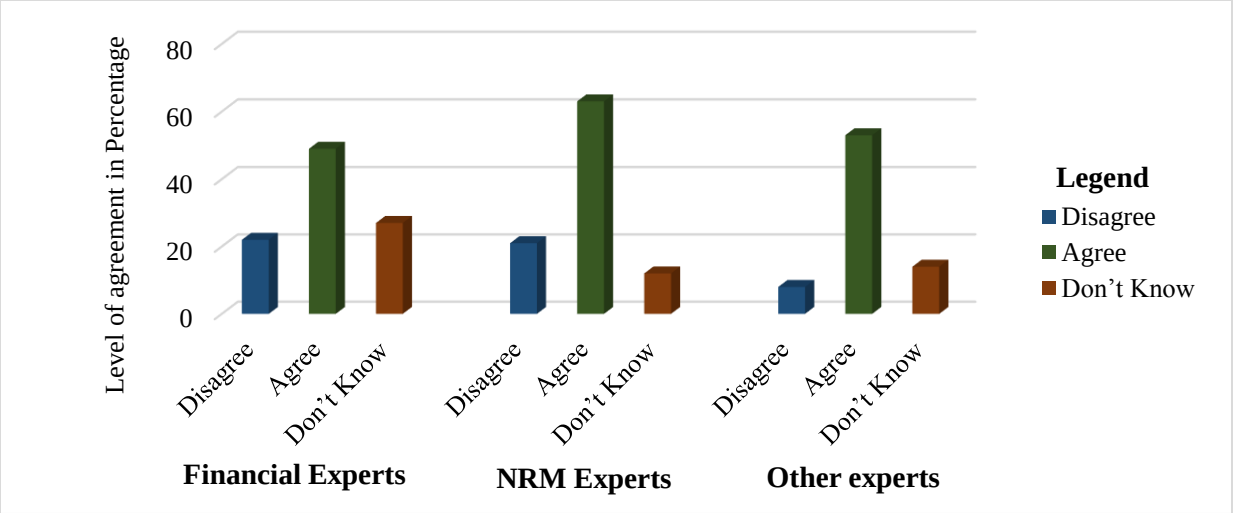


Figure 4. 13: Level of Agreement to the notion that increasing taxes on fossil energy will decrease fossil energy usage.

95 percent of the financial experts suggested that they would expect an increase in the development of clean energy technologies as an outcome of the enactment of a carbon tax, (see Fig.4.14). No one within this category disagreed with the (0 percent) outcome. 93 percent of the NRM category experts were also in agreement with the financial experts whereas a few, 3 percent felt that the case wouldn't be so. From the Other expert category, a lesser percentage of 67 percent agreed with this notion while 8 percent disagreed. The proposed trade-off here was that the tax would serve as an incentive that sparks innovations in alternative energy production that is low carbon. There would also be innovation for the creation of new environmentally friendly alternative products, services and markets.

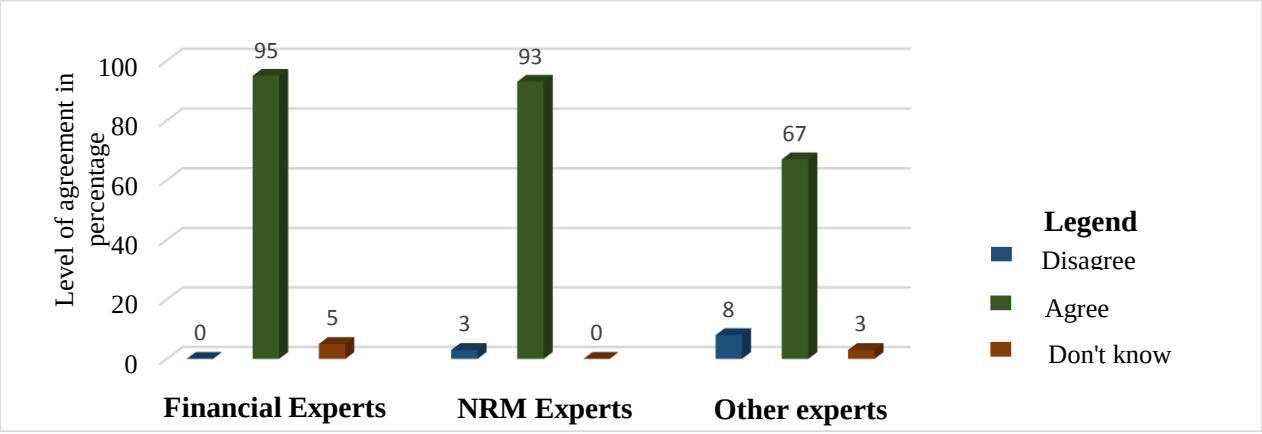


Figure 4. 14: Level of agreement to the notion that a carbon tax will increase the development of clean energy technologies

It was established that a majority 91 percent of respondents in the NRM category (see Fig. 4.15) were of the opinion that the introduction of a carbon tax could induce behavioural changes in both the households and the industries. 67 percent of those in the Other expert's category suggested that they too were in support of this notion with 51 percent suggesting that increasing fossil energy taxes would thereby decrease fossil energy usage (Fig.4.13) as mentioned in the above section. 88 percent of financial experts agreed with the notion tested while 5 percent of this sample stating that they were unable to decide as they required statistical data on the economic impact to give their suggestion.

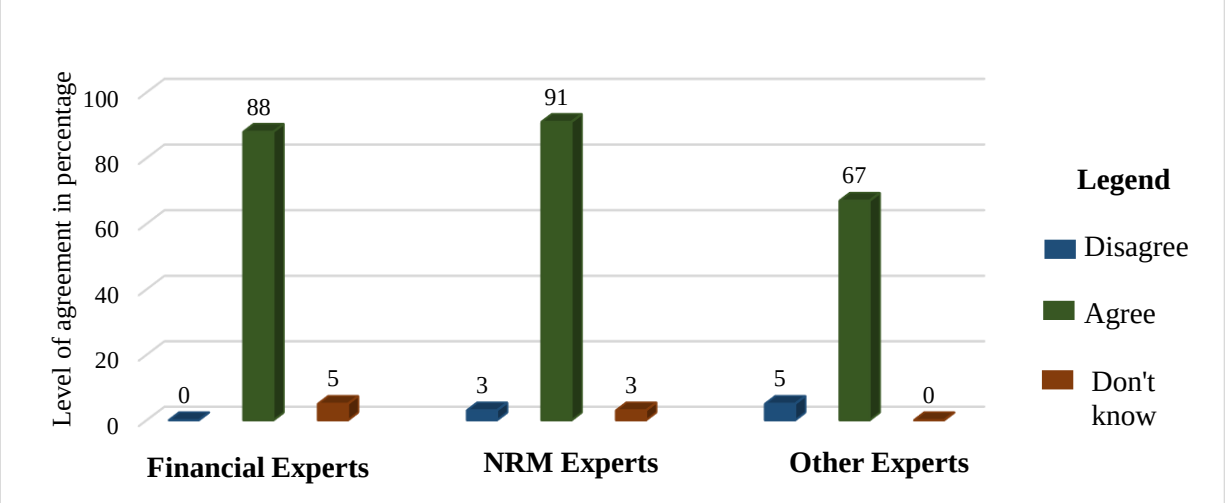


Figure 4. 15: Level of agreement to the notion that the introduction of a carbon tax can induce behavioural changes in households and industries

To test the respondents perceived socio-economic impact of the introduction of the tax, we asked the respondents to state the effect of the proposed tax on their existing tax burden. In Fig. 4.16, we found that 49 percent (26 respondents) in the financial expert category and 63 percent (21 respondents) in the NRM expert category suggested that the poor would face a greater tax burden as a consequence because the extra cost imposed by the government in manufacturing would be transferred to the consumer whom they felt was already overburdened by heavy taxes. However, in the Other expert category that composed of manufacturers amongst other professionals, 30 percent (19 respondents) stated that they couldn't yet know the possible outcome before its implementation. They felt that the cost would not necessarily lead to a price increase depending on how the revenues would be distributed back to them.

From the frequency in "Don't know" responses given to various questions in this section, it is safe to deduce that a noteworthy number of experts in all categories demonstrated relatively low awareness of the macro-economic impacts of the tax policy in general, and modest understanding of its revenue recycling impact. This means that aggressive sensitization and awareness creation would be warranted from inception on the incentive mechanism and the double-dividend benefit of the carbon tax so as to build sufficient citizen support for its acceptability.

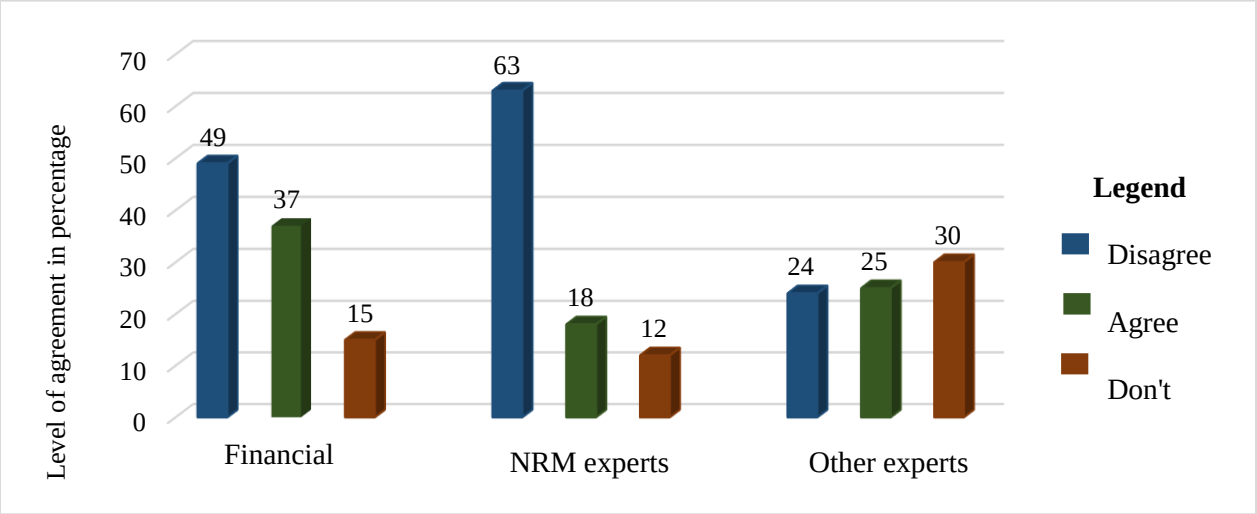


Figure 4. 16: Level of agreement to the notion that there will be a greater burden on the poor if a carbon tax is introduced

4.3 THE INTERESTS OF KEY STAKEHOLDERS IN CLIMATE POLICY IMPLEMENTATION

To test the impact of a carbon tax policy on the institutions' strategic objectives, the respondents were asked to state the level of importance their institutions accorded to the seven chosen contextual factors that is competitiveness, carbon leakage, GHG reduction, revenue allocation, market volatility, linkages between systems and global policy developments. This was aimed at determining how these factors that are key considerations in the acceptability of carbon pricing instruments, could affect the achievement of the missions of these institutions. The results are as shown in Table 4.4 below.

We asked the respondents to state the degree of importance placed on key selected tax features and the perceived impact these features would have on the achievement of existing organizational goals. A Likert scale based on 5 variables ranging from "not at all important" to "extremely

important" was used for assessment. We found that for the natural resource management experts, managing carbon leakage was 45 percent important while reducing greenhouse gases was 65 percent extremely important. Creating linkages between existing systems and allocating revenues were both fairly important and were scored at (27 percent) and (29 percent) respectively.

For this category therefore, it was deduced that carbon leakage and reduction of GHGs were extremely important considerations in the acceptability of a policy as these were similar to existing organizational goals of the institutions, whereas features that would enhance the linkages between systems and revenues allocations were of slight important. These results are in line with the core mandates of the respondents' organizations that is resource efficiency and protection of the environment. It is expected therefore that a proposal of an approach that would enhance the achievement of their organizations strategic objectives would be considerable.

In the category of Financial experts, we found that 58 percent of this sample stated that following up-to-date global policy development was extremely important and 38 percent stated that GHG reduction was equally as important. 33 percent and 20 percent of these respondents expressed that managing competitiveness and minimizing market instability respectively were of slight importance. The strength of the competitiveness concerns depends on the relative size of a sector in the economy and the sectors' carbon intensity, which would reveal the willingness to pay for carbon. Not all sectors are expected to suffer this problem. It should be expected however that competitiveness concerns are stronger at the industrial level as it would affect the allocation of resources and the production mix. Finally, it was found that the key interests of the respondents in the Other experts' category was that it was extremely important (52 percent) for the majority of experts here to follow up-to-date global policy developments and manage competitiveness (45 percent). Notably however, this group was undecided on the importance of minimizing volatility (42 percent) and managing carbon leakage (41 percent).

Given that one-third of total respondents selected 'don't know' as their answer to several questions in this sections, we can safely deduce that opinions on this issue may easily change.

Table 4. 4: Prioritization in terms of the level of importance institutions have placed on key carbon tax features.

Institutional Strategy	Natural Resource Managers and related fields	Highest Score	Lowest Score	Tax, economists, financial experts and related fields	Highest Score	Lowest score	Other fields	Highest Score	Lowest score
Managing competitiveness	Important	32%		Important	44%		Extremely important	45%	
	Slightly important		7%	Extremely important		5%	Slightly important		2%
Managing carbon leakage.	Extremely important	45%		Important	33%		Important	41%	
	Not at all important		3%	Not at all important		7%	Extremely important		16%
Reducing greenhouse gas reductions.	Extremely important	65%		Extremely important	38%		Fairly important	34%	
	Not at all important		3%	Slightly important		11 %	Not at all important	8%	
Allocating revenues	Important	39%		Extremely important	35%		Important	36%	
	Not at all important/ Fairly important		10 %	Not at all important		9%	Not at all important		5%
Minimizing market volatility/instability	Undecided	42%		Undecided	27%		Undecided	42%	
	Extremely important		6%	Slightly important		5%	Not at all important		6%
Creating links between systems	Fairly important	30%		Important/ Extremely important	29 %		Fairly important	36%	
	Slightly important		7%	Slightly important		20 %	Slightly important		2%
Following up-to-date global policy developments	Important	61%		Extremely important	58%		Extremely important	52%	
	Fairly important		3%	Fairly important/Undecided		20 %	Fairly important		8%

In Table 4.4 and Figure 4.18 above, we see the level of importance accorded by the three cluster groups to each of the key factor considerations in the political economy of carbon pricing. Through

the stakeholder analysis (Table 4.5), the study was able to identify further each institutions specific interest in climate governance and thereafter gather suggestions as to the potential impact the policy would have on those interests, prioritizing them in order of their influence and importance in affecting the acceptability of carbon tax introduction.

In Table 4.17, we see further the considerations that are of extreme importance to each of the experts with regards to their stipulated mandates and goals and also see those that are of lesser importance.

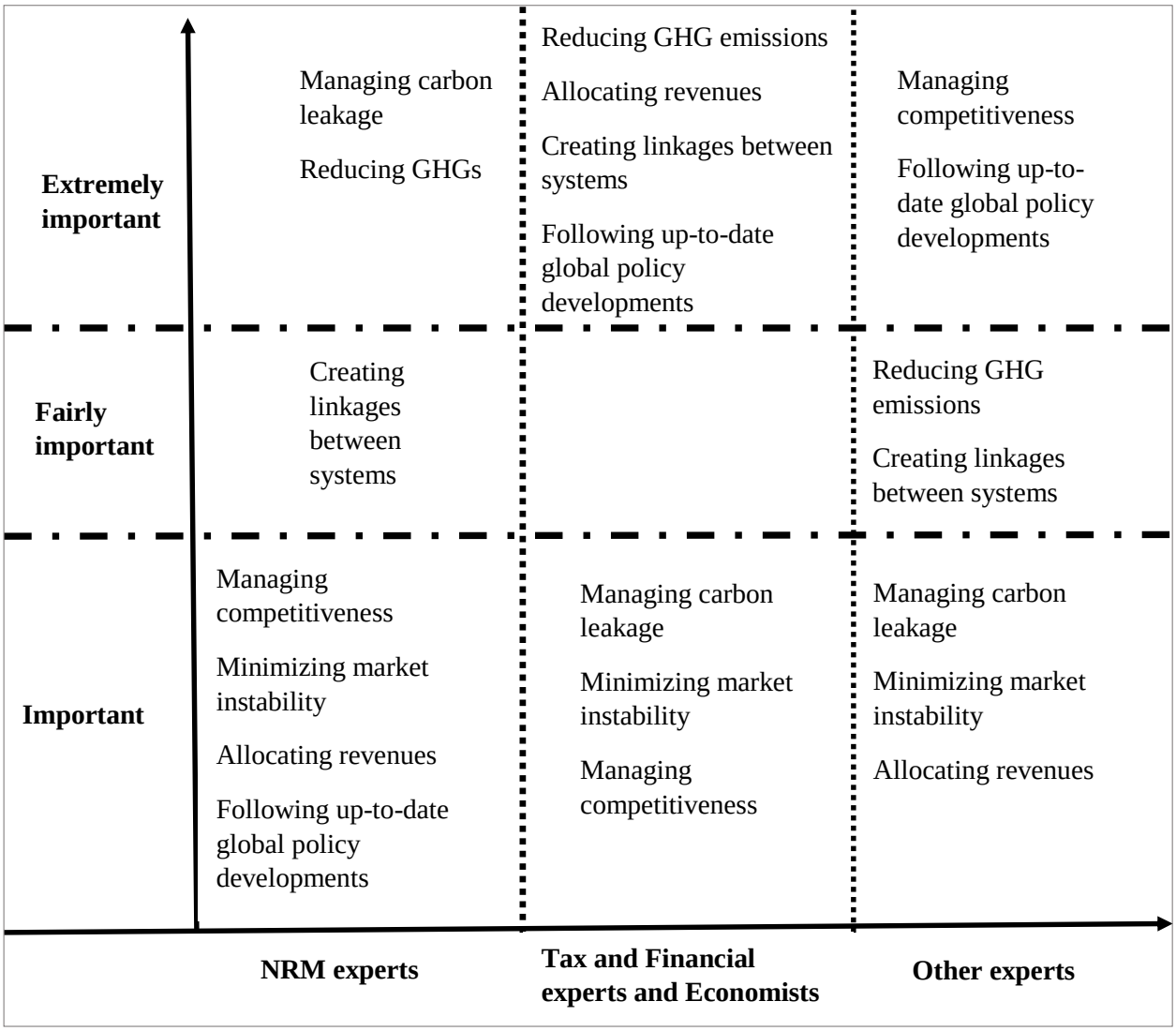


Figure 4. 17: The complementarities of carbon tax features to existing institution strategies

The identified primary stakeholders in the design and implementation of climate policy in Kenya and their key interests are outlined in Table 4.5 below. Potential policy impact on the acceptability of the policy and the relative priority of the stakeholder's interest to the adoption of the policy (see Appendix A.2) were also determined to enlighten on the political economy of climate policy in Kenya.

Table 4. 5: Primary Stakeholders and their interests in Climate Policy in Kenya

STAKEHOLDERS	INTERESTS
1. Vision 2030 Delivery Secretariat	Spearheading the implementation of Vision 2030. Mainstreaming of climate change considerations into development programmes by indicating abatement actions that will accelerate the reduction of Kenya's emissions by 30 percent by 2030 relative to the Business-As-Usual scenario.
2. The Judiciary Constitution of Kenya (2010)	Assigns powers to the two tiers of Govt. to raise revenue through the imposition of taxes.
3. Ministry of Energy (MOE)	Facilitating provision of energy services for national development. Protecting the environment.
B. Energy Regulatory Commission (ERC)	Regulation of the energy sector agencies. Protecting the interest of consumers, investors and other stakeholders. Collection and maintenance of energy data.
C. Kenya Power and Lighting Company (KPLC)	Electricity generation and distribution.
D. Independent Power Producers (IPPs)	Electricity generation
4. Ministry of Transport and Infrastructure, Housing and Urban Development	Concerned with motor vehicle emissions control in Kenya
5. Ministry of Environment and Forestry-Climate Change Coordination Unit (CCCU)	The country's focal point to the UNFCCC. To facilitate good governance in climate change mitigation and provide the much needed high level political support to climate change activities. Implementation of climate change action plan. Reduction of carbon dioxide emissions in accordance to NAMAs

Table 4.5 continued...

STAKEHOLDERS	INTERESTS
B. NEMA	The Designated National Authority (DNA), of Kenya responsible for CDM regulation and promotion.
C. KFS	To development, conservation and management of Kenya's forest resources base in all public forests.
6. Ministry of Finance	Responsible for formulating economic and financial policies including environmental fiscal reforms.
B. Kenya Revenue Authority (KRA)	Revenue collection. Tax implementation
C. National Treasury and Planning	Formulation, implementation and monitoring of macroeconomic policies involving expenditure and revenue. Country custodian of Sustainable Development Goals (SDGs).
7. Ministry of Petroleum and Mining	Promote sustainable development of the extractive sector.
8. Ministry of Industry, Trade and Cooperatives	To create employment and wealth in Vision 2030
9. Producers/Manufacturers - **Cement Producers.** - **Lime Producers.**	Maximization of profits
10. Ministry of Foreign Affairs	To promote, project and protect Kenya's interests and image globally through innovative diplomacy, and contribute towards a just and equitable world.
11. Kenya Institute of Policy Planning Research and Analysis (KIPPRA)	Policy research and development
12. Kenya National Cleaner Production Centre (KNCPC)	Cleaner production research and solutions to industries.

13. Ministry of Education; Universities	Research and development. Promoting innovations.
14. Ministry of Information, Communication and Technology.	Public communication on climate change mitigation.
15. Ministry of Interior and Coordination of National Government	National government coordination at counties.
16. Kenya Investment Authority	Promoting investments in the underlying assets of CDM and REDD projects in Kenya.
17. Ministry of East African Community and Regional Development	Grass root sensitization and promotion of alternative sources of energy. Fast tracking Northern Corridor Integration Projects. Coordination of Regional Development Authorities.
18. Ministry of Devolution and ASALs	Through the implementation of National Policy for Sustainable Development of Northern Kenya and other Arid Lands (2011), the Ministry promotes climate resilience by requiring governments to find solutions to address climate challenges such as drought and strengthen livelihoods.
19. National Drought Management Authority	Drought Risk Management. Aims at increasing and sustaining resilience of vulnerable communities to potential hazards.
20. Kenya Climate Change Working Group (KCCWG)	Participation and leadership in the development and implementation of climate change sensitive policies, projects and activities to minimize peoples' vulnerability due to climate change.

A stakeholder map was generated to categorize stakeholders according to their level of influence and importance so as to know which stages of the policy making process they should be brought on board based on their interests and ability to affect the acceptability of the policy. The findings were as shown in Table 4.6.

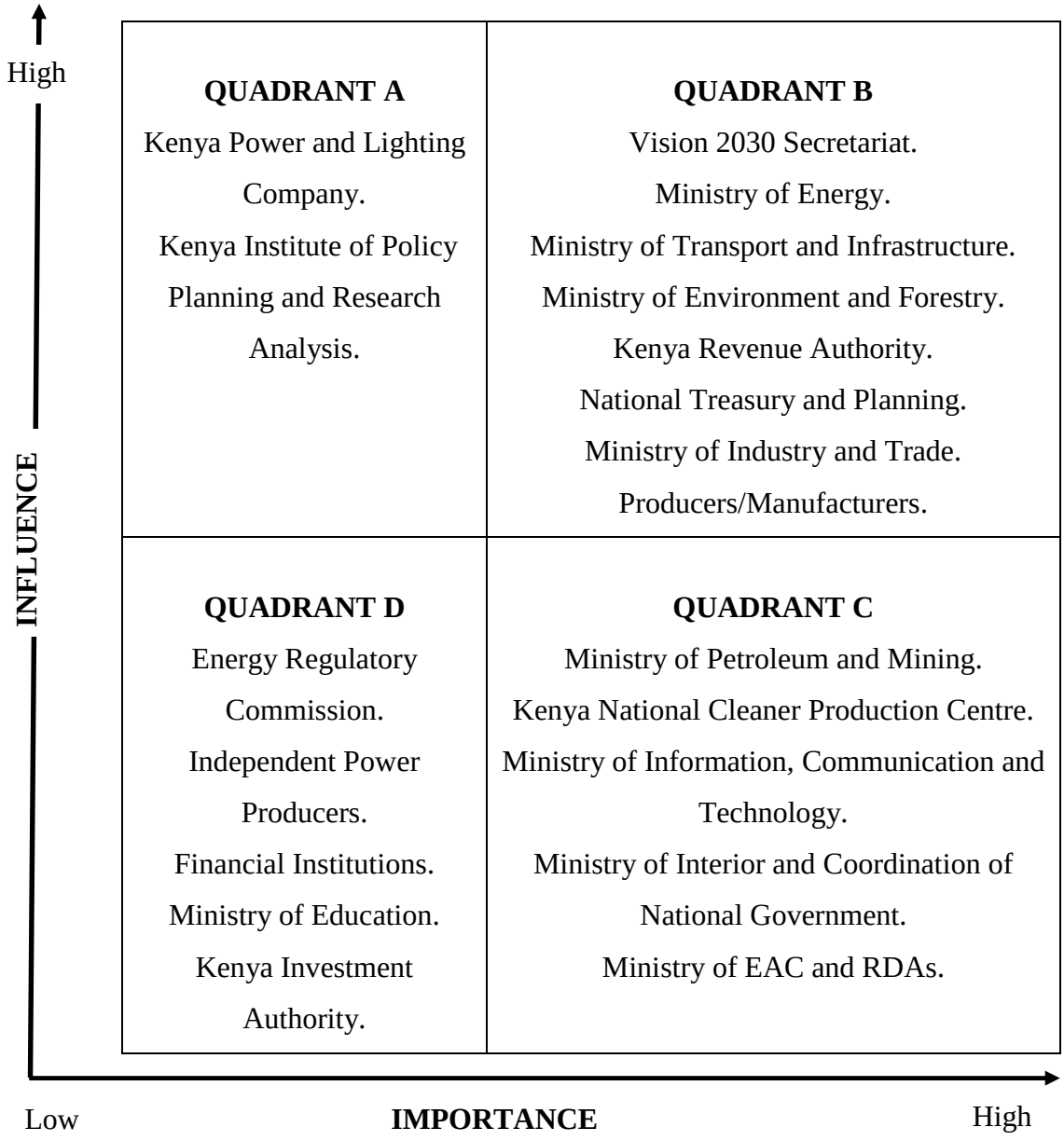


Table4. 6: Kenya's Climate Policy Stakeholder map

Source: Author (2019)

- Quadrant A indicates stakeholders of high influence (high power) in the policy, but are less interested (low importance). They are stakeholders who can affect the policy outcomes, but whose interests are not the target of the policy. These stakeholders, and will need careful monitoring and management. Adequate work has to be put in when engaging this type of stakeholders to keep them satisfied because they may be a source of significant risk.

- Quadrant B: These stakeholders have a high degree of influence on the policy, who are also of high importance for its success. They have high power and are highly interested in the policy. They are to be fully engaged throughout the process of policy draft and implementation with greatest efforts made to satisfy them. Development of good working relationships among these stakeholders can ensure an effective coalition of support for the policy.
- Quadrant C: These stakeholders have high importance but low influence implying that they will require special mechanisms if their interests are to be protected. They have low power but are highly interested people. Adequately informing these people in the processes involved and output expected throughout is key to ensure that no major issues arise. People in this category can often be very helpful with the detail of planning and formulation up to implementation of the policy.
- Quadrant D: Stakeholders in this box have low influence and low importance to the policy objectives. Although they will require limited monitoring and management, they are of low priority.

In Table 4.6, we see that players in Ministry of Energy are suggested as those with high influence and high importance in the successful implementation of the policy. These results are in line with the literature on policy support by stakeholders responsible and supports the findings that WTP for mitigation can decrease when greater responsibility is assigned to taxpayers or increase if industry and energy users are targeted (Stefan, Jeroen, & van den Bergh, 2016, p 855).

4.4 FACTORS THAT INFLUENCE STAKEHOLDER SUPPORT FOR CARBON TAXES.

Participants were asked whether they would support the introduction of a carbon tax and responded as shown in Figure 4.18. It was found that 75 percent (40 respondents) of the Financial experts, 82 percent (27 respondents) of the NRM experts and 48 percent (31 respondents) of Other experts indicated they would support the enactment of the tax. A notable 18 percent (10 respondents) of Financial experts and 14 percent (9 respondents) of the Other experts stated they weren't sure. 12 percent (4 respondents) of the NRM experts and 14 percent (9 respondents) of Other experts stated they wouldn't endorse the policy many stating that seemingly they wouldn't accept new taxes many feeling that they are already remitting too much in form of taxes.

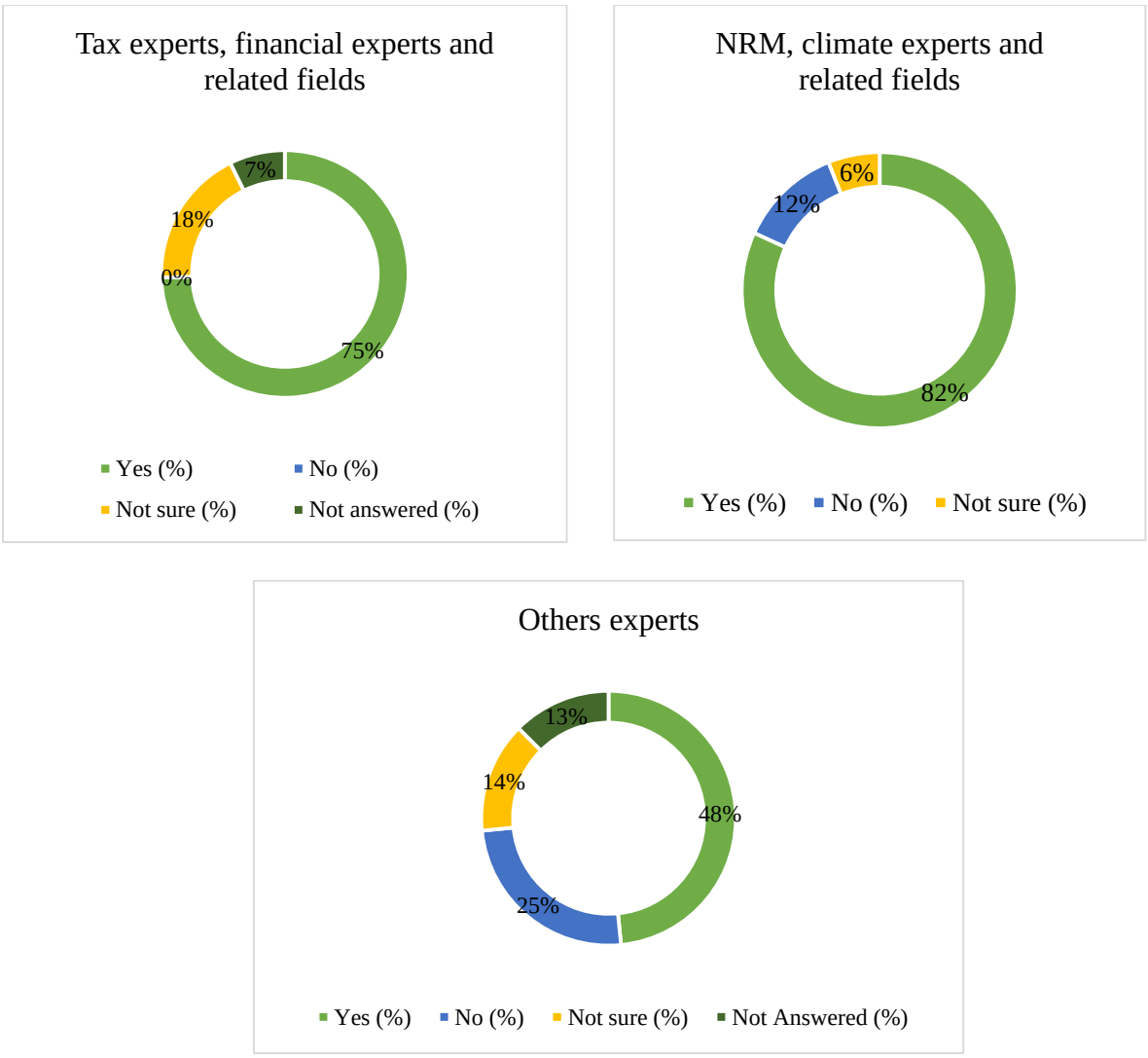


Figure 4. 18: Percentage number of respondents showing support/opposition for a carbon tax.

Asked to state why the respondent had given the above answers, it was revealed that they would consider supporting the tax if any potential inequity that exists currently on household's income distribution would be offset through the introduction of the new tax. Support was also pegged on a better comprehension of the operations of the tax and on whether it would act as a deterrent to carbon emissions and a penalty on emitters. Majority agreed that something needs to be done to combat growing emissions but extensive research and discussions with all stakeholders was necessary to make informed decisions.

Mistrust of the government and a presumed ineffectiveness of the tool in triggering behavioral change was frequently stated as the reason for the reluctance to support. Furthermore, the fear of

misappropriation of revenues generated by the tax was voiced as a concern hampering acceptability by many. A significant number felt that Kenya was a low emitting nation with low industrialization levels and that a tax would be counterproductive as it would disrupt current industrialization efforts. Others suggested that a mixed policy approach, where a combination of legislation, standards and the tax can be used concurrently to address emissions, would be better suited for Kenya's national circumstances.

A significant number of respondents had high confidence in the National Environment Management Authority as the governing body mandated to check emission limits stating that if approval is done by the body, then acceptability would be straightforward.

To explore the name-framing effect of the policy that will inform the design, we asked the respondent what they suggested the policy name to be. 46 percent (24) of Financial experts and 28 percent (18) from the category Other experts, preferred it be called a "carbon tax" whereas a notable (25 percent) (13) from the Financial category preferred it be called "carbon levy" as depicted in Figure 4.19. 28 percent (18) and 20 percent (13) also suggested the names carbon tax and carbon fee respectively as shown in Figure 4.20. 22 percent (14) from the Others category preferred the name "carbon charge", implying that for this group, it may be worth reframing the naming of policy as the 'tax' label provokes negative sentimental reactions that may lead to opposition of the policy. The names preferred were as follows:-

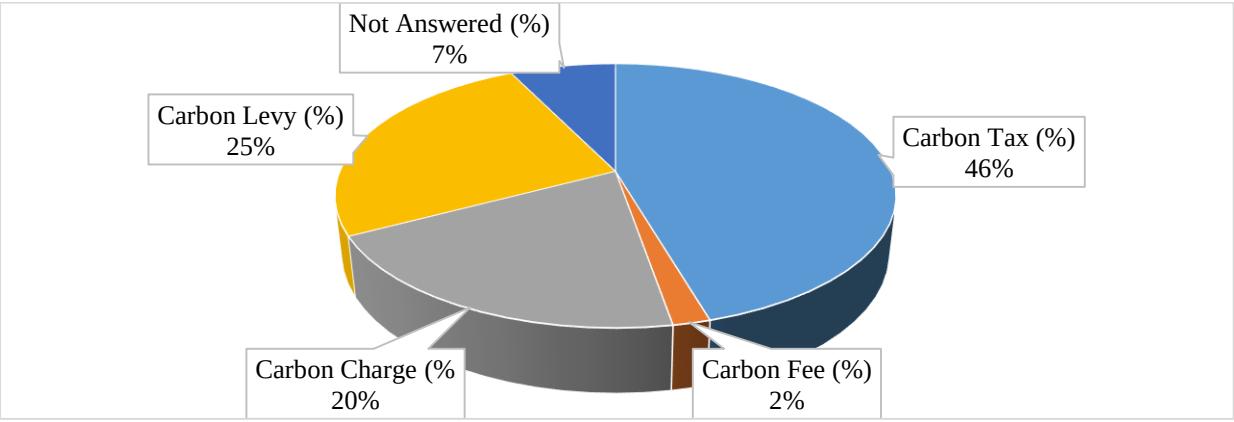


Figure 4. 19: The preferred name of carbon policy, Tax, Financial experts and related fields.

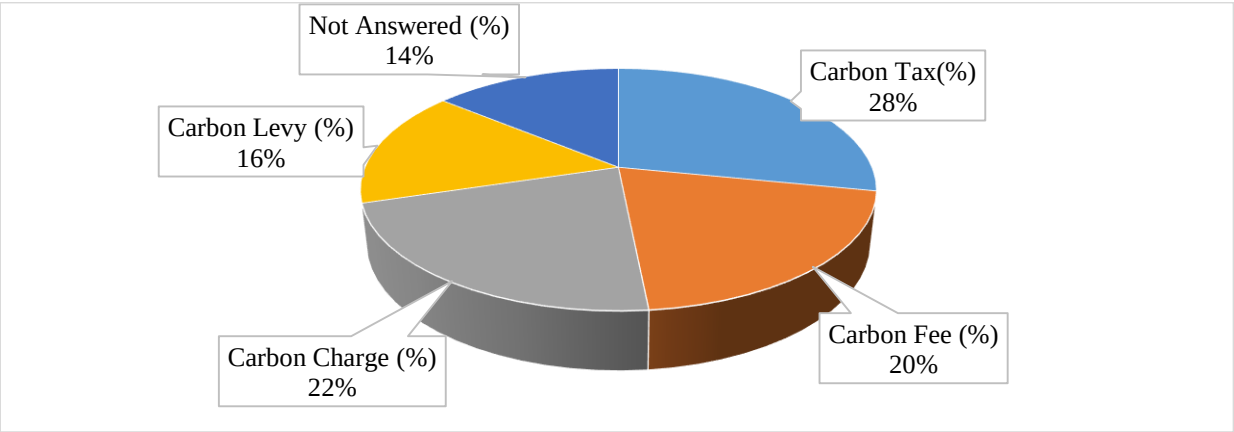


Figure 4. 20: Preferred name for a carbon policy, Other experts

To understand the existing challenges in institutions that would inhibit the successful implementation of a carbon tax, the respondents were asked what the key bottlenecks in the full adoption of policies, programmes and projects in the organizations' system were. The respondents mentioned the following major challenges; poor governance, few research institutes, funding constraints to implement programmes and projects and an inadequacy in human resource. Challenges in operations included lack of synergies between external systems which led to overlapping mandates. This resulted in duplication of roles and low utilization of resources. The regulatory processes in some sectors were sometimes susceptible to changes in political regime. Other concerns mentioned included corruption, nepotism, and favoritism, non-transparency in decision making, non-compliance to guidelines and regulations, fear of revocation of licenses on implementation.

4.5 COMPLEMENTARITIES BETWEEN CARBON TAX POLICY AND EXISTING NATIONAL DEVELOPMENT POLICIES

To understand the perceived impacts of the carbon tax policy on the existing national development policies as it were, we asked the respondents whether they felt that Kenya had in place a proper policy framework to support the introduction of a carbon tax.

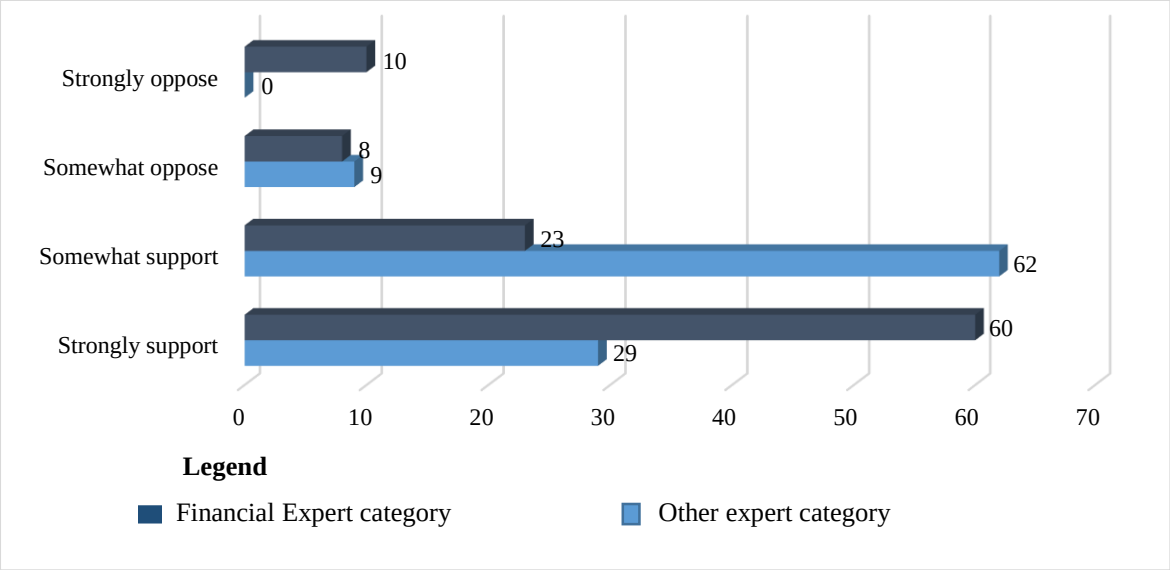


Figure 4. 21: Perception on whether the introduction of a carbon tax would reflect national interests

We also asked respondents to indicate their support to whether they believed the carbon tax would reflect existing national interests, Fig. 4.21. We found that 62 percent (40 respondents out of 64) of the Other experts and 23 percent (12 respondents out of 53) of the Financial experts were somewhat in support of this, whereas 60 percent (32 respondents) of the financial experts and 29 percent (15 respondents) of the Other experts were in strong support. 10 percent (5 respondents) of the financial experts were in strong opposition compared to none of the other experts being opposed.

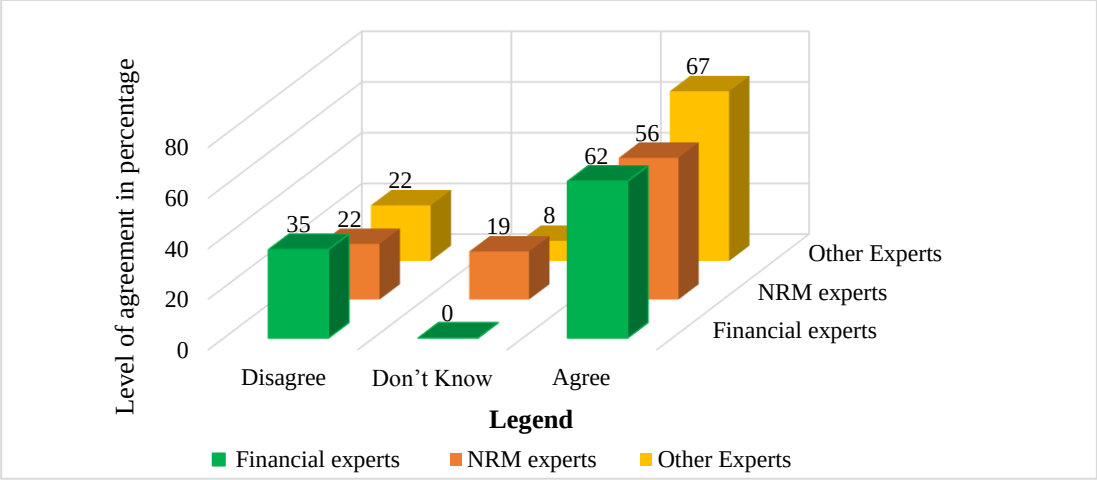


Figure 4. 22: Perception to the notion that the Governing Party will have a positive attitude to the introduction of a carbon tax

To test the perception respondents had on the Governing Party's acceptability of a carbon tax introduction, we asked them to state whether they thought the Party would have a positive attitude towards the proposal. Results found are as displayed in Fig. 4.22. Majority of the respondents in the sample 67 percent (43 respondents out of 64) of Other experts, 56 percent (18 respondents out of 33) of the NRM experts and 62 percent (33 respondents out of 53) of the financial experts were in agreement the ruling party would be supportive.

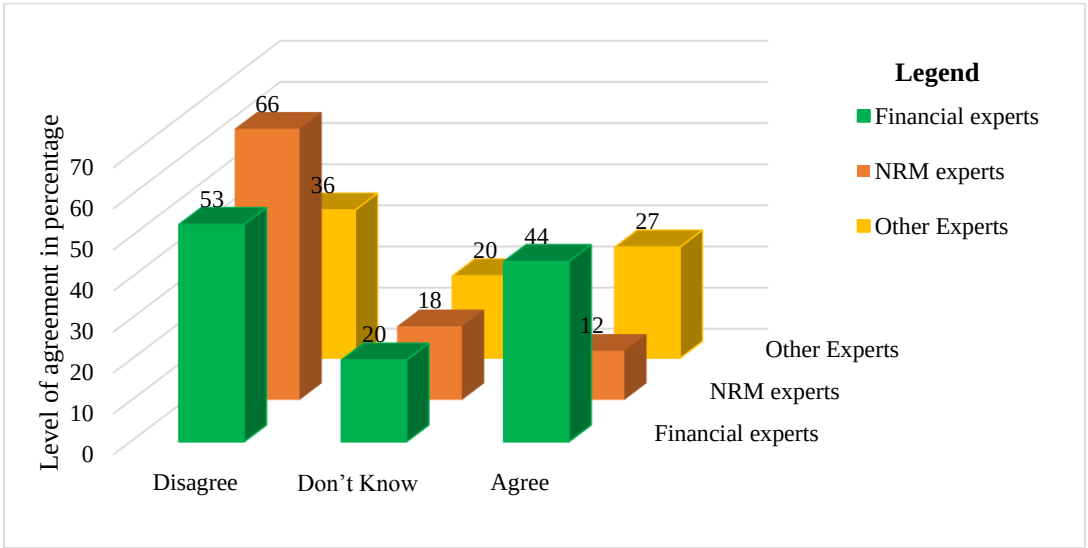


Figure 4. 23: Perception that a carbon tax will have counterproductive effects on existing policy goals

Based on the regulatory framework and direction the country was headed, we asked respondents on the likelihood of counter productivity of the policy to affect existing policy goals. As indicated in Fig. 4.23, 53 percent (28 respondents out of 53) of the respondents in the Finance category stated the policy would fit in with Kenya's current framework whereas 44 percent (23 respondents) disagreed. 51 percent (27 respondents) of this sample reiterated that they believed Kenya had proper guidelines in place to support the tax implementation while 31 percent (16 respondents) were unsure of the regulatory framework (Fig. 4.24).

66 percent (22 respondents out of 33) of NRM experts (Fig.4.23) were also in agreement that the carbon tax would not be counterproductive to existing policy goals, 69 percent (23 respondents) of them stating that in fact, the framework in place would support the tax' introduction. 12 percent (4 respondents) of respondents in NRM sample however expressed that there would be a result of conflicting policy goals, 12 percent (4 respondents) of them expressing that the regulatory framework wasn't sufficient as it were (Fig. 4.24).

Finally, from Fig. 4.23, we found that in the other experts' category, 36 percent (23 respondents out of 64) agreed with the perception of lack of counter productivity while 27 percent (17 respondents) disagreed. 45 percent (29 respondents) suggested that the country already had sufficient policies in place to support carbon tax implementation whereas 14 percent (9 respondents) disagreed.

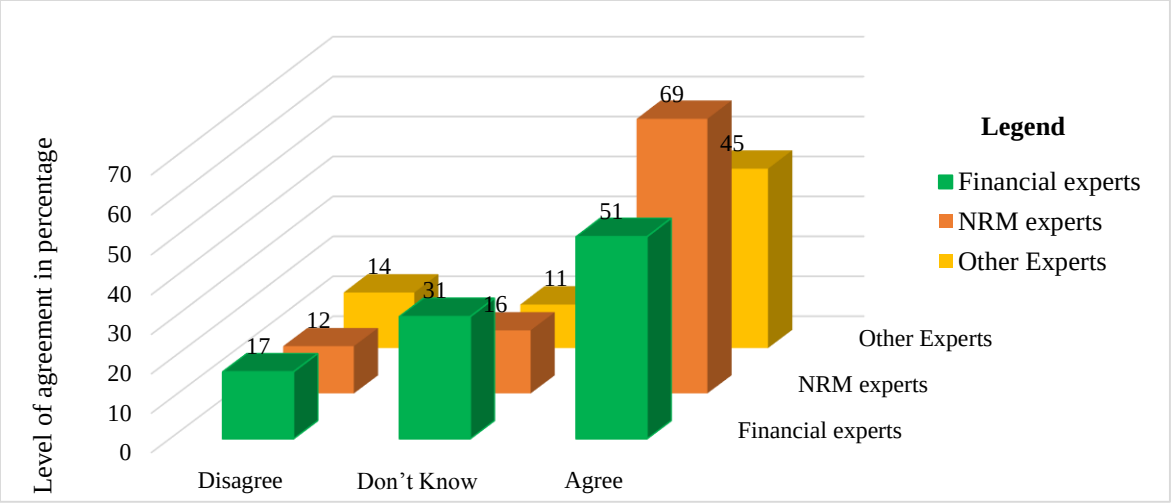


Figure 4. 24: Kenya has proper guidelines to support the implementation of a carbon tax

In addition to the questionnaire, the following key highlights were drawn from the extensive policy desk review undertaken:-

i. The Paris Agreement (United Nations, 2015) sets to achieve ambitious goals in climate change mitigation through market-based approaches such as carbon pricing. Article 6.2 establishes the potential of trading emission reduction credits across borders, between nations or jurisdictions. This can encourage the linking of carbon pricing approaches across countries and jurisdictions resulting in the reduction of emissions by a magnitude greater than what is possible solely domestically or nationally. Also, Article 6.5 puts in place robust accounting measures to avoid double counting of emission reductions and increase transparency, thereby ensuring the integrity of the proposed market-based approaches. Kenya being a signatory to this agreement indicates that she has sufficient latitude to explore acceptable economic instruments proposed under it to facilitate the attainment of the set national emissions targets.
ii. Principle 16 of Agenda 21 (Agenda 21, 1992) recognizes that "National authorities should endeavour to promote the internalization of environmental costs and use of economic instruments, taking into account the approach that polluter should, in principle, pay for the cost of pollution with due regard to public interest and without distorting international trade and investment" (UN,1992). Additionally, part V Section 57, Sub- Section 1 of EMCA 1999 provides for the use of economic instruments by empowering the Minister for Finance to "propose to Government tax and other fiscal incentives, disincentives or fees to induce or promote the proper management of the environment and natural resources or the prevention or abatement of environmental degradation" Subsection 2 suggests that among the instruments to be considered are: custom waivers, tax rebates, tax disincentives and user fees.
iii. The identified big wins in the National Climate Change Action Plan (NCCAP) are expected to have a significant impact on sustainable socio-economic development, adaptation and mitigation in Kenya including in geothermal power generation, climate smart agriculture and agroforestry, improved cook stoves and mass rapid transit system in Nairobi. These 'big win' opportunities are believed to capture over two-thirds of the mitigation potential out to 2030. A carbon tax introduction would enhance the implementation of both the mass rapid transport system and also support innovations in cleaner energy developments and geothermal power

generation initiatives that have been set out in Kenya's Nationally Appropriate Mitigation Actions (NAMAs).

iv. From the National Policy on Climate Finance which is based on the Constitution of Kenya 2010, Kenya Vision 2030 and its Medium Term Plans (MTPs), Climate Change Act, 2016, and Public Finance Management (PFM) Act 2012 (as amended 2014) and international treaties and obligations, we notice that the guiding principles stipulated therein that give direction as to where Kenya is headed are complimentary to those of carbon taxation and by extension carbon pricing. These qualities include transparency and accountability, inclusiveness, effectiveness, environmental and social protection and sustainable development. Thus it is safe to suggest that a carbon tax proposition would fit in relatively well with the existing national policy on climate finance.

v. Kenya's Medium Term Plan has isolated specific activities aimed at addressing climate change. The NCCAP enumerates some of these. Formulation of a climate policy and climate bill and the establishment of a national climate change fund are in the pipeline with the latter having been largely proposed by respondents as the preferred collection kitty for the carbon tax revenues.

vi. The Energy Act, 2006 "promotes mitigation of climate change through energy efficiency and renewable energy, and provides explicitly for the Ministry in charge of energy to use the Clean Development Mechanism (CDM) and carbon trading to promote renewable energy programmes. The act establishes an institutional arrangement with a national regulator, the Energy Regulatory Commission, which exercises oversight on the wide range of economic activities in the energy sector, and promotes stakeholder compliance with established rules".

Where does power lie in climate governance in Kenya?

Figure 4.26 below represents the centers of power in the successful implementation of the carbon tax policy in Kenya. According to GoKi, National Council for Law References (2010), the Kenyan Constitution "provides the basis for action on climate change guaranteeing citizens a clean and healthy environment which is a fundamental right under the Bill of Rights. Article 42 of the Constitution recognizes the right to a clean and healthy environment, while Article 60 (c) provides for sustainable and productive management of land resources. It calls for sustainable exploitation, utilization, management and conservation of the environment and natural resources" and works

"… to achieve and maintain a tree cover of at least 10 per cent of the land area of Kenya" (Article 69 [(a)-(h)]).

Looking across the spectrum of Kenya's climate change governance structure, it is noticed that climate policy has been informed by regional obligations and commitments that is from the UNFCCC, Africa's African Climate Change Strategy (2011), East Africa's Climate Change Policy, Strategy and Master Plan (2011). Actions to develop institutional frameworks to guide Kenya towards a low carbon development pathway are found in the NDCs running down to sectoral policies such as the Energy policy. A comprehensive National Climate Change Response Strategy (NCCRS) was developed followed by a National Climate Change Action Plan (NCCAP) that sets out how the NCCRS will be implemented. By the end of 2012, other relevant policies had been formulated, including the National Environment Policy; Draft Carbon Investment Policy; Reducing Emissions from Deforestation and Forest Degradation (REDD) Policy; and the National Energy Policy.

In addition to these legal and policy provisions, numerous green economy-related programmes have been undertaken by government ministries. These include the Kenya National Cleaner Production Centre (KNCPC), a body founded to build national capacity for resource efficient and cleaner production application in enterprises through awareness creation, training, project implementation, and policy advice for increased enterprise productivity and sound environmental management and Greening Kenya Initiative (GKI), a flagship program coined with the objective to catalyze demand-driven green consumerism, backed by a strong, green industrial revolution and enhanced environmental protection through public participation in green initiatives. Through the GKI, the government has developed a database on green economy activities, which highlights efforts on the manufacturing of eco-friendly materials, tree planting, organic farming, fish farming, renewable energy, eco-labelling, solid waste management and environmental management, among others.

The Environmental Management and Coordination Act (EMCA) (1999) provides for the establishment of an appropriate legal and institutional framework for the management of the environment. Under the Act, National Environmental Management Authority (NEMA) and a Public Complaints Committee and National Environment Tribunal have been established to deal with various matters involving the environment. NEMA is the focal point for Global Environment Fund (GEF) and the respective environmental conventions.

In the Kenya Green Economic Investment Strategy by the GOK (2015) it is indicated that the country's energy policy has been under review for many years. Incentives to promote more energy-efficient technologies at the household and industrial levels have been suggested. Existing tax regimes, such as those on imported raw materials, act as a disincentive for those wishing to invest in technologies that are more efficient.

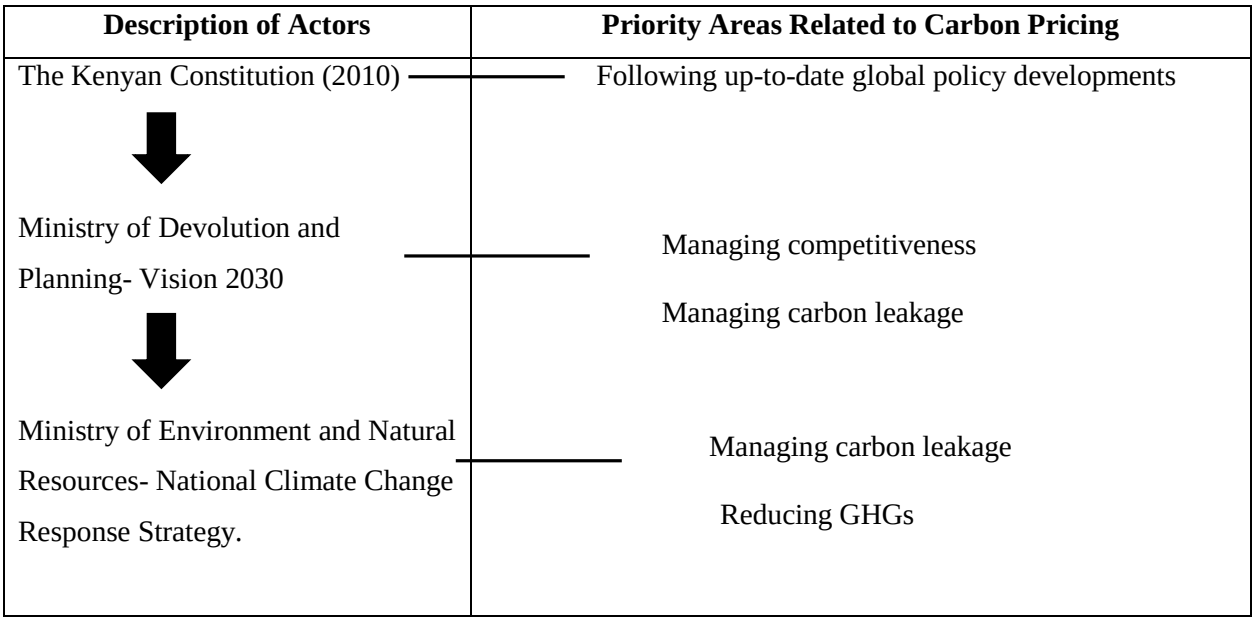


Figure 4. 25: Centers of Power in Carbon Tax Policy Implementation

4.6 INTEGRATION OF A CARBON TAX ON THE EXISTING TAX SYSTEM

In order to test the perceived impact of a carbon tax to the existing tax framework, the Finance category respondents were asked how much in support or opposition they were of the idea that the introduction of a carbon tax would affect existing taxes. 55 percent (29 respondents) opposed this as a possible outcome while a notable 43 percent (23 respondents) suggested they thought it would.

The respondents were further asked to suggest opportunities where they thought specific taxes could be used to address environmental challenges. A significant number stated that to their understanding, VAT and income tax as they were are not environmentally sensitive. Thus a proposition where the EFR could build on the existing taxes for example through a reform in VAT so as to discourage market penetration of environmentally harmful goods could be given further consideration.

To test where in the existing taxation structure the respondents felt the carbon tax could be most suitable, they were asked whether it be targeted to the untaxed segment of the economy or it be incorporated in the fuel taxes.

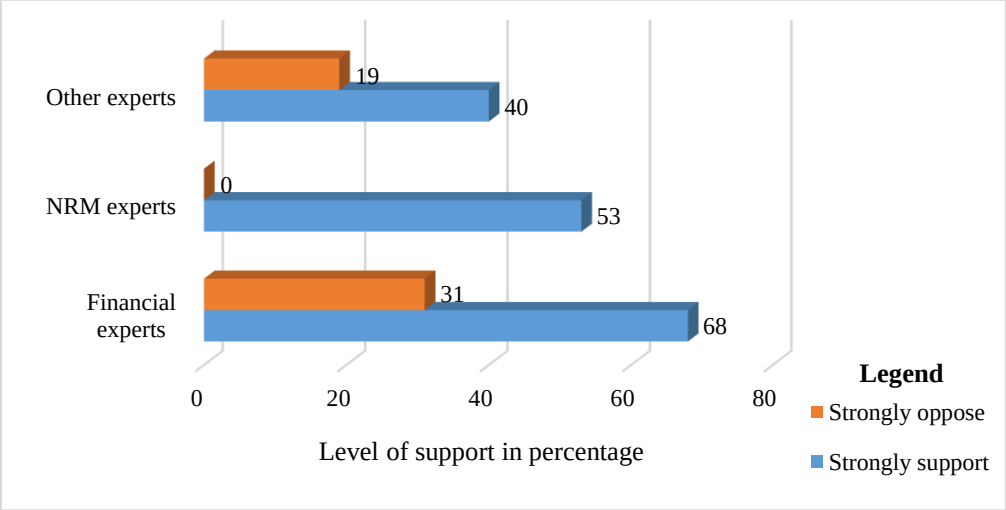


Figure 4. 26: Perception on the suggestion that the carbon tax revenue be raised by extending the tax to the untaxed parts of the economy

It was found that majority of the respondents in the financial experts sample (68 percent that is 36 respondents out of 53) and NRM expert sample (53 percent that is 17 respondents out of 33) were in support that if revenue generation was the key objective of the introduction of a carbon tax, then it be designed to capture the untaxed parts of the economy (Fig. 4.26). 31 percent (16 respondents) of the financial sample opposed this. Majority here (54 percent, 29 respondents) however opposed that there be an increase to fuel taxes as a consequence (Fig 4.27).

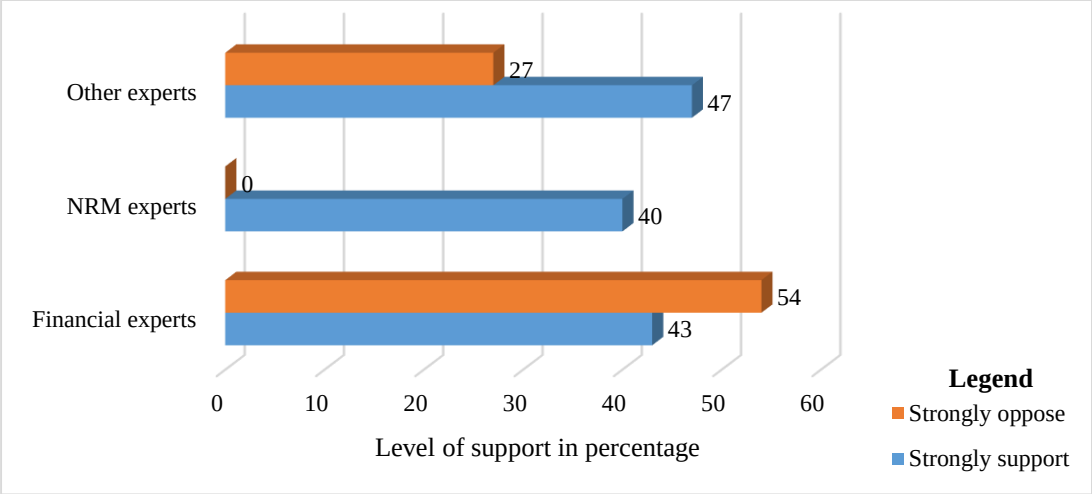


Figure 4. 27: Perception on suggestion that the carbon tax revenue be achieved by raising fuel taxes

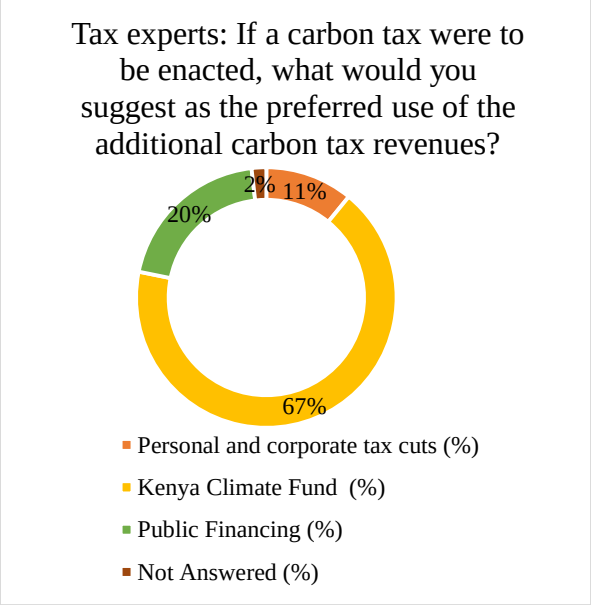
40 percent (13 respondents out of 33) of the NRM sample suggested the revenue from the tax should be sought by raising fuel taxes, whereas 47 percent (30 respondents out of 64)of the other experts supported this stand. 40 percent (26 respondents) of other experts sample stated also that the tax be targeted at the untaxed parts of the country's economy (Fig. 4.26).

Private verses social interests were mentioned as one of the key bottlenecks in the administration of existing taxes in Kenya today and a concern to the acceptability to carbon taxation. In situations where producers operate in highly competitive markets or in sectors with fixed prices where the higher costs incurred due to the imposition of the tax cannot be passed on to consumers, the Finance category respondents were more accepting of the policy if revenues would be reimbursed in form of tax reduction schemes or rebates. Thus if this concern could be addressed sufficiently, producers wouldn't have good reason to mobilize other political actors against the tax. This is in line with the fairness concerns raised earlier.

We went further to ask the respondents to suggest the preferred use of the revenues collected, the majority 67 percent in the finance category suggested it be earmarked to finance a Kenya Climate Fund (KCF) specifically created to finance country specific mitigation and adaptation activities. A noteworthy 38 percent (24) of those in the Other experts' category suggested the Fund as the preferred pool, whereas 30 percent (19) suggested the revenues be used to offset the existing tax

burden through personal and corporate tax cuts. Many respondents were against the suggestion of using the revenues for something unrelated to green expenditure. The creation of KCF was pointed out as on that will bring about a number of advantages including greater budgetary support; more clarity of purpose and allow for transparency in climate financing. In enhancing existing development partner-led approaches, the proposition for the formation of a KCF is believed to offer in the long run greater opportunities for the mainstreaming of climate change considerations into national priorities thereby encouraging ownership (the 'ownership' principle) of mitigating activities.

Figure 4.28 represents the suggestions given for revenue reimbursement in percentage:-



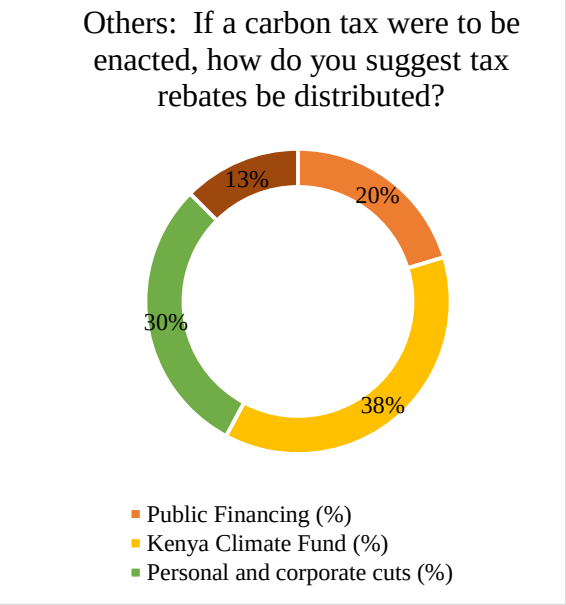


Figure 4. 28: Reimbursement suggestions for the carbon tax revenue.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In this chapter, conclusions and recommendations are made guided by major findings of the study. The section further provides areas that may potentially require further research.

5.2 CONCLUSIONS

The choice of the preferred policy tool is highly political and involves the entire policy framework. The conveyed political influence of the participating groups included normative reasoning and a theory of governance.

Because the economic trade-offs expected through carbon taxes are unknown prior to implementation of the policy or distributional impact studies being conducted, the results show that Other group respondents were at first instinctively against new environmental taxes. Respondents were generally doubtful about the efficacy of the carbon tax in reducing GHG emissions. They disliked its constraining nature and were concerned about its impact on low-income households who were the larger population. These perceptions could affect the tax's acceptability. The best approach to overcome them is through conducting comprehensive public engagement workshops and communicating effectively with all relevant stakeholders at various stages of formulation through to implementation as mapped out in the stakeholder analysis. However, noticeably, NRM and Financial expert groups were more accepting of the policy majorly stating that the trade-offs outweighed the negative impacts and would thus be a considerable measure to undertake with sufficient public participation. In order to avoid solution-aversion and ensure transparency and clear communication, the benefits of carbon taxation should come out clearly so as to enhance acceptability. Consideration must be given also to the naming of the carbon tax as this too affects desirability. The word "tax" was seen to trigger solution-aversion.

The perception of whether the introduction of a carbon tax would be a fair approach to all agents of the economy was construed to be an element that would increase policy acceptability and support. Although some showed doubt in the corrective effect of carbon taxation, this was mollified by the suggestion that revenue would be earmarked to green spending. The level of satisfaction with information given about the policy instrument and its approval by the government by the trusted environmental regulating bodies increases the instruments' acceptability. It was established that respondents are more willing to bear the extra tax burden of introducing a new environmental tax if they understood the implication and its resultant effects. To gain widespread acceptance therefore, the fiscal objectives of the instrument must be made transparent.

The willingness to pay for carbon expressed in the support for a tax introduction is fundamentally a function of political, economic, and socio-cultural views. Results obtained suggested that citizens may thus become skeptical of the actual effects of climate change if the introduction of the carbon tax challenges or contradicts underlying ideological predispositions.

The size, scattered distribution, and elusive nature of artisanal and small-scale industries forming a large part of the Kenyan economy today have hampered the inclusion of this sector into the designated tax brackets mainly because the costs of monitoring these industries pollution are high relative to the damage caused by the individual polluting activity which then calls to question the effectiveness of existing mitigation instruments. The result has been tax evasion by many in these industries, which would otherwise have increased overall revenue generation for the country. This was highlighted strongly as the major hindrance to the effectiveness of the existing taxation system to incorporate environmental sensitivity equitably. Private verses social interests were also mentioned as key bottlenecks in the administration of taxes. This can however be managed by designing the tax in a manner that would reimburse tax revenue so as to increase the opportunities available to use it in pollution control.

5.3 POLICY RECOMMENDATIONS

In order to design a carbon tax reform that will garner wide political acceptance, sensitization and environmental awareness of both the citizens and the business community must be done by the Ministries of Environment and Natural Resources and Finance. To gain sufficient political credibility and goodwill, a convincing narrative focused on the gains of its implementation will be

of crucial importance. Key indicators of performance of the instrument should be defined clearly from the outset backed by sufficient distributional impact assessments both in the macro and micro economy.

Sufficient engagement through public participation in both National and County tiers is also required. This should be done by the National and County Governments through the relevant Departments under the Ministry of Devolution and Planning. In order to reinforce political trust and ensure transparency, the acceptability of a carbon tax will require extensive social deliberation and public dialogue prior to its introduction.

Better coordination of environmental activities between County and National leadership through administrative units is key. Creation of an inter-agency team housed under one Ministry to coordinate all activities related to policy formulation until adoption was recommended. This multi-agency team will generate new vested climate governance interests which will eventually help stabilize and protect climate policy goals.

Continuous digitization of tax collection system by the Kenya Revenue Authority was recommended for sufficient capturing of revenues collected.

Empowering local communities through sensitization during various projects and programmes implementation stages to make informed decisions on climate change by breaking down climate change messages into indigenous languages was recommended.

Finally, a well-designed policy with clearly defined channeling of tax revenues was recommended as a key motivator to acceptability.

5.4 RECOMMENDATIONS FOR FURTHER RESEARCH

It should be stressed that this is not an exhaustive study of carbon taxation in Kenya. Future work to elucidate its macroeconomic effects is recommended. Specific focus areas suggested are:-

i. Determination of the appropriate tax base and tax rate for the country.
ii. Determination of the optimum timing and phasing in of a carbon tax.

iii. Assessment on distributional impacts of a carbon tax on different segments of the population.

iv. Assessment on impacts of carbon taxation on international competitiveness of Kenya if implement unilaterally, and the corresponding trade effects.

v. An investigation of possible carbon tax revenue scenarios.

vi. A quantitative study on the WTP for carbon.

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APPENDIX A.1

FINANCIAL MANAGERS SURVEY QUESTIONNAIRE

Dear Participant,

My name is Stellamaris Wanyonyi and I am a student at the University of Nairobi, Department of Meteorology undertaking research on climate change and environmental economics.

Because you have demonstrable experience and expertise in either climate change mitigation, industrial emissions and/or tax implementation, I am inviting you to participate in this research by completing the attached survey. Climate change is a threat to all, by giving your sincere opinions, you will be providing solutions to inform holistic strategies to address the issue and your assistance through completing the enclosed questionnaire will be invaluable.

The purpose of the survey is to collect opinions of experts from different sectors to assist the study evaluate the potential effects of implementing a carbon tax on the Kenyan economy. The study seeks to draw a number of political economy lessons from reform experience in other economic areas and consider how these lessons can be applied to the particular case of climate change mitigation policy.

All of the answers you provide will be kept confidential. The survey data will be reported in a summary fashion only and will not identify any individual person.

SECTION 1: GENERAL QUESTIONS

1. Do you follow climate change related activities and policies?

   Yes ☐ No ☐

2. Do you think that global warming or climate change is occurring?

   Yes ☐ No ☐ I don't know ☐

3. Do you think it is appropriate to use taxes on specific goods or services to influence individual consumption choices?

   Yes ☐ No ☐ I don't know ☐

4. Do you understand how carbon taxes work? Yes ☐ No ☐

Table 1: Your Institution Strategy.

Please indicate by ticking ONE box on each row the degree of importance of the following policy areas in your institution?					
	Not at all important	**Slightly important**	**Important**	**Fairly important**	**Extremely important**
5. Managing competitiveness					
6. Managing carbon leakage.					
7. Reducing greenhouse gas reductions.					
8. Allocating revenues					
9. Minimizing market volatility/instability					
10. Creating links between systems					
11. Following up-to-date global policy developments					

Table 2: Opinions on climate change

Please indicate how much you agree or disagree with the following statements about climate change by ticking ONE box on each row.					
	Strongly disagree	**Disagree**	**Undecided**	**Agree**	**Strongly agree**
12. The pattern of weather is generally changing.					
13. Global warming is caused mostly by human activities.					
14. Global warming or climate change will affect me personally.					
15. Climate change increases with a greater use of energy.					
16. Industry and businesses should be doing more to tackle climate change					
17. The Kenyan administration has continuously put efforts to mitigate and adapt to climate change.					
18. Kenya has a responsibility to reduce greenhouse gas emissions.					

SECTION 2: THE TRADE-OFFS IN ADOPTING CARBON TAXES

Please indicate how much you agree or disagree with the following statements about carbon tax by ticking ONE box on each row.					
	Strongly disagree	**Disagree**	**Don't know**	**Agree**	**Strongly agree**
19. Increasing taxes on fossil energy will decrease fossil energy usage					
20. A carbon tax will increase the development of clean energy technologies.					
21. The amount of greenhouse gas emitted will reduce if a carbon tax is introduced.					
22. The introduction of a carbon tax can induce behavioral changes in households and industries					
23. There will be a greater burden on the poor if a carbon tax is introduced.					
24. There will be considerable negative effects to industries and businesses that consume greater amounts of energy if a carbon tax is introduced.					

SECTION 3: STAKEHOLDER SUPPORT/OPPOSITION TO CARBON TAXATION.

25. Would you support the enactment of a carbon tax? .

Yes ☐ No ☐ Not sure ☐

Please give reasons

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26. If in support, what is your preferred name for the policy?

Carbon Tax ☐ Carbon Fee ☐ Carbon Charge ☐

Carbon Levy ☐

Please indicate how much you support or oppose the following statements about the implementation of a carbon tax in Kenya by ticking ONE box on each row.				
	Strongly support	**Somewhat support**	**Somewhat oppose**	**Strongly oppose**
27. I would be willing to pay more for energy produced from low carbon sources or renewable energy.				
28. Prompt action is necessary from the government to reduce climate change.				
29. Taxing carbon is one of the best ways to incentivize the reduction of greenhouse gas emissions in Kenya.				
30. The introduction of a carbon tax would reflect national interests.				
31. Regulate carbon dioxide as a pollutant.				
32. Set strict carbon dioxide emission limits on new or existing coal-fired power plants.				
33. Encourage power plants to reduce their emissions and/or invest in renewable energy and energy efficiency				
34. If extra revenue is to be raised through the carbon tax, it should be achieved by extending taxes to untaxed parts of the economy.				

	Strongly support	**Somewhat support**	**Somewhat oppose**	**Strongly oppose**
35. If extra revenue is to be raised through the carbon tax, it should be achieved by raising fuel taxes.				
36. The implementation of a carbon tax will affect existing taxes.				
37. A carbon tax will increase the development of clean energy technologies.				
38. The Jubilee Party is likely to have a positive attitude towards the introduction of a carbon tax than any other party.				
39. The amount of greenhouse gas emitted will reduce if a carbon tax is enacted.				
40. The Kenyan economy will stagnate if a carbon tax is introduced.				

41. If a carbon tax were to be enacted, what would you suggest as the preferred use of the additional carbon tax revenues? Please tick ONE group at the bottom.		
To offset the tax burden placed on consumers, producers and citizens through: a. Personal and corporate income tax cuts. b. Creating rebates outside the existing tax system c. Household transfers e.g. exempting specific household groups from paying specific taxes. ☐	To support further efforts to reduce greenhouse gas emissions or build resilience to climatic disruption by: a. Creation of a domestic green climate fund for climate-resilient development. b. Opening markets for new investments. c. Creation of a domestic climate market for climate-smart projects. d. Creating rebates outside the existing taxation system. e. Funding research into renewable energy sources, such as solar and wind power f. Improving public transit. ☐	To fund priorities unrelated to climate change mitigation and adaptation such as: a. Financing expenditure b. Reduction in public debt. c. Transitional support to industry ☐

SECTION 4: ANALYSIS OF POLICY, REGULATORY AND INSTITUTIONAL FRAMEWORKS IN CLIMATE CHANGE MITIGATION IN KENYA

42. Bearing in mind that a tax is one of possible instruments that can address environmental externalities such as pollution, what opportunities exist to use specific taxes to address Kenya's environmental challenges?

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43. What are the relevant administrative, compliance, and enforcement issues that should be addressed before the introduction of a carbon tax reform?

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b. What problems are to be expected, and how can they be circumvented?

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c. What coordination is necessary with existing policies?

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44. What are the strengths of the existing taxation system?

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b. What are the weaknesses of the existing taxation system?

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Please indicate how much you agree or disagree with the following statements about carbon tax by ticking ONE box on each row.					
	Strongly disagree	**Disagree**	**Don't know**	**Agree**	**Strongly agree**
45. Kenya has proper policies and guidelines in place to support the implementation of a carbon tax.					
46. A carbon tax will have counterproductive effects relating to other policy goals.					
47. Given the existing national legal and political context there is a likelihood that adopted policies will be overturned in the future.					
48. The introduction of a carbon tax should be decided on after looking at international community trends					
49. Kenya should lead the East African Community in the introduction of the carbon tax					
50. When introducing a carbon tax, there should be more focus on the international relations than on the					

infringement of Kenyan economic interests.					

SECTION 5: THE MISSION OF YOUR ORGANIZATION

51. What are the dominant ideologies and values which shape views in your sector/industry?

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52. Where are the key bottlenecks in the organizations' system?

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53. Are there any key environmental reform champions within your sector/industry?

Yes ☐ No ☐ Not sure ☐

54. Who is likely to resist environmental reforms and why?

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RESPONDENT DETAILS (the asterisk indicates mandatory questions to be filled)

*Your Name: Prof./Dr./Mr./Mrs/Ms.....……...

Gender: Male ☐ Female ☐

*Highest level of education: Primary School ☐ Secondary School ☐

College ☐ University ☐

*Occupation / Profession……

* Sector: Government institution ☐ Private sector ☐

NGO ☐ Academia ☐ Informal ☐

*Industry:

A. Agro-industries ☐ (Forestry, fishing, mining, other Agro-Industries)

B. Energy and utilities ☐ (Nuclear energy, electricity and alternative fuels, oil, gas and coal, water companies, other energy and utilities)

C. Manufacturing ☐ (Aerospace equipment, chemicals and chemical products, defense industries, electronics and electronic engineering, food, drink and tobacco, glass and ceramics, high-tech industries, household products and appliances, machine tools and other machinery, metals and metal products, mineral products, motor vehicles, office machinery, computers and electrical products, paper, paper products and packaging, pharmaceuticals and toiletries, rubber and plastics, textiles, clothing and footwear, timber and furniture, toys and sports goods, other manufacturing)

D. Construction ☐ (civil engineering, other construction)

E. Service sector ☐

F. Public sector ☐

G. Communication ☐

Organization: ……..

*Size of your organization: 0-9 people ☐ 10-24 people ☐ 25-99 people ☐

100-249 people ☐ 250+ people ☐

*Degree of your responsibility: Self-employed ☐

Senior Manager/Director (total responsibility) ☐

Junior Manager (wide responsibility) ☐

Supervisor (limited responsibility) ☐

No responsibility for other people ☐

If you would like to receive a copy of the results of this research, please enter your email address here:……

If you have anything to add about the issues raised in this questionnaire or any comments about the questionnaire itself, please write them here:

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We appreciate your response. Thank you for your time.

APPENDIX A.1b

NRM SURVEY QUESTIONNAIRE

Dear Participant,

My name is Stellamaris Wanyonyi and I am a Masters student at the University of Nairobi, Department of Meteorology undertaking a research project on climate change mitigation and natural resource economics. Because you have demonstrable experience and expertise in either climate change mitigation, industrial emissions and/or tax implementation, I am inviting you to participate in this research study by completing the attached surveys. Your help and assistance in completing the enclosed questionnaire will be invaluable for the study.

The purpose of the survey is to collect opinions of relevant experts from different sectors on possible effects of a carbon tax on the Kenyan economy in view of the Kenyan climate change mitigation goals and Vision 2030.

All of the answers you provide in this survey will be kept confidential. The survey data will be reported in a summary fashion only and will not identify any individual person.

This survey will take about 35 minutes to complete.

QUESTIONNAIRE

Global warming refers to the idea that the world's average temperature has been increasing over the past 150 years and that the world's climate is changing as a result evidenced by changes in rainfall patterns, extinction of wildlife, high temperatures and drought. Increased atmospheric carbon dioxide (CO_2) concentration is widely considered as the main driving factor that causes the phenomenon of global warming. This is the premise of this proposition for the implementation of a carbon tax imposed on releases of carbon dioxide (CO_2), which is emitted largely through the combustion of fossil fuels such as coal, oil, petroleum and natural gas used in electricity production; industrial, commercial, and residential heating; and transportation. The essence of the carbon tax approach is to provide an incentive for the polluters themselves to find the best way to reduce emissions, rather than having a central authority determine how this should be done.

SECTION 1: GENERAL QUESTIONS

1. Do you follow climate change related issues?

   Yes ☐ No ☐

2. Do you think that global warming or climate change is happening?

   Yes ☐ No ☐ I don't know ☐

3. Do you understand how carbon taxes work?

   Yes ☐ No ☐

Table 1: Your Institution Strategy

	Not at all important	**Slightly important**	**Important**	**Fairly important**	**Extremely important**
4. Managing competitiveness.					
5.Managing carbon leakage					
6. Reducing greenhouse gases					
1. Allocating revenues					
2. Minimizing market volatility/instability					
3. Creating links between systems					
4. Following up-to-date global policy developments					

Table 2: Opinions on climate change

Please indicate how much you agree or disagree with the following statements about climate change by ticking one box on each row					
	Strongly disagree	**Disagree**	**Undecided**	**Agree**	**Strongly agree.**
5. Global warming is caused mostly by human activities.					
6. Pollution from industry is the main cause of climate change.					
7. Industry and business should be doing more to tackle climate change					
8. Prompt action is necessary from the government to reduce climate change.					
9. Climate change increases with a greater use of energy.					
10. The Kenyan administration has continuously put efforts to mitigate and adapt to climate change.					
11. Since the current emission level for Kenya is low, there is no need for the introduction of a carbon tax.					
12. Global warming or climate change will affect me personally.					

13. Kenya has a responsibility to reduce greenhouse gas emissions.					
14. A carbon tax will increase the development of clean energy technologies					

SECTION 2: TRADE-OFFS IN ADOPTING CARBON TAXES

Please indicate how much you agree or disagree with the following statements about carbon tax by ticking ONE box on each row.					
	Strongly disagree	**Disagree**	**Undecided**	**Agree**	**Strongly agree**
15. Increasing taxes related to fossil energy will decrease fossil energy usage					
16. Carbon tax would be a feasible option to reach national emission targets.					
17. A carbon tax will increase the development of clean energy technologies.					
18. The amount of greenhouse gas emitted will reduce if a carbon tax is enacted.					
19. The introduction of a carbon tax can induce behavioural changes in households and industries.					

	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
20. There will be greater burden on the poor if a carbon tax is introduced.					
21. There will be considerable negative effects to industries and businesses that consume greater amounts of energy if a carbon tax is introduced.					

SECTION 3: STAKEHOLDER SUPPORT/OPPOSITION TO CARBON TAXATION

22. Would you support the enactment of a carbon tax? Give reasons.

Yes ☐ No ☐ Not sure ☐

Give reasons

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How much do you support or oppose the following policies? Please tick ONCE on each row.				
	Strongly support	**Somewhat support**	**Somewhat oppose**	**Strongly oppose**
23. Fund more research into renewable energy sources, such as solar and wind power.				
24. Regulate carbon dioxide (the primary greenhouse gas) as a pollutant.				

25. Set strict carbon dioxide emission limits on future coal-fired power plants to reduce global warming and improve public health.				
26. Encourage power plants to reduce their emissions and/or invest in renewable energy and energy efficiency.				
27. I would be willing to pay more for energy produced from low carbon sources or renewable energy.				
28. If extra revenue is to be raised through the carbon tax, it should be achieved by extending taxes to untaxed parts of the economy.				
29. If extra revenue is to be raised through the carbon tax, it should be achieved by raising fuel taxes.				

30. If you were involved in environmental policy formulation, what concerns would you have regarding extractive industries?

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31. In your view, what are the most important issues related to the environment and climate policy in Kenya?

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32. Are you familiar with the existing Climate Change Policy?

Yes ☐ No ☐

If yes:

b. What are the strengths of the policy?

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b. What are the weaknesses of the policy?

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SECTION 3: ANALYSIS OF POLICY, REGULATORY AND INSTITUTIONAL FRAMEWORKS IN CLIMATE CHANGE MITIGATION IN KENYA

Please indicate how much you agree or disagree with the following statements about carbon tax by ticking ONE box on each row.					
	Strongly disagree	**Disagree**	**Don't know**	**Agree**	**Strongly agree**
39. A carbon tax will have counter-productive effects relating to other policy goals.					

	Strongly disagree	Disagree	Don't know	Agree	Strongly agree
40. Kenya has proper policies and guidelines in place to support a carbon tax proposal					
41. The Governing Party is likely to have a positive attitude to the introduction of a carbon tax.					
42. Every citizen should pay the carbon tax.					

43. What would need to be done before introducing a carbon tax? Please give suggestions.

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b. What problems are to be expected, and how could they be circumvented?

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c. What is the interplay with other policies, and what coordination is necessary?

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**SECTION 4: THE MISSION OF YOUR ORGANIZATION **

44. What are the dominant ideologies and values which shape opinions in your sector / industry?

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45. Where are the key bottlenecks in implementing eco-friendly policies in your institution / industry?

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RESPONDENT DETAILS (the asterisk indicates mandatory questions to be filled)

*Your Name: Prof./Dr./Mr./Mrs/Ms.....……...

Gender: Male ☐ Female ☐

*Highest level of education: Primary School ☐ Secondary School ☐

College ☐ University ☐

*Occupation / Profession……

* Sector: Government institution ☐ Private sector ☐

NGO ☐ Academia ☐ Informal ☐

*Industry:

A. Agro-industries (Forestry, fishing, mining, other Agro-Industries) ☐

B. Energy and utilities (Nuclear energy, electricity and alternative fuels, oil, gas and coal, water companies, other energy and utilities) ☐

C. Manufacturing (Aerospace equipment, chemicals and chemical products, defense industries, electronics and electronic engineering, food, drink and tobacco, glass and ceramics, high-tech industries, household products and appliances, machine tools and other machinery, metals and metal products, mineral products, motor vehicles, office machinery, computers and electrical products, paper, paper products and packaging, pharmaceuticals and toiletries, rubber and plastics, textiles, clothing and footwear, timber and furniture, toys and sports goods, other manufacturing) ☐

D. Construction (civil engineering, other construction) ☐

E. Service sector ☐

F. Public sector ☐

G. Communication ☐

Organization: ……..

*Size of your organization: 0-9 people ☐ 10-24 people ☐
25-99 people ☐ 100-249 people ☐ 250+ people ☐

*Degree of your responsibility: Self-employed ☐
Senior Manager/Director (total responsibility) ☐
Junior Manager (wide responsibility) ☐

Supervisor (limited responsibility) ☐
No responsibility for other people ☐

If you would like to receive a copy of the results of this research, please enter your email address here:……

If you have anything to add about the issues raised in this questionnaire or any comments about the questionnaire itself, please write them here:

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We appreciate your response. Thank you for your time.

APPENDIX A.1c

OTHER EXPERT PRACTITIONERS SURVEY QUESTIONNAIRE

Dear Participant,

My name is Stellamaris Wanyonyi and I am a student at the University of Nairobi, Department of Meteorology undertaking research on climate change and environmental economics.

Because you have demonstrable experience and expertise in either climate change mitigation, industrial emissions and/or tax implementation, I am inviting you to participate in this research by completing the attached survey. Climate change is a threat to all, by giving your sincere opinions, you will be providing solutions to inform holistic strategies to address the issue and your assistance through completing the enclosed questionnaire will be invaluable.

The purpose of the survey is to collect opinions of experts from different sectors to assist the study evaluate the potential effects of implementing a carbon tax on the Kenyan economy. The study seeks to draw a number of political economy lessons from reform experience in other economic areas and consider how these lessons can be applied to the particular case of climate change mitigation policy.

All of the answers you provide will be kept confidential. The survey data will be reported in a summary fashion only and will not identify any individual person.

QUESTIONNAIRE

SECTION 1: GENERAL QUESTIONS

1. Do you feel the pattern of weather is generally changing? Yes ☐ No ☐
2. Do you follow climate change related activities and policies?
   Yes ☐ No ☐
3. Have you ever heard about climate change or global warming?
   Yes ☐ No ☐
4. Do you think that global warming or climate change is occurring?
   Yes ☐ No ☐ I don't know ☐
5. Have you ever heard of carbon taxes? Yes ☐ No ☐
6. Do you understand how carbon taxes work? Yes ☐ No ☐
7. If you were involved in environmental policy formulation, what concerns would you have regarding extractive industries?

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8. In your view, what are the most important issues related to the environment and climate policy in Kenya?

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Table 1: Your Institution Strategy.

Please indicate by ticking ONE box on each row the degree of importance of the following policy areas in your institution?					
	Not at all important	**Slightly important**	**Important**	**Fairly important**	**Extremely important**
9. Managing competitiveness.					
10. Managing carbon leakage.					
11. Reducing greenhouse gases.					
12. Allocating revenues.					
13. Minimizing market volatility/instability.					
14. Creating linkages between systems.					
15. Following up-to-date global policy developments.					

Table 2: Opinions on climate change

Please indicate how much you agree or disagree with the following statements about climate change by ticking ONE box on each row					
	Strongly disagree	**Disagree**	**Undecided**	**Agree**	**Strongly agree.**
16. Global warming is caused mostly by human activities.					
17. Pollution from industry is the main cause of climate change.					

	Strongly disagree	**Disagree**	**Undecided**	**Agree**	**Strongly agree.**
18. Industry and business should be doing more to tackle climate change					
19. Prompt action is necessary from the government to reduce climate change.					
20. Climate change increases with a greater use of energy.					
21. The Kenyan administration has continuously put efforts to mitigate and adapt to climate change.					
22. Developing countries have a responsibility to reduce greenhouse gas emissions.					
23. Since the current emission level for Kenya is low there is no need for the introduction of a carbon tax.					
24. Global warming or climate change will affect me personally.					
25. Kenya has a responsibility to reduce greenhouse gas emissions.					

SECTION 2: THE TRADE-OFFS IN ADOPTING CARBON TAXES

Please indicate how much you agree or disagree with the following statements by ticking ONE box on each row.					
	Strongly disagree	**Disagree**	**Don't know**	**Agree**	**Strongly agree**
26. Increasing taxes related to fossil energy will decrease fossil energy usage.					
27. If extra revenue is to be raised through the carbon tax, it should be achieved by extending taxes to untaxed parts of the economy.					
28. A carbon tax will increase the development of clean energy technologies.					
29. The introduction of a carbon tax can induce behavioral changes in households and industries					
30. There will be a greater burden on the poor if a carbon tax is introduced.					
31. There will be considerable negative effects to industries and businesses that consume greater amounts of energy if a carbon tax is introduced.					

SECTION 3: STAKEHOLDER SUPPORT/OPPOSITION TO CARBON TAXATION.

32. Would you support the enactment of a carbon tax? .

Yes ☐ No ☐ Not sure ☐

Please give reasons

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33. If in support, what is your preferred name for the policy?

Carbon Tax ☐ Carbon Fee ☐ Carbon Charge ☐

Carbon Levy ☐

Please indicate how much you support or oppose the following statements about the implementation of a carbon tax in Kenya by ticking ONE box on each row.				
	Strongly support	**Somewhat support**	**Somewhat oppose**	**Strongly oppose**
34. I would be willing to pay more for energy produced from low carbon sources or renewable energy.				
35. Every citizen should pay the carbon tax.				
36. The introduction of a carbon tax would reflect national interests.				
37. Regulate carbon dioxide as a pollutant.				
38. Encourage power plants to reduce their emissions and/or invest in renewable energy and energy efficiency.				
39. The amount of greenhouse gas emitted will reduce if a carbon tax is enacted.				

40. If a carbon tax were to be enacted, how do you suggest tax rebates be distributed? Please tick ONE group at the bottom.		
To offset the tax burden placed on consumers, producers and citizens by: d. Increasing personal exemptions on income taxes. e. Increasing personal exemptions on payroll taxes. f. Giving tax credit on income taxes. g. Giving tax credit on payroll taxes h. Creating rebates outside the existing tax system i. Exempting specific household groups from paying specific taxes. ☐	To support further efforts to reduce greenhouse gas emissions or build resilience to climatic disruption by: g. Creation of a domestic green climate fund for climate-resilient development. h. Opening markets for new investments. i. Creation of a domestic climate market for climate-smart projects. j. Creating rebates outside the existing taxation system. k. Funding research into renewable energy sources, such as solar and wind power l. Improving public transit. ☐	To fund priorities unrelated to climate change mitigation and adaptation such as: d. Public finance funding ☐

SECTION 3: ANALYSIS OF POLICY, REGULATORY AND INSTITUTIONAL FRAMEWORKS IN CLIMATE CHANGE MITIGATION IN KENYA

Please indicate how much you agree or disagree with the following statements about carbon tax by ticking ONE box on each row.					
	Strongly disagree	**Disagree**	**Don't know**	**Agree**	**Strongly agree**
41. A carbon tax will have counter-productive effects relating to other policy goals.					
42. Kenya has proper policies and guidelines in place to support a carbon tax proposal					
43. The Jubilee Party is likely to have a positive attitude to the introduction of a carbon tax.					
44. Kenya should lead the East African Community in the introduction of the carbon tax.					
45. When introducing a carbon tax, there should be more focus on the international relations than on the infringement of Kenyan economic interests.					
46. The introduction of a carbon tax should be decided on after looking at international community trends.					
47. Every citizen should pay the carbon tax.					

	Strongly disagree	Disagree	Don't know	Agree	Strongly agree
48. If extra revenue is to be raised through the carbon tax, it should be achieved by extending taxes to untaxed parts of the economy.					
49. If extra revenue is to be raised through the carbon tax, it should be achieved by raising fuel taxes.					

SECTION 5: THE MISSION OF YOUR ORGANIZATION

50. What are the dominant ideologies and values which shape views in your sector/industry?

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51. Are there any key environmental reform champions within your sector/industry?

Yes ☐ No ☐ Not sure ☐

52. Who is likely to resist environmental reforms and why?

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RESPONDENT DETAILS (the asterisk indicates mandatory questions to be filled)

*Your Name: Prof./Dr./Mr./Mrs/Ms.....……...

Gender: Male ☐ Female ☐

*Highest level of education: Primary School ☐ Secondary School ☐

College ☐ University ☐

*Occupation / Profession……

* Sector: Government institution ☐ Private sector ☐

NGO ☐ Academia ☐ Informal ☐

*Industry: a. Agro-industries (Forestry, fishing, mining, other Agro-Industries) ☐

b. Energy and utilities (Nuclear energy, electricity and alternative fuels, oil, gas and coal, water companies, other energy and utilities) ☐

c. Manufacturing (Aerospace equipment, chemicals and chemical products, defence industries, electronics and electronic engineering, food, drink and tobacco, glass and ceramics, high-tech industries, household products and appliances, machine tools and other machinery, metals and metal products, mineral products, motor vehicles, office machinery, computers and electrical products, paper, paper products and packaging, pharmaceuticals and toiletries, rubber and plastics, textiles, clothing and footwear, timber and furniture, toys and sports goods, other manufacturing) ☐

d. Construction (civil engineering, other construction) ☐

e. Services ☐

f. Public sector ☐

g. Communication ☐

Organization: ……....

*Size of your organization: 0-9 people ☐ 10-24 people ☐ 25-99 people ☐

100-249 people ☐ 250+ people ☐

*Degree of responsibility given: Self-employed ☐

Senior Manager/Director (total responsibility) ☐

Junior Manager (wide responsibility) ☐

☐

Supervisor (limited responsibility)

No responsibility for other people ☐

If you would like to receive a copy of the results of this research, please enter your email address here:……

If you have anything to add about the issues raised in this questionnaire or any comments about the questionnaire itself, please write them here:

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We appreciate your response. Thank you for your time.

APPENDIX A.2

STAKEHOLDER ANALYSIS SUMMARY

The key stakeholders, those who can significantly influence, or are important, to the successful implementation of the policy were identified. Influence refers to how powerful a stakeholder is in controlling the decisions made or facilitating policy implementation. Importance refers to those stakeholders whose interests are a priority consideration during implementation. A stakeholder's map in a two-by-two matrix diagram showing the degree of influence and importance was then obtained.

The table below identifies the key primary stakeholders for example . those individuals, groups and institutions ultimately affected by the policy, and the secondary stakeholders intermediaries in design and implementation, and summarizes them in terms of their interests versus perceived policy impact.

Table A. 1: Description of stakeholders and their interests

STAKEHOLDERS	INTERESTS	POTENTIAL POLICY IMPACT (relationship between interest and policy)	RELATIVE PRIORITY OF INTERESTS
PRIMARY STAKEHOLDERS			
1. Vision 2030 Delivery Secretariat	Spearheading the implementation of Vision 2030. Mainstreaming of climate change in national planning by identifying actions to address climate change so as to abate Kenya's emissions by 30 percent by 2030 relative to the Business-As-Usual scenario.	Kenya Vision 2030 acknowledges the expected impacts that climate change will have on each sector and hence how climate change will affect the achievement of the vision. However, energy is identified as one of the infrastructure enablers of its social economic pillar but notably in contradiction with the fact that biomass still constitutes the dominant source of energy. An appropriate low carbon development policy would facilitate the achievement of the vision since there is more focus on 'green' environmental issues than 'brown' issues. Vision 2030 also acknowledges the	High

		institutional arrangements for addressing environmental issues presently as being robust.	
2. The Judiciary **Constitution of Kenya (2010)**	Assigns powers to impose taxes or raise revenue to both the national and county-level of government. Article 209(3) empowers county governments to impose property taxes, entertainment taxes, and any other tax as authorized by an Act of Parliament.	The basis for action on climate change by guaranteeing Kenyans a clean and healthy environment, a fundamental right under the Bill of Rights	High
3. Ministry of Energy (MOE)	Facilitating provision of clean, sustainable, affordable, reliable, and secure energy services for national development while protecting the environment.	Energy Policy/Feed-in-tariffs/Least cost power development plan/Energy Act 2006 Tax and other concessions are planned to encourage investment in fossil fuel exploration, geothermal energy, hydroelectric power and other forms of renewable energy such as wind, solar and biomass. Low carbon competitiveness	High

STAKEHOLDERS	INTERESTS	POTENTIAL POLICY IMPACT (relationship btw interest and policy)	RELATIVE PRIORITY OF INTERESTS
B. Energy Regulatory Commission (ERC)	Regulation of the energy sector agencies. Monitor, ensure implementation of, and the observance of the principles of fair competition in the energy sector, in coordination with other statutory authorities. Protecting the interest of consumers, investors and other stakeholders. Collect and maintain energy data.	Prepare indicative national energy plan that incorporates low carbon emissions in compliance to carbon tax policy.	High
C. Kenya Power and Lighting Company (KPLC)	Electricity generation and distribution.	Research required to analyze the impact of policy on electricity production.	High
D. Independent Power Producers (IPPs)	Electricity generation	Private sector development of renewable energy under the Feed-in–Tariff (FiT) Policy.	Medium
4. Ministry of Transport and Infrastructure,	Provides for transport solutions that have	Fuel, the industry's main carbon emission	High

Housing and Urban Development	relevance to climate change mitigation. Motor vehicle emissions control in Kenya	contributing factor, cannot be substituted or replaced. Transportation of goods inside Kenya-international trade. Research required on distributive impacts of carbon tax implementation on the transport sector.	
STAKEHOLDERS	**INTERESTS**	**POTENTIAL POLICY IMPACT (relationship btw interest and policy)**	**RELATIVE PRIORITY OF INTERESTS**
5. Ministry of Environment and Forestry-Climate Change Coordination Unit (CCCU)	The Ministry is in charge of climate change issues and is the country's focal point to the UNFCCC. To facilitate good governance in climate change mitigation and provide the much needed high level political support to climate change activities. Implementation of climate change action plan Reduction of carbon dioxide emissions in accordance to NAMAs	The CCCU is keen to upscale the broader green growth plan in Kenya through promotion of climate compatible development and green economy.	High

STAKEHOLDERS	INTERESTS	POTENTIAL POLICY IMPACT (relationship btw interest and policy)	RELATIVE PRIORITY OF INTERESTS
B. NEMA	The principal instrument for the implementation of government policies relating to the environment. NEMA is housed in MEMR, and hosts the Designated National Authority (DNA), which is responsible for CDM regulation and promotion in Kenya.	Ensuring environmental sustainability through supporting climate compatible development	Medium
C. KFS	To enhance development, conservation and management of Kenya's forest resources base in all public forests, and assist County	Designated as the government body responsible for REDD+ in the country.	Medium

	Governments to develop and manage forest resources on community and private lands for the equitable benefit of present and future generations.		
6. Ministry of Finance	Responsible for formulating economic and financial policies including environmental fiscal reforms.	Financing alternative energy projects Disburse revenue.	High
D. Kenya Revenue Authority (KRA)	Revenue collection. Tax implementation	Increase in revenue collection	High
E. National Treasury and Planning	Formulate, implement and monitor macroeconomic policies involving expenditure and revenue. Country custodian of Sustainable	Formulate, implement and monitor the carbon policy. Promote responsible consumption and production	High

	Development Goals (SDGs) Take urgent action to combat climate change and its' impact		
7. Ministry of Petroleum and Mining	Promote sustainable development of the extractive sector.	Impact of policy on coal exploration.	Low
8. Ministry of Industry, Trade and Cooperatives	To create employment and wealth in Vision 2030	Enhancing productivity and competitiveness. Fair trade practices	High
9. Producers/Manufacturers - **Cement Producers.** - **Lime Producers.**	Maximization of profits	Integrating carbon footprint costs into profit maximization	High
10. Ministry of Foreign Affairs	To project, promote and protect Kenya's interests and image globally through innovative diplomacy, and contribute towards a just and equitable world.	To foster partnerships with international organizations in the mitigation of climate change. To promote climate change diplomacy taking into account the current trends of international discussions.	Medium

SECONDARY STAKEHOLDERS			
STAKEHOLDERS	**INTERESTS**	**POTENTIAL POLICY IMPACT (relationship btw interest and policy)**	**RELATIVE PRIORITY OF INTERESTS**
11. Kenya Institute of Policy Planning Research and Analysis (KIPPRA)	Policy research and development	Conducting objective research and analysis on carbon tax policy impacts on the economy.	Medium
STAKEHOLDERS	**INTERESTS**	**POTENTIAL POLICY IMPACT (relationship btw interest and policy)**	**RELATIVE PRIORITY OF INTERESTS**
12. Kenya National Cleaner Production Centre (KNCPC)	Cleaner production research and solutions to industries.	The use of energy-efficient and promotion of low carbon emission methods and procedures in industrial production processes.	Medium
13. Ministry of Education; Universities	Research and development. Promoting innovations.	A carbon price provides a strong signal for innovations and research stimulation to improve energy efficiency and reduce the costs of zero- or low-carbon technologies.	Medium
14. Ministry of Information, Communication and Technology.	Public communication on climate change mitigation.	Public creation of awareness on policy impacts and benefits.	Low

15. Ministry of Interior and Coordination of National government.	National government coordination at counties.	Supporting and monitoring implementation of policy at the counties.	High
STAKEHOLDERS	**INTERESTS**	**POTENTIAL POLICY IMPACT (relationship btw interest and policy)**	**RELATIVE PRIORITY OF INTERESTS**
16. Kenya Investment Authority	Promoting investment in the underlying assets of CDM and REDD projects in Kenya.	Facilitating the implementation of low carbon investments in Kenya	Low
17. Ministry of East African Community and Regional Development grass root sensitization and promotion of alternative sources of energy	Fast tracking identified Northern Corridor Integration Projects Coordination of Regional Development Authorities	Promotion of low carbon development projects	Medium
18. Ministry of Devolution and ASALs	Through the implementation of the National Policy for the	Implements County Integrated Development plans in addressing climate change through County governments.	High

	Sustainable Development of Northern Kenya and other Arid Lands (2011) promotes climate resilience by requiring government to find solutions to address climate challenges such as drought and strengthen livelihoods.		
19. National Drought Management Authority (NDMA)	Drought risk management. Aims to increase and sustain resilience to vulnerable communities to hazards.	To provide leadership and coordination of Kenya's effort in the management of drought risks and enhancing adaptation to climate change.	Low
20. Kenya Climate Change Working Group (KCCWG)	Participation and leadership in the development and implementation of climate change sensitive policies, projects and activities to	Advocacy and campaigns for a positive policy and legislative framework that promotes human development.	High

	minimize the vulnerability of peoples due to climate change.		

APPENDIX A.3

POLITICAL ECONOMY ANALYSIS SUMMARY

1. What are Kenya's main characteristics?

i. Study Area

Kenya is located in the Greater Horn of Africa region at 0.0236_0 S, 37.9062_0 E, an area which is highly vulnerable to the impacts of climate change UN DESA, UNCSD and UNDP (2012).More than 80 percent of the country's landmass is Arid and Semi-Arid Land (ASAL) GOK (2015). The country's economy is heavily reliant on climate sensitive sectors such as rain-fed agriculture, energy, tourism, water and health. The annual rainfall in arid areas ranges between 150 mm and 550 mm and semi-arid areas between 550 mm and 850 mm per year and temperatures are high throughout the year, with high rates of evapo-transpiration (GOK, 2015).

Kenya National Bureau of Statistics (KNBS) (2012) states that Kenya's most valuable natural assets are rich agricultural land and a unique physiography and wildlife, the key attraction for the tourism sector. The agricultural sector employs nearly 75 percent of the country's 47 million people. Half of the sector's output remains subsistence production. Although the country is not well endowed with mineral resources those exploited are gold, limestone, soda ash, salt, rubies, fluorspar, and garnets (UNEP, 2014).

According to GOK (2015), Kenya faces serious interrelated environmental problems, including deforestation, soil erosion, desertification, water shortage and degraded water quality, poaching, and domestic and industrial pollution. Water resources are under pressure from agricultural chemicals, urban and industrial wastes, as well as from use for hydroelectric power. Water-quality problems in lakes include water hyacinth infestation in Lake Victoria. Extinction of selected fish species such as Nile Perch has contributed to a substantial decline in fishing output and endangered fish species. Output from forestry also has declined because of resource degradation. Over-exploitation over the past three decades has reduced the country's timber resources by half.

ii. International Agreements

Kenya is signatory to four Multilateral Environment Agreements (MEAs); United Nations Convention on Biological Diversity (UNCBD), United Nations Framework Convention on Climate Change (UNFCCC), United Nations Convention on Combating Desertification (UNCCD) and Stockholm Convention on Persistent Organic Pollutant (POPs); and has to meet its international obligations through the implementation of various policies, programmes, and strategies. Multilateral and bilateral development agencies are also involved in supporting numerous projects that address the challenge of climate change and support the green economy policy agenda, notably United Nations Environmental Programme (UNEP), United Nations Development Programe (UNDP), the Danish International Development Agency (DANIDA), the Canadian International Development Agency (CIDA), the UK Department for International Development (DfID), the Agence Française de Dévelopement (AFD), the US Agency for International Development (USAID) and the World Bank GOK (2012). In addition, Kenya has ratified several regional environmental agreements, including the Bamako Convention on Hazardous Wastes within Africa, African Convention on the Conservation of Nature and Natural Resources, Tripartite Environment Management Program for Lake Victoria, and the 1929 Nile Basin Treaty. She is a member of several regional cooperation institutions with specific protocols, such as the East African Community, the Inter-Governmental Authority for Development, and the New Partnership for Africa's Development.

iii. Macroeconomic Profile

Kenya's economy is the largest within the East African Community (EAC), which comprises Burundi, Kenya, Rwanda, Tanzania and Uganda. Nonetheless, Kenya is considered a middle-income country with an estimated Gross Domestic Product (GDP) per capita of US$70 billion 2015 estimate (Global Finance, 2017). KNBS (2015) reported that the GDP in Kenya grew by 5.6

percent in 2015, compared to a 5.3 percent growth in 2014. Agriculture was the major contributor to the expansion (grew 5.6 percent from 3.5 percent in 2014), followed by manufacturing (3.5 percent from 3.2 percent in 2014), transport and storage (7.1 percent from 4.6 percent), real state (6.2 percent from 5.6 percent), construction (13.6 percent from 13.1 percent) and financial and insurance activities (8.7 percent from 8.3 percent). In 2017, the economy has been expected to advance by 6.8 percent. GDP annual growth rate in Kenya averaged 5.41 percent from 2004 until 2015, reaching an all-time high of 12.40 percent in the fourth quarter of 2010 and a record low of 0.20 percent in the fourth quarter of 2008. Although the economy has over the last one year enjoyed lower production costs due to fall in global oil prices, uncertainties related to terrorism and insecurity, and adverse weather conditions have persisted. Kenya's long-term growth therefore remains vulnerable to external shocks.

iv. Social Profile

Alkire (2009) undertook a study on multi-dimensional poverty in Kenya and found that an estimated 27.4 per cent of the population is vulnerable to poverty, while 19.8 per cent lives in severe poverty. The country's population has been estimated at 53.02 million according to the just concluded census study (KNBS, 2019). The country is still in the early stages of demographic transition, characterized by a large proportion of youth. About 53 per cent of the population falls within the 0-19 year age bracket. Kenya faces various employment challenges. Overall unemployment is estimated at 8.6 per cent, with the unemployment rate for youth (15-35 years) being higher, at 10.4 per cent. The level of under-employment (for example . the proportion of employed people involuntarily working less than the normal hours of work) is also relatively high. The KNBS (2013) expressed that the rate of under-employment of the labor force was 18 per cent in 2009. This rate was higher in rural areas than in urban areas. The informal sector remains the major employer, accounting for about 80 per cent of total recorded employment (KNBS, 2013).

2. What rules govern peoples' behaviour?

Formal rules that govern stakeholder behavior varied depending on the core values upheld by different institutions. Core values necessary in the development and adoption of carbon tax policy were outlined as follows:-

Table A. 2: Core values of Centres of Power in Carbon Tax Implementation

Ministry of Environment and Natural Resources	**Supreme Court**	**Ministry of Devolution and Planning**
1. Sustainable Development	1. Justice	1. Equity
2. Innovativeness	2. Protection of rights and liberties.	2. Accountability and Transparency
3. Equity	3. Equity	3. Participatory Approach and inclusiveness
4. Participatory Approach	4. Fairness and inclusion	

3. **Which incentives, ideas and beliefs shape the political economy of climate governance?**

The respondents enumerated the following:-

1. Trust.
2. Competence.
3. Helpfulness.
4. Usefulness.
5. Profit.
6. Competition.
7. Social justice.
8. Good morals.
9. Accountability.
10. Accuracy
11. Ethics
12. Sustainability.
13. Credibility
14. Unity
15. Integrity

4. **Where can we go now?**

Kenya displays both a politically and economically stable climate policy structure, with a governance based on both formal institutionalized procedures and informal relationships. Powerful groups are said to be united by informal or personal interests. It would therefore be acceptable and beneficial to policy makers to develop a 'mixed approach' to climate pricing by incorporating a

mixed-policy that is, a balance of carbon trade and taxes, tailored specifically to the existing national circumstances. By providing sufficient technical support and transparency in related policy areas where governance is strong, and supporting citizen empowerment and accountability in areas that have weak governance or short-term incentives, the long-term sustainable development goals of the country can be met.

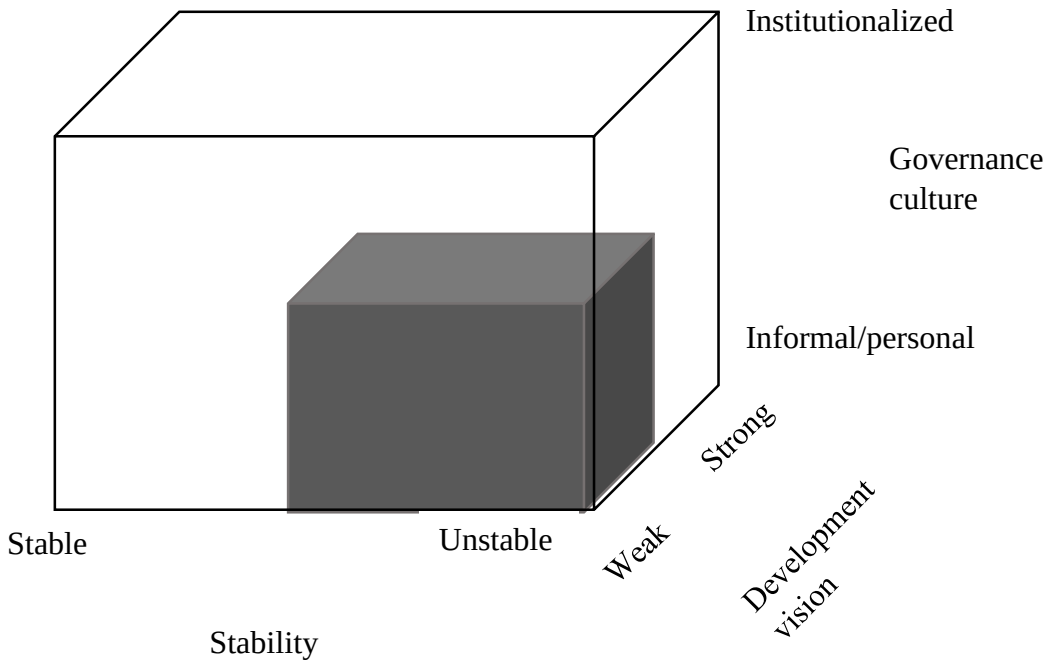

Figure A. 1: Kenya's PEA cube on climate policy.

APPENDIX A. 4

Table A. 3: PESTELI Analysis Report

POLITICAL	ECONOMIC
1. Distrust in the government/ corruption/ misappropriation of revenues. (High - (-ve) - Critical) 2. Poor governance at the institution level. (Medium-(-ve)-Unimportant) 3. Underperformance by institution to which responsibility is assigned. (Low-(-ve)-Unimportant) 4. Level of commitment to global and regional agreements. (High – (+ve) – Critical) 5. Approval by environmental and climate governance bodies (High – (+ve) – Critical)	1. Impact on fossil energy usage. (High – (+ve) – Important) 2. Effects on industries and businesses. (High – Uk – Critical) 3. Increase in tax burden. (Un – Un –Important) 4. Revenue recycling feature. (High – (+ve) – Important) 5. Existing budget to implement activities in the current climate policy is unambitious. (Low – Un – Uni) 6. Potential inequality on household income distribution would be offset. (Medium – (+ve) – Uk) 7. Lack of sufficient finance. (Low – Un – Uni)
SOCIO-CULTURAL	**TECHNOLOGICAL**
1. Behavioural change in household and industry (Medium – Un – Important) 2. Favouritism-private verses social interests. (High – (-ve) – Critical) 3. Level of awareness and understanding on carbon tax operation. (High- Un – Important) 4. Lack of transparency in decision making. (Low – (-ve) – Uni) 5. Lack of adequate information to make informed decisions. (High-(-ve) – Important)	1. Development of clean energy technologies. (High - (+ve) – Important) 2. Lack of research institutes. (High – (-ve) – Critical) 3. Extensive research needed. (High – (-ve) – Critical) 4. Ease in implementation. (High-(+ve) – Important)

ENVIRONMENTAL	LEGISLATIVE
1. A deterrent to carbon emission. (High – (+ve) – Critical) 2. Kenya will meet national emission targets. (High – (+ve) – Critical) 3. Improvement of the existing taxation system in environmental sensitivity (Medium – (+ve) – Important)	1. Uncertainty of regulatory processes in some sectors and the likelihood to affect political regime changes. (Medium – Un – Uk) 2. Possibility of having business operating licenses revoked. (Low – Un – Important) 3. Counter-productivity with existing policy goals. (Low – Un – Uni) 4. Likelihood of court injunctions. (Low – Un – Uk) 5. Good existing climate policy framework to enhance implementation. (High – (+ve) – Important) 6. Low enforcement of government policies. (Medium – Un – Important)

INDUSTRY

1. Good and effective partnerships between public, private and research institutes. (High – (+ve) – Important)
2. Overlapping mandates. (Medium – Un – Uni)
3. Lack of transparency and accountability in processes and distribution of funds. (High – (-ve) – Important)
4. Lack of implementation capacity. (Low – Un – Uni)

Analysis Factors	Potential Impact	Type	Importance
PESTELI	High – H	Positive - +ve	Critical – C
	Medium – M	Negative - –ve	Important – I
	Low – L	Unknown - Un	Unimportant – Uni
	Undetermined - U		Unknown - Uk

APPENDIX A.5

IMPLICIT TAXES IN KENYA

Table A. 4: Environment and Natural Resource Taxes and Tariffs in Kenya (Implicit taxes)

TAX BASE	INSTRUMENT
Transport fuels	□ Levy to finance road maintenance-KES 24.4 billion (USD 237 million) raised through Road Maintenance Levy Fund in 2012/13 □ Excise tax (on gasoline, jet fuel, diesel) about KES 34.932 billion (USD 340 million) in 2012/13 □ VAT on lubricating gases about KES 2.3 billion (USD 22.3 million) in 2012/13
Motor Vehicles	□ Import duty at 25 percent excise duty at 20 percent and VAT at 16 percent □ The age limit is 8 years from the year of manufacture.
Solid Waste Collection and Management	□ User charges □ Licensing fees There is scarce information on the application of these instruments. A large share of waste collection in cities is undertaken by private companies.
Electricity	Tariffs based on consumption, also includes other charges (water levy, fuel cost, electricity regulatory and rural electrification program). Feed-In-Tariff (KES 1,282 million (USD 12.5 million) raised through Rural Electrification Levy in 2012/13

Water Provision	□ User charges/tariff
	□ Water regulatory levy
	□ KES 15.3 billion in 2012/13-NRW losses estimated at KES 11.4 billion
TAX BASE	**INSTRUMENT**
Fisheries	□ Export fee (royalty)
	□ Licenses
	□ County levies
Forestry	□ Royalties
	□ Licenses
Wildlife	□ Park entry fees
	□ Permits (sport hunting, filming, trade in species)
	□ KES 3.95 billion raised through park entry fees in 2012/.13
Mining and Oil	□ Royalties
	□ Production sharing contract

APPENDIX A.6

REPRESENTATION OF RESPONDENTS BY INDUSTRY

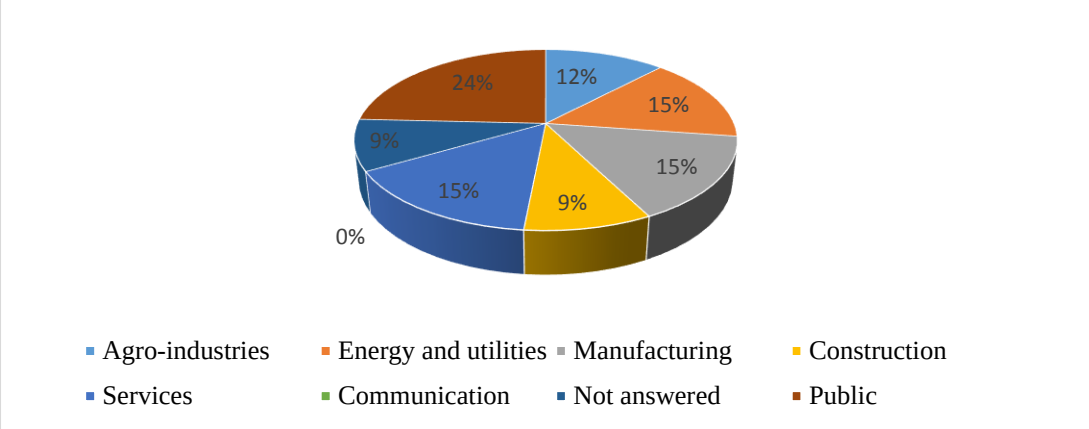

Figure A. 2: Respondents by industry, NRM, climate experts and related fields

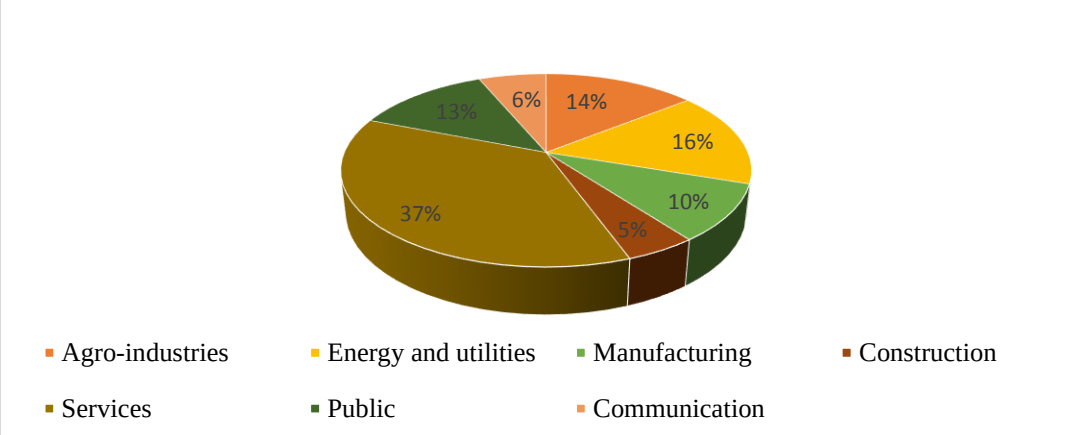

Figure A. 3: Respondents by industry, other experts.

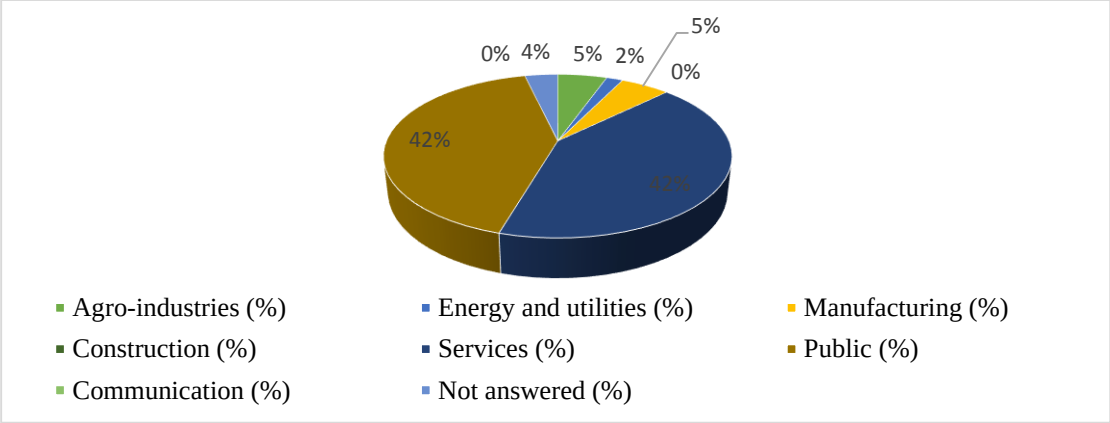

Figure A. 4: Respondents by industry, economists, tax experts, financial experts and related fields