



UNIVERSITY OF NAIROBI

**ASSESSING THE EFFICACY OF PUBLIC PARTICIPATION IN
CLIMATE CHANGE ADAPTATION PROJECTS: THE CASE OF
LAKE TURKANA FISH INDUSTRY**

BY

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DECLARATION

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

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ABSTRACT

Public participation is a core value of democracy and a principle of national governance in Kenya. Raising and maintaining the awareness of the public on matters of climate change is also a tool that can be deployed efficiently (GoK, 2014). In responding to the challenges posed by climate change, several measures have been put in place including funding of adaptation projects, enactment of various policies, legislations and strategies. However, despite these efforts, some of the adaptation-funded projects have failed to meet their intended objectives even with the involvement of the public. This study therefore sought to assess the efficacy of public participation in climate change adaptation projects in the case of the Lake Turkana Fish Processing industry. Both primary and secondary data were collected and analyzed for this study. Purposive sampling design was used to select the key informants while local respondents were picked through simple random selection. In total, 120 respondents were reached directly through researcher-administered questionnaires. The target population for the study was the Lake Turkana Fishermen Cooperative Society, government institutions, and aid organizations working in the climate change sector. The study found that there were low and poor levels of public participation and consultation processes, which characterized the project under study during the project formulation phase and its implementation. Public opinion and ideas did not also play a role in shaping the design and implementation of the project and hence the project lacked local ownership and influence therefore its failure to meet its intended objectives. Lack of effective public participation is considered to have been contributed among other issues by the absence of an effective legal framework for engaging the public, lack of strong public awareness strategies on their role in designing, implementing and governance of climate change adaptation projects, the absence of accountability to measure the levels of public participation and to what extents their opinions could shape the designing, implementing and governance of climate change adaptation projects and lack of strong coordination among the different ministries, departments and organizations working on issues of climate change among others. The study recommends the creation of strategies for strong public awareness on issues of climate change adaptation and specifically the role of the public in the design, implementation and governance of projects that are meant to address these issues.

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CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Climate change refers to “change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods” (IPCC, 2007). In Kenya, since the early 1960s; both minimum (night time) and maximum (day time) temperatures have been on an increasing (warming) trend (GOK, 2010b). The minimum temperature has risen generally by $0.7^{\circ}\text{C} - 2.0^{\circ}\text{C}$ and the maximum by $0.2 - 1.3^{\circ}\text{C}$ (GOK, 2010b). Further analysis of the trends in rainfall, sea levels and extreme events points to clear evidence of climate change in Kenya. The temperatures have generally risen throughout the country, primarily near the large water bodies (King’uyu M. *et al* 2008). Other projections also indicate increases in mean annual temperature of 1 to 3.5°C by the 2050s. The country’s arid and semi-arid lands (ASALs) have also witnessed a reduction in extreme cold temperature occurrences (GOK, 2010b).

Climate change impacts have presented a number of ‘social-economic’ and environmental challenges in the country that could hinder the progress in achieving Vision 2030. For instance, a recent study on the economics of climate change in the country ‘revealed’ that the future economic costs of the impacts of climate change on market and non-market sectors might be close to 3% of GDP per year by 2030 and potentially much higher than this (more than 5% of GDP per year) by 2050 (Stockholm Environment Institute, 2009).

The associated spillover of the impacts of climate change to the macro-economy has been considered to be significant. For instance, the overall impact of the 2008-2011 drought in Kenya is estimated at Ksh. 968.6 billion (USD 12.1 billion) and was predicted to have caused a slowing down in the growth of the country’s economy by an average of 2.8 per cent per year during that period (World Bank, 2014). Similarly, according to the World Bank, 2014, the 1998-2000 drought is estimated to have resulted in a 16 per cent reduction in the GDP in each of the 1998-99 and 1999-2000 financial years, while industrial production loss due to inadequate power ‘supply’ during this period amounted to a loss of approximately Ksh. 110 billion (USD 1.4 billion).

Floods have also caused equally devastating consequences in recent years, including loss of lives and livelihoods, personal property damage and damage to infrastructure, with ramifications for the economy. For example, the 1997-98 El Niño floods are estimated to have caused damage at least equivalent to 11 per cent of GDP, including Ksh. 62 billion (USD 777 million) in damage to transport infrastructure and Ksh. 3.6 billion (USD 45 million) to water supply infrastructure (Stockholm Environment Institute, 2009).

According to the National Climate Change Action Plan (2013), climate change adaptation is referred to as “reducing vulnerability to the impacts of climate change or cushion the impacts of climate change, and enabling people to respond to climate risks by moving toward a climate-resilient society”. Therefore in an effort to enhance climate change adaptation, the government has initiated several measures including the enactment of policies meant to address issues of climate change, introduction of legislations and strategies to address and mitigate the impacts of climate change and also develop measures to meet the international standards. With support from the development partners, financial resources have also been allocated to build the capacities and improve resilience against climate change. The National Climate Change Action Plan estimates that the country’s cumulative spending and commitments between 2005-2015 as being Ksh 232 billion (US\$2.728 billion equivalent) for projects classified as having a significant climate change component (GoK, 2013).

This has created a scenario whereby many actors are implementing different and uncoordinated capacity building activities with the aim of reducing the impact of climate change of the affected population through technologies and improved infrastructural changes (Pandey, 2012). However the proponents of such projects have been criticized for neglecting or lowly engaging the public in designing, decision making and managing such projects. The lack of public participation and accountability has been associated with lack of projects accountability, wastage of resources and failure of some climate change adaptation projects to meet their intended objectives (Perret, 2006). In deed, in some cases, what may seems to be a successful adaptation strategy to climate change may in fact undermine the social, economic and environmental objectives associated with sustainable development (O’Brien, *et al.* 2009).

International and regional agreements, as well as popular pressure to open up governmental decision-making processes are spurring the national governments to take steps to improve public participation and accountability. Environmental and other activists must take a large part of the credit for their role in creating awareness for and popularizing the notion that people must have a say in ‘decisions’ that affect their lives and well-being (Philips, 2007). From the 1960s and 1970s, organizations like Green Peace and others have brought issues into the public domain, challenging the right of governments and corporations to pursue interests that impoverish, degrade or damage the environment (Arwin van Buuren *et.al.*, 2015).

Over the last decade, there have been a number of key regional and international agreements on sustainable environmental protection and the role of the public participation. At the 1992 Earth Summit in Rio, for instance, nations from around the world adopted Principle 10 of the Rio Declaration, which recognized the critical role that the public and civil society play in protecting and managing the environment (Smit, B., *et al.*, 2000). Principle 10 emphasizes the ‘importance’ of public access to information, participation in decision- making processes and access to judicial procedures and remedies, affirming that: "environmental issues are best handled with the participation of all concerned citizens at the relevant level. In Agenda 21, the plan of action that accompanied the Rio Declaration, governments pledged themselves to the pursuit of broader public participation in decision- making processes and policy formulation for sustainable development – understood as development that meets present needs without compromising the ability of future generations to meet theirs (Webler, 2001).

In 1998, the United Nations Economic Commission for Europe adopted the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (known as the Aarhus Convention). This binding convention establishes minimum legal and institutional requirements to ensure that citizens have the opportunity to obtain environmental information, participate in decision-making processes, and have access to judicial and administrative redress to protect the environment. The Aarhus Convention has energized countries and organizations around the world seeking to promote environmental governance (World Bank, 2004).

Over the years, Kenya has progressively shifted from a centralized to a devolved form of governance. This paradigm shift was precipitated by the shortfalls that are often characteristic of highly centralized systems. The shortfalls include administrative bureaucracies and inefficiencies, misappropriation of public resources and the marginalization of local communities in development processes. Consequently in the late 1990s, the government began the devolvement of specific funds and decision-making authority to the districts, local authority and constituency levels (Legal Resources Foundation Trust, 2009). The promulgation of the New Constitution in August 2010 provides a strong legal foundation for the ‘enhancement of participatory governance’ through devolved structures at county level. This is an important milestone, but it is critical at this stage of the design process to take stock of the empirical findings of research and counsel of practitioners

Despite the efforts to improve climate change adaption in the country, there are concerns that mitigation and adaptation progress still remains inadequate and ineffective even though the National Adaptation Programs of Action (NAPAs) and National Communication (NC) have been prepared (Pandey, 2012). There is still evidence of poor coordination of the necessary multi-actor, multi-sector and multi level approach and governance in climate change resilience not only within the governmental actors, but also private, public and other civil society actors (Arwin van Buuren *et.al.*, 2015). This has led to many uncoordinated activities being implemented without the proper channels checks and balancing particularly for their effectiveness and efficiency in improving the capacities to adapt to climate change.

1.2 Statement of the Problem

Climate Change impacts have presented a number of social-economic and environmental challenges in the country that could hinder the progress in achieving Vision 2030 (Agrawal, 2010). Severe weather and extreme climate events and other climatic fluctuations have been shown to have a high influence on the social and economic activities of the country (KMD, 2015). The ‘associated’ spillover to the macro-economy has been considered to be significant (World Bank, 2012).

Among the several mechanisms and intervention measures meant to reduce the impact of the changing climate is the development and funding of climate change adaptation activities. However, despite the efforts to improve climate change adaptation in the country, there are concerns that adaptation progress still remains inadequate (Pandey, 2012) with some of the adaptation-funded projects in the country failing to meet their intended objectives (Stockholm Environment Institute, 2009). For instance, the Lake Turkana Fish Processing Industry was one of the projects that were aimed at improving adaptation to climate change in Turkana County. The project was funded by the Norwegian Government and included construction of fish processing plant, deep freezers and teaching the local people, largely pastoral communities how to exploit the lakes’ fish stock (Norad, 2008).

Despite the good intention and the design and implementation strategy that ignored the fact that Turkana are nomads with no good history of fishing, the factory worked for few days, but quickly shutdown. While there were some levels of public participation in the project, this study seeks to assess the efficacy of public participation in designing, managing and governing of this climate change adaptation project. Effective public participation in public decision-making is enshrined in the Kenyan Constitution and underpins a democratic and inclusive society (GoK, 2010c). Worthwhile project idea development and implementation also depends primarily on proper project selection, project design, monitoring and evaluation, moreover, the inclusion of the values, norms, social belief, ideas and opinions of the local people, who are affected directly or indirectly by development interventions play a critical role in its success (Johnson, *et.al.*, 2004).

1.3 Research Questions

The study was guided by the following questions

- I. How did the public participate in the designing and managing of the Lake Turkana Fish Processing Industry?
- II. How does public participation influence the design, implementation and governance of climate change adaptation projects?
- III. What are the legal strategies for effective public participation in the design and implementation of climate change adaptation projects?

1.4 Objectives of the Study

The main aim of this study is to assess the efficacy of public participation in the designing and managing of climate change adaptation projects. The specific objectives of the study were to:

- I. Assess the efficacy of public participation in the designing and managing of the Lake Turkana Fish Processing Industry.
- II. Establish the extent to which public participation influenced the design, implementation and governance of climate change adaptation projects.
- III. To examine the available legal strategies for effective public participation in the design and implementation of climate change adaptation projects

1.5 Significance of the Study

Results from this study will be important in enriching the wealth of knowledge already available on climate change adaptation in the country. In this case, the study will provide information on how public participation can influence the implementation of climate change adaptation projects. It is envisaged that the results of the study will be useful in informing key policy makers and climate change actors on the appropriate steps for effective climate change adaptation programming. The ‘findings’ may also help climate change policy makers identify the loopholes in the present system of climate change projects designing and assist them to formulate proper policies and approaches.

1.6 Assumptions

The study focused on Turkana Central Sub-County, which is one of the seven administrative sub counties in the larger County of Turkana, due to the expansive geographic nature of the County and the limited time and financial resources only allowed for one Sub County to be sampled and therefore assumed that the findings would be a true representative of the entire county. It is also assumed that some respondents may not cooperate well, since there were no payments that were made after the interviews.

1.7 Limitations of the Study

Due to the high level of illiteracy rate in the study area; the researcher results lies on the on the accuracy of the translator who will ‘accompanied’ the researcher during the collection of data for some of the respondents who could not speak fluently in either Kiswahili or English.

1.8 Theoretical Framework: The Participation Theory

The participation theory represents a move from the top-down strategies that dominated early development initiatives to more locally sensitive methodologies (Storey 1999). The theory was originally proposed by Johan Wolfgang von Goethe and has been discussed extensively since then. Midgley et al (1986) suggested that the historical antecedents of community participation include: the legacy of western ideology, the influence of community development and the contribution of social work and community radicalism. Buchy, Ross et al (2000) suggested that literature on participation and participatory processes stems broadly from two major areas: political sciences and development theory. Lane (1995) added to this view, suggesting that participation is heavily influenced by theories of development and is therefore highly varied and complex due to different theoretical positions. The dominance of the top-down approaches to development was largely a result of the participation theory (Lane 1995).

According to Holcombe (1995), acknowledgement of the importance of participation grew out of the recognition that the worlds’ poor have actually suffered as a result of development, and that everyone needs to be involved in development decisions, implementation and benefits. As participatory approaches advanced, they highlighted the weaknesses inherent traditional, top-down approaches that focused on single disciplines and reductionist paradigms (Johnson and Walker 2000).

Midgley et al (1986) posited that the community development movement of the 1950s and 1960s was another source of inspiration for contemporary community participation theory and that community development and participation theory are very similar. Kelly (2001), provided an account of the evolutionary trends in ‘participation theory’ from the 1960s as summarized below:

Era	Trend in Participatory Process
1950s-1960s	Rapid industrialization and growing influence of technological expertise; supremacy of scientific knowledge. Chambers (1992) said that the diffusion model of adoption in agriculture characterized this era. Extension agents were involved primarily in teaching farmers, and in the transfer of technology.
1970s Need for alternatives	Concern expressed about ‘giving a voice to the voiceless’ specifically the poor in developing countries (Friere 1972). Increasing focus on learning, adult learning principles and group extension. Early experimentation of participatory approaches in development. Frustration over the ineffectiveness of externally imposed & ‘expert’ orientated forms (Chambers 1992). Participatory Rural Appraisal (PRA) grew out of Rapid Rural Appraisal (RRA).
1980s The participation boom	Change from top-down to bottom-up; acknowledgement of the value of local indigenous knowledge. The 1980s witnessed flourishing of activity, particularly amongst non- government organizations (NGOs) in seeking alternatives to top-down outsider driven development. The emphasis was on participatory appraisal and analysis in rural communities. Proliferation of participatory methodologies, including PAR (Participatory Action Research).
1990s The participation imperative	The zeal about participation continued in the early 1990s. Participation became synonymous with ‘good’ or ‘sustainable’ in the development field (Guijt and Shah 1998:4). The push for participation stimulated a proliferation of guidebooks and courses on ‘how to’.

Despite some authors contesting that participation theory makes no difference, the importance of community participation is well established in the literature. Chamala (1995) identified efficiency benefits from participation, stating that ‘involving stakeholders and empowering community participants in programs at all levels, from local to national, provide a more effective path for solving sustainable resource management issues’. Participation enhances project effectiveness through community ownership of development efforts and aids decision-making (Kelly and Van Vlaenderen 1995; Kolavalli and Kerr 2002).

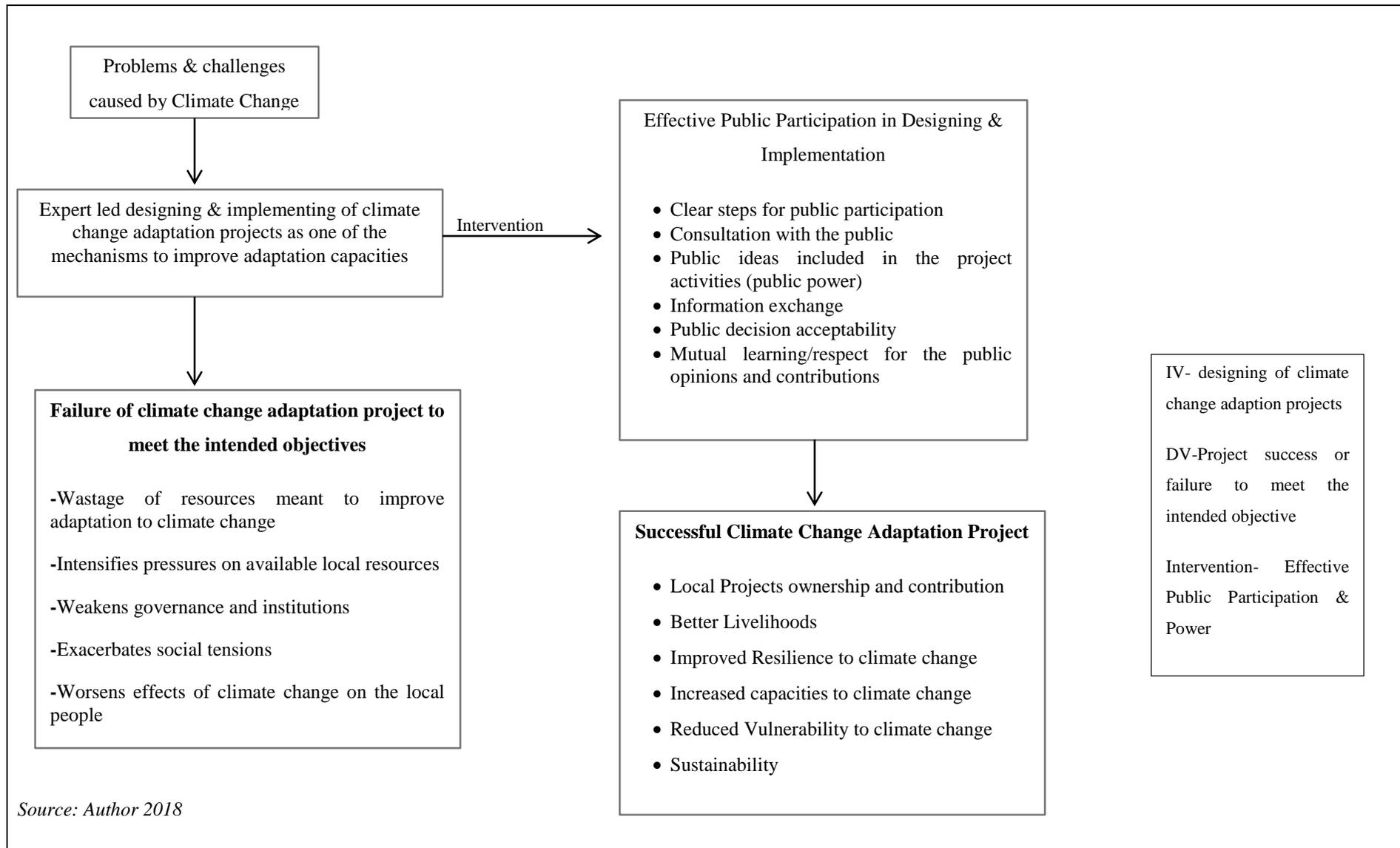
Price and Mylius (1991) also identified local ownership of a project or program as a key to generating motivation for ecologically sustainable activities. The authors also identify the role of community participation in disseminating information amongst a community, particularly local knowledge, that leads to better facilitation of action (Price and Mylius 1991; Stiglitz 2002). Kelly (2001), identified that participation results in learning, and learning is often a prerequisite for changing behavior and practices.

Gow and Vansant (1983) identified four affirmations that summarize the importance of participation in development:

- People organize best around problems they consider most important
- Local people tend to make better economic decisions and judgments in the context of their own environment and circumstances
- Voluntary provision of labor, time, money and materials to a project is a necessary condition for breaking patterns of dependency and passivity
- The local control over the amount, quality and benefits of development activities helps make the process self-sustaining

White (1981), identified a number of beneficial reasons for community participation: with participation, more will be accomplished, and services can be provided more cheaply. Participation: has an intrinsic value for participants; is a catalyst for further development; encourages a sense of responsibility; guarantees that a felt need is involved; ensures things are done the right way; uses valuable indigenous knowledge; frees people from dependence on others’ skills; and makes people more conscious of the causes of their poverty and what they can do about it.

1.9 Conceptual Framework



CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter begins with an overview introduction of climate change at a global perspective and definition of important terms related to the study. This is followed by establishing evidence of climate change in the country, a review of the impacts of climate change and analysis of the climate change governance and policy initiatives that have been undertaken to build the capacity to cope with the changing climate. The chapter also presents a review of studies related to the relevance of public participation in designing and managing climate development projects. The chapter concludes with a summary of the knowledge gaps that are to be filled through this study.

2.2 General Overview of Climate Change Adaptation

Houghton (2002), defines Climate as, “the average state of the atmosphere for a given time scale (hour, day, month, season, year, decades and so forth) and generally for a specified geographical region”. While, climate change on the other hand is defined as “any change in climate over time caused by natural variability or human activities” (IPCC, 2007). The change in the climate system may already be affecting human health, including temperature related mortality and morbidity, with some of the health issues being due to the change in the ecology of infectious diseases (WHO, 2003; IPCC; 2007; 2014).

Scientific evidence point to the fact that indeed the climate is changing and that the change is largely as a result of anthropogenic activities. The changes have been exemplified by the changes in the patterns of weather such as rainfall, temperatures and increasing sea levels with global consequences of diseases, hunger, death, violence and loss of properties among others (Slater *et al.*,2007). In fact, the United Nations Framework Convention on Climate Change (UNFCCC, 2007) has ‘argued’ that climate change may have a permanent negative impact on countries whose economy is dependent on the natural resource base upon which agriculture thrives especially considering that it is happening at a time of growing demand for basic human ‘requirements’ such as food, fiber and fuel.

Changes in the patterns of rainfall and temperatures are likely to have severe consequences that may affect the livelihood of human activities such as crop production, livestock production, water shortage, livestock and 'human diseases' destruction of properties, floods, droughts, increasing sea level, desertification and land degradation. The major social spheres that mostly get affected in this scenario would be the economies, ecosystems, water, food security, coastal zones, health, and the distribution of the population and settlement (Tadesse, 2010).

The African continent is highly vulnerable to the 'changing climate' due to low adaptive capacity, and the recurrences of the climate related hazards (IPCC, 2014). The impacts of climate change globally are unevenly distributed with developing countries projected to face the greatest challenges (IPCC, 2007; 2014). Climate change impacts are projected to slow down economic growth, making poverty reduction more difficult, prolonging existing and creating new poverty traps in developing countries (IPCC 2014). The link between climate change and poverty poses a further threat to sustaining the gains made thus far.

All over the world, governments are considering how to deal with the issue of climate change and its possible consequences and as a strategy, improving resilience and the local capacities of the affected population is seen as an important intervention to address the impacts of climate change. However, although improving the capacities and the resilience to climate change may potentially reduce the negative impacts climate change, little attention has been paid to the consequences of adaptation policies and practices for sustainability (Füssel, 2007).

According to Naese *et al.*, (2005), in some cases, what seems to be a successful adaptation strategy to climate change may in fact undermine the social, economic and environmental objectives associated with sustainable development. On the other hand, as noted by Füssel, (2007), in an effort to reduce the impact of climate change by building the capacities of the affected population through 'technologies' and infrastructural changes, the proponents of such projects may sometimes neglect key components of project planning, public participation, and 'environmental concerns' such as biodiversity. Hence resulting to wastage of resource and failure of some of the projects to meet their intended objectives.

Several challenges characterize climate change adaptation ‘strategies’ and efforts to improve the capacities of the affected communities. Among them is the fact that climate change adaptation requires a multi-actor, multi-sector and multi-level approach and appropriate governance structures (Eriksen, *et al.*, 2005). Within each field, there are also increasingly complex governance systems that involve not only governmental actors, but also the private sector and other civil society actors, at local, regional and global levels (Omolo, 2010). Successful adaptation strategy is therefore ‘highly dependent’ upon the ability to ‘mainstream adaptation’ with other existing policy domains and also upon the involvement and collaboration of many actors, with their own ambitions and preferences, responsibilities, problem definitions and resources (Uittenbroek, *et al.*, 2013).

2.3 Evidence of Climate Change in Kenya

Studies have indicated general warming over land stations with some cooling over coastal locations and near large water bodies (King’uyu, 1994; King’uyu *et al.*, 2000; NCCRS, 2009). A reduction in cold extremes has also been observed over the ASAL, according to Kilavi (2008). There are, however, indications that some of the ‘observed trends’ may be related to urbanization (King’uyu, 2002). Rainfall patterns, however, show mixed signals with some locations indicating increasing trends in recent years, while the majority does not show any significant trends.

Analysis of temperature suggests that since the early 1960s; both minimum (night time) and maximum (day time) temperatures have been on an increasing (warming) trend. The minimum temperature has risen generally by 0.7⁰C – 2.0⁰C and the maximum by 0.2 – 1.3⁰c, depending on the season and the region (GoK, 2010b). In areas near large water bodies, maximum temperatures have risen like in other areas but the minimum temperatures have either not changed or become slightly lower (GoK, 2010b). The country’s temperatures have increased nationally, particularly near the lakes, seas and other water bodies with an estimated mean annual temperature increase of 1⁰C to 3.5⁰C by the year 2050s (King’uyu, 2008) in the country.

The UNDP's climate change country profile shows that Kenya's mean annual temperature has increased by 1⁰C since 1960. This increase has been higher from March to May, and has meant an increase in the number of hot days and hot nights. There has been no statistically significant trend that can be established for the 'annual precipitation' in the country, but an increase in the proportion of rainfall amounts, which fall during heavy rainfall events, has been noted.

With the increasing temperatures that have been witnessed, changes in the 'patterns' and unpredictability of rainfall, severe floods and droughts and increasing livestock and human diseases associated with the weather all point to the fact that the country has witnessed the changing climate. Indeed droughts have been a regular occurrence in the past in many parts of the world with grave 'consequences' on food security and malnutrition (FAO, 2011). With climate change, severe droughts are likely to occur more often and to affect larger areas (FAO, 2011).

2.4 The Impacts of Climate Change in Kenya

The Kenya Government acknowledges that climate influences all socio-economic sectors, and further appreciates that different sectors have been impacted by climate change. These impacts are already being experienced in some sectors, and could hinder the progress in achieving Vision 2030 (NCCRS, 2009). Severe weather and extreme climate events and other climatic fluctuations have been shown to have a 'high influence' on the social and economic activities of the country and the performance of the country's economy (KMD, 2015). Extreme impacts include the increasing cost of living, water scarcity, food insecurity and malnutrition; unpredicted rainfalls and floods associated with the destruction of properties and livestock deaths, crop destruction and severe droughts among others (NEMA, 2011).

Climate change has also had far 'reaching' effects agricultural production since majority of the country's population depend on rain-fed agriculture. Seventy five per cent of Kenya's population depends on agriculture for food and income and the sector contributes 26% to the Gross Domestic Product and 60% to foreign exchange earnings (Perret, 2006). In addition, over the past decade, the incidence and intensity of hunger and malnutrition has increased significantly and food availability has not kept pace with the rapidly growing population in Kenya (Shori, 2000).

A recent study on the costs of climate change in the country estimated that the social economic cost of coping with climate change has been estimated to be 3% of the GDP per year by 2030 and 5% of the GDP per year by the year 2050 (World Bank, 2010). In another study, the associated spillover of the impacts of climate change to the macro-economy has been considered to be significant. For instance, the overall impact of the 2008-2011 drought in Kenya was estimated at Ksh 968.6 billion (USD 12.1 billion), and was predicted to have caused a slowing down in the growth of the country's economy by an average of 2.8 per cent per year during that period (Stockholm Environment Institute, 2009). Similarly, the 1998-2000 drought is estimated to have resulted in a 16 per cent reduction in the GDP in each of the 1998-99 and 1999-2000 financial years (Stockholm Environment Institute, 2009). Industrial loss of production due to the period of drought was also estimated to be of high levels with an approximation of Ksh 110 billion (USD 1.4 billion) by the same study.

Cumulative effects of successive years of drought in Kenya have affected large population of pastoralists in Arid and Semi Arid Lands (GoK, 2008). The Kenya Food Security Steering Group for instance estimated that 3.75 million people including 1.4 million pastoralists were adversely affected by the 2010/2011-drought episode. This has adversely affected pastoral communities in Kenya through depletion of water and pasture resources, decline in livestock productivity, increase in livestock mortality and morbidity, and severe food insecurity.

Other impacts of climate change in the country include; widespread poverty, recurrent droughts and floods, inequitable land distribution, overdependence on rain-fed agriculture and few coping mechanisms all of which combine to increasing people's vulnerability to climate change (UNEP, 2009). Meanwhile, the depletion of glaciers on Mt. Kenya and Mt. Kilimanjaro has also had a devastating effect on the 'ecological role' of the mountains and the country's tourism, where there have been a reduction in the number of tourism destinations to both mountains (IPCC, 2007; UNEP, 2009). The mountains also play an important role as water catchment zones, but due to the changing climates and increasing depletion of glacier, it has had an impact on water across its supplying distributaries (NEMA, 2011).

2.5 Mitigation and Adaptation Measures to Combat Climate Change

The government of Kenya has responded to the challenges posed by climate change in various ways: Some of the measures undertaken include the development and enactment of legislations, policies and strategies to address the impacts of climate change and to also meet the international standards set (Ongugo, 2014). The United Nations Framework Convention on Climate Change (UNFCCC) requires, that countries report to their National Communication (NC) their progress in reducing vulnerability to the impacts of climate change, and many of them have made creditable progress in preparing this section of their NC. Kenya submitted its first NC in 2002 (Agrawal, 2010).

Agrawal (2010), further notes that the less developed countries are required to prepare National Adaptation Programs of Action (NAPAs) detailing their vulnerability to the impacts of climate change and the actions they plan to take to ameliorate these impacts. Therefore, in regards to these requirements, Kenya has ‘completed’ the development of the strategy and is now implementing the National Climate Change Response Strategy (NCCRS) and the National Climate Change Action Plan (NCCAP), (Ongugo, 2014). The National Climate Change Action Plan (NCCAP) has been designed to take climate change action to the next stage of implementation. It also provides the strategy and an enabling environment for the implementation of the progress towards addressing issues of climate change in the country. The action plan has also been designed to compliment the implementation of the national constitution and the attainment of the Vision 2030 and other long-term development goals GoK (2013).

In terms of financial and resource allocation in addressing issues of climate change, the National Climate Change Action Plan (2013) estimates that the country’s cumulative spending and commitments between 2005-2015 as being Ksh 232 billion (US\$2.728 billion equivalent) for projects that have been classified as having a ‘significant’ climate change component. However still despite these efforts, there are concerns that mitigation and adaptation preparedness in the country still remains inadequate even though NAPA and NC have been prepared (Pandey, 2012).

2.5.1 Legal Framework for Addressing Climate Change

The government of Kenya has responded to the challenges posed by climate change through the enactment of legislations, policies and strategies to address the impacts and to also meet the international standards set. For instance, the country has signed and ratified several regional and international multilateral agreements on addressing issues of climate change most notably the United Nations Convention on Climate Change (UNFCCC) in August 1994 and the Kyoto Protocol in February 2005. The country's commitments under this convention include regular updating of inventories of 'green house gases' emissions, development and implementation of national and regional climate change mitigation and adaptation programs (NEMA, 2011). However, although this has been achieved, progress has been hindered by the limited capacity to domesticate and bring together all the relevant stakeholders for information sharing (Brown, *et al.*, 2012). At the national level, the Government of Kenya has developed various initiatives and activities in regards to climate change policies and institutions as discussed below.

2.5.1.1 The National Climate Change Response Strategy (NCCRS)

Kenya's Ministry of Environment and Natural Resources launched the NCCRS in December 2009 to enhance coordination of climate change activities in the country so as to ensure a climate proof socio-economic development, and provide a coordinated approach to climate change related issues. Main objectives guiding the NCCRS include enhancing the understanding of physical climate change impacts, promoting international agreements and policies, assessing evidence and impacts of climate change, recommendation of robust adaptation and mitigation measures and providing an action plan coupled with a resource mobilization plan (GoK, 2013).

The strategy is also meant to help the country to address threats posed by climate change and take advantage of any opportunities that may arise. Future climate change programs and projects will have to be in line with the provisions of the NCCRS (2009). The strategy has been adopted as the key government climate change agenda guide and will inform nationwide Climate Change programme development activities, including the formulation of documents and efforts towards the attainment of Vision 2030 (NCCRS, 2009).

The strategy is further meant to promote climate change awareness among the people in the country by establishing climate change education programs and information campaigns, it also promotes the participation of public and private sectors and stakeholders in addressing issues of climate change. NCCRS (2009) has consequently recommended that all future development programmes and projects must take climate and environmental impacts into consideration.

2.5.1.2 The National Climate Change Act

The President of Kenya signed the National Climate Change Bill into law on the 6th May 2016. The Act provides the legal framework for addressing the impacts of climate change while also providing for the institutions that would be charged with mitigation and adaptation to climate change. It also provides for a platform for facilitating and enhancing response to the impacts of climate change in the country (GoK, 2016). The Act further provides for guidance on how to measure and achieve a low-carbon resilient economic development for the country. The Act sets the National Climate Change Council, which is chaired by the President as the top most Overseeing Authority on issues of climate change in the country (GoK, 2016). The Act also sets the National Climate Change Directorate, which is charged with the responsibility of being secretariat to the National Climate Change Council and being the lead agency on issues of climate change action plans (GoK, 2016). The Act, under section V, establishes financial provisions to be known as the climate change fund, which will be managed by the council in mitigating and adapting to climate change at a national level (GoK, 2016).

2.5.1.3 The National Climate Change Action Plan

The National Climate Change Action Plan (NCCAP) was launched on the 27th March 2013, with a vision for a low carbon climate resilient development (GoK, 2013). The Action Plan provides a summary of adaption and mitigation options and recommended actions for implementation. It provides for and endorses an enabling policy and regulatory framework for the implementation of the recommended actions. The Action Plan further establishes steps for knowledge management and ‘improving’ the capacities, financial mechanisms, technological requirements and a national based performance management system (GoK, 2013). The Action Plan has been designed in a way to support the long-term developments that have been blue printed in vision 2030 and also the National Constitution.

2.6 Overview of Public Participation

The International Association for Public Participation, IAP2 (2002) defines public participation as “the process by which an organization consults with interested or affected individuals, organisations and government entities, before making a decision”. In essence, participation gives “voice” to the voiceless and “agency” to attend to the needs of the marginalized, in this way the public’s needs come first through positive development

According to Rowe and Frewer (2005), a generally agreed upon definition of public participation is “the practice of involving members of the public in the agenda-setting, decision-making, and policy- forming activities of organizations/ institutions responsible for policy development” (2005, p. 253). Yet it is the very fact that this definition is so broad that impedes research into effective participation mechanisms. Furthermore, the imprecision of defining public participation has allowed for the acceptance of ineffective and passive participation methods as the norm in many municipal systems. Therefore, in order to conceive of participation, it must be framed within the concept of how authentic or effective the process can be, which will be discussed later in this review. For this study, I will define public participation using Rowe and Frewer (2005)’s generally agreed upon definition of a decision-making process, underscoring that there are multiple “publics” who vary in terms of the power they have in the process.

Levels of Public Participation

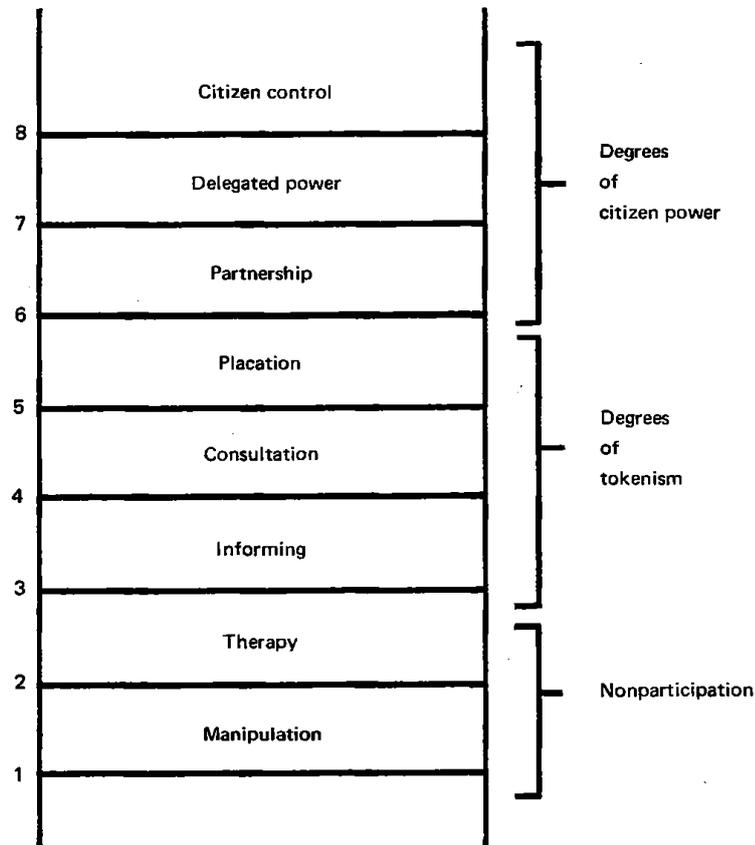
Paul (1987) cited four levels (in ascending order) of participation as; information sharing, consultation, decision-making and action initiation. According to Paul, all the four levels may coincide in the same project. The initial two categories offer means of exercising influence. He refers to these as low participation. The subsequent two provide means through which control is exercised. Paul regards these two as “higher” forms of participation. Pretty & Vodouche (1997) outlined seven categories useful in the description of participation. The categories are outlined in a descending order, from least to most participatory as evinced below:

1. **Passive participation** – community is informed on what will happen and involved and also informed on the processes in the project.
2. **Information sharing** – Questionnaires and research questions are administered to the locals. These questions were already formulated. I.e. the locals were not

involved in the choosing of the questions asked.

3. **Consultation** - project stakeholders (mostly the communities) meet with external agents who explain the issues and solutions in accordance to the responses given by the public, but are not obliged to take the public opinion under consideration in decision making.
4. **Provision of material incentives** – the local around the project area provide resources, for example labor or land, and in return, they are provided with other incentivizing goods or materials. Once the incentives ends, the locals have no claim in any continuing activities of the project.
5. **Functional participation** – citizens around the project area form groups to take part in project implementation. These groups are in most cases are in most cases established by external facilitators. These groups at some point could become self-reliant and most of the time comes to be after major decisions have been arrived at, and not the early phases of the project.
6. **Interactive participation** – here, the community participate together. This in turn will lead to the articulation of project plans.
7. **Self-mobilization** - communities participate by taking initiative and not involving any individual institutions and develop networks with other individual institutions for information, other material resources and technical advice, but still have control over how all these are used (Pretty and Vodouche, 1997).

Arnstein. R. (1969) on the other hand identifies a typology of eight levels that helps in understanding the effectiveness of public participation. Below is a summary of citizen participation ladder:



Sherry's eight rungs on a ladder of public participation

At the bottom of the rungs of the ladder are (1) *manipulation* and (2) *therapy*. She describes these two levels of “non-participation” as have been contrived to substitute genuine participation. Their real objective is not to enable people to participate in planning or conducting programs but to enable the power holders to “educate” the participants. Rungs 3 and 4 progress to a level she describes as “tokenism” that allows the have-nots to hear and have a voice. Under this level the citizens can hear and be heard by the power holders, however in this condition they lack the power to ensure that the power holders will heed their views. When participation is restricted to this level, there is no follow-through, no “muscles” hence no assurance of changing the status quo. Rung (5) is a higher level of tokenism since the ground rules allow the have-nots to advise, but retain for the power holders the continued right to decide.

Further up the ladder are levels of citizen power with increasing degrees of decision-making clout. Citizens can enter into level (6) *partnership* that enables them to negotiate and engage in trade offs with traditional power holders. At the top most rungs (7) *delegated power* and (8) *citizen control*, they have not citizens obtain majority of the decision seats and hence their ideas and suggestions are taken. The Sherry's ladder of public participation helps to simplify the gradation of public participation. This gradation makes it possible to understand the increasingly strident demands for public participation and why despite public participation in designing some projects, still the views and opinions of the public are not considered in decision-making.

Over time, Arnstein's model has been expanded and re-organized. The International Association for Public Participation (2007) simplifies Arnstein's model for general use for practitioners. The spectrum is truncated, starting at "informing" and ranging to "empowering." They supplement these categories to include goals and promises made to the public Rowe and Frewer (2005).

White (1996) adds another dimension to Arnstein's scale by creating a table that categorizes participation on both form (ranging from nominal to transformative) and approach (e.g. top-down v. bottom up). While Arnstein treated her categories as static labels, White created her typology to show the 'malleability' that can exist within one participation project. Furthermore, what is important about White's model of public participation is that it gives equal weight to bottom-up and top-down approaches and acknowledges both as legitimate forms of participation. Her model moves away from one based solely on power to one focused on context.

Collins and Ison (1988) criticized Arnstein for narrowly thinking about changes in the roles and responsibilities (levels of power only) and for linear relationship between non-participation and citizen control (policy-making requires different levels of participation depending on the issue). As a result of increased citizen inclusion in public administration some problems have been identified. For example, in the administrators' attempt to satisfy everyone's needs in the community, local officials can become distracted from more important problems that require long-range planning (Cupps, 1977). Cupps (1977) suggests that public participation without careful cost-analysis, detailed organization, and desire from local representatives might take the form of costly and timely processes with poor decisions.

Participatory Development in Kenya like in many other countries was for decades confined to community development projects, which were mainly donor funded and supervised (Wakwabubi and Shiverenje, 2003).

Kenya attempted to institutionalize decentralized planning and implementation of its programmes as early as the 1960s through Sessional Papers. The most comprehensive one was the District Focus for Rural Development (DFRD) Strategy, which became operational in 1983. However, the Strategy emphasized involvement of central government field workers in planning and implementation of programmes and therefore ignored indigenous knowledge and experiences. Chitere and Ileri (2004) note this is contrary to the 'conception' of the participatory approach. Ideally in participation, development workers such as civil servants have a role in facilitating the process through assisting communities to identify and solve their own problems.

The DFRD Strategy also faced challenges in implementation because it lacked statutory anchorage that could entrench the coordinating committees in the law. The operations were carried out administratively rather than legally. This has been 'a characteristic' of decentralized policies in Kenya whereby some funds have been created by Acts of Parliament and therefore have had legal backing. However, others have been created through policy pronouncements and consequently have had no guarantee of continuity (KHRC and SPAN, 2010).

The enactment of the Physical Planning Act in 1996 saw further evolution of participatory development. The Statute did provide for community participation in the preparation and implementation of physical and development plans. However, its major shortfall is the lack of the critical element of community sensitization on their roles. Physical planning is also centralized in major towns and thus communities residing in remote areas remained marginalized in participatory planning (Okello, 2008).

Devolution is widely seen as a mechanism to institutionalize citizen participation in development planning, increase the opportunities for political participation thereby enhancing democratic political culture (Ndulo, 2016), and enhance communities' sense of ownership (Oloo, 2016).

2.7 Constitutional and Legal Framework on Public Participation

2.7.1 The Constitution of Kenya 2010

The promulgation of the New Constitution in August 2010 provides a strong legal foundation for the enhancement of ‘participatory governance’ through devolved structures at county level. Various provisions provide for it as follows:

- **Article 1** that vests sovereign power in the people of Kenya and is exercised at both the national and county levels.
- The importance of public participation is aptly captured in **Article 10 (2) (a)** of the constitution which states that the national values and principles of governance include patriotism, national unity, sharing and devolution of power, the rule of law, democracy and participation of the people.
- **Article 35** of the Constitution: The right to ‘information’ is a fundamental right necessary for the enjoyment of all other rights. When fully actualized, it will enable Kenyans to know about their development rights and projects from which they are supposed to be benefiting like CDF.
- The Government in **Article 69** is obligated to encourage public participation in the management, protection and conservation of the environment.
- The constitution has gone further to provide for instances where the voice and endorsement of the public is a compulsory requirement. In **Articles 91, 94, 118 and 119** citizens have a right to participate in a political movement of their choice, while parliament is required to give the public an avenue to participate in legislation and presenting petitions to public authorities.
- The objects and principles of devolved government under **Article 174** give powers of self governance to the people and enhance their participation in the exercise of the powers of the state in making decisions that affect them while recognizing the powers of the communities to manage their own affairs and to further their own development.
- County Assemblies are required to conduct their business in an open manner and hold its sittings and those of its committees in public and facilitate public participation in the legislative and other business of the assembly and its committees (**Article 169**). The involvement of citizens in policymaking and implementation is important to strengthen and deepen democratic governance. It is

through active public participation that evidence based policy making and responsive service delivery can take place.

- **Article 201:** provides for principles of public finance management that includes public participation in finance matters
- **Article 221 (5):** the Budget and Appropriations Committee to seek public input when reviewing budget estimates and the recommendations shall be taken into account when the committee presents its report to the House
- **Article 232 (1) (d) & (f);** Public Service values principles require involvement of the people in the process of policy making; transparency and provision to the public of timely and accurate information
- The **Fourth Schedule under Part 2 (14)** stipulates that functions and powers of the County are to ensure and coordinate the participation of communities and locations and locations in governance at the local level. Counties are also to assist communities to develop the administrative capacity for the effective exercise of the functions and powers and participation in governance at the local level.

2.7.2 The County Government Act, 2012

The enactment of the County Government Act places an obligation on the County Governments to create an enabling environment for citizens' involvement in running the affairs of the Counties. **Chapter VIII** of the Act is devoted to citizen participation therefore giving a demonstrative emphasis of the importance of this right in the eyes of the law. **Section 87** provides for citizen participation at the county level based on timely access to information, data, documents and information relevant to 'policy formulation' and implementation, shared responsibilities and partnership between county governments and non-state actors in decision making and Promotion of public private partnerships.

Section 88 provides that citizens have a right to petition the county government on matters under the responsibility of the county government.

2.7.3 The Urban Areas and Cities Act No. 13 of 2011

Section 36 of the Act provides for the development of Integrated Development Plans (IDPS). The Second Schedule to the Act provides the right of and ‘participation’ by residents in the affairs of the city or urban areas through the following mediums:

- I. Written or oral presentations
- II. City or urban area is obligated to develop a system of governance that encourages participation by residents in its affairs

The Second Schedule of the Act provides for the rights of and participation by residents in affairs of their city or urban areas.

2.7.4 The Intergovernmental Relations Act 2012

Section 29 Regulations to provide for the framework for public participation in the transfer or delegation of powers, functions or competencies by either level.

2.7.5 Public Finance Management Act 2012

Section 137 establishes the County Budget Economic Forum that shall have representatives nominated by organisations representing professionals, business, labor issues, women, Persons with disabilities, elderly, Faith Based groups at the county level.

Section 128 (2) requires the County Executive member for Finance to issue a circular setting out guidelines to be followed in the budget process. The circular should ‘provide details’ on how citizens can participate in the county budget making process.

Section 207 necessitates the Cabinet Secretary in charge of Finance to draft regulations to provide for structures, mechanisms, processes and procedure for participation.

2.8 International and Regional Instruments for Public Participation

The importance of public participation has been emphasized in many regional and international instruments that Kenya has ratified and is a party to. Some of the regional and international instruments with public participation provisions include:

1) The International Covenant on Civil and Political Rights (ICCPR)

It provides safeguards to public participation—

Article 25- provides that every citizen shall have the right and the opportunity, without unreasonable restrictions to:

- a) Take part in the ‘conduct’ of public affairs, directly or through freely chosen representatives;
- b) Vote and to be elected at genuine periodic elections which shall be by universal and equal suffrage and shall be held by secret ballot, guaranteeing the free expression of the will of the electors;
- c) Have access, on general terms of equality, to public service in his country;

2) United Nations Convention Against Corruption (UNCAC)

Article 13 of the Convention provides for participation of the Society in the fight against corruption. It provides, “Each State Party shall take appropriate measures, within its means and in accordance with fundamental principles of its domestic law, to promote the active participation of individuals and groups outside the public sector, such as civil society, non-governmental organizations and community-based organizations, in the prevention of and the fight against corruption and to raise public awareness regarding the existence, causes and gravity of and the threat posed by corruption.”

3) The African (Banjul) Charter on Human and Peoples’ Rights

It makes provisions on public participation in Article 13 (1), which provides that: “Every citizen shall have the right to participate freely in the government of his country, either directly or through freely chosen representatives in accordance with the provisions of the law.”

4) United Nations Economic Commission for Europe (UNECE)

The Aarhus Convention on Access to information, public participation in decision-making and access to justice in environmental matters in Articles 6, 7, 8 and 9 provides for public participation in different aspects. The Convention recognizes that procedural and participatory rights are an integral component of human rights. It imposes extensive duties on government to ensure openness, public engagement, ‘accountability’ and responsiveness in the environmental spheres.

5) The Declaration of the International Conference on Public Participation

At a meeting held in Gauteng, South Africa (The Gauteng Declaration of March 2012), international actors stressed the importance of public participation as an essential ingredient to good governance and human development, whose ultimate objective is to improve the livelihood outcomes for the people.

2.9 Public Participation in Designing Climate Change Adaption Projects

Different scholars have different opinion over whom or what exactly public participation is all about: some definitions are singularly broad and others are relatively narrow. Freeman, (1984) defined public participation as the process of involving a group of people who can affect, or are affected by the achievement of the organization’s objectives in making decision about the project itself.

Philip, (1997) on the other hand defines public participation as a giving an opportunity groups or individuals who have a stake in or expectation of the project's performance and includes clients, project managers, designers, subcontractors, suppliers, funding bodies, users and the community at large in the ‘process’ of project needs identification, management and throughout the process of implementation where the community play a critical role. He further notes that the opinion and the ideas of the project beneficiaries shape and determine the project activities. In another study, Public participation is defined as a process through which the public can influence and share control over development initiatives, and influence the decisions and resources that affect themselves (African Development Bank, 2001). Renn, *et al.*, (1995) suggests that public participation may also be a response to the traditional sense of powerlessness felt by the general public when it comes to influencing government and non-governmental decisions. They consider the involvement or public participation as an important condition and as being essential

for the implementation of programmes and projects and also a fundamental condition to attract projects and programmes. They further note that public participation is not equally pronounced in all communities. In many cases support on behalf of the decision makers is lacking, as political and administrative bodies fear constraint of their authority.

The definitions are being supported by the view that development interventions will achieve their objectives if the people who are most affected are involved from the time of projects inception, idea development and throughout the programming cycle (Cooke, *et al.*, 2001). Similar study maintains that public participation as being important contributing towards project success as it ensures that the development activities are based upon indigenous knowledge and are more relevant to locals (Philips, 1997).

There are however two competing views on public participation's actual impacts on projects effectiveness. The traditional view argues that it often entails considerable administrative cost, is time consuming, and has the potential to increase conflicts in policy systems, complicate decision-making, and create decision delays (Phillip .K. & Abdillahi A., 2003), and therefore based on this costs, public participation may increase decision outcome costs because stakeholders' lack of knowledge on 'complex and technical' issues could lead to poor decisions.

The other view submits that public participation enhances efficiency because it enables the public to suggest new ideas that reduce wasteful projects, streamline duplicated administrative processes, and save cost (OECD, 2008). In another finding, 'effective public participation' helps governments and donor organizations to avoid costs associated with citizen litigation against government and improve implementation efficiency by reducing citizens' resistance (Renn, *et al.*, 1995).

Public participation is a core value of democracy and principle of national governance in Kenya. Raising and maintaining the awareness of the public on matters of climate change is one tool that can be deployed efficiently (GoK, 2014). Additionally, public awareness on climate change should integrate knowledge on how to address certain critical and cross - cutting policy questions such as mainstreaming of gender, youth and special needs considerations (Emilie, 2014). She further notes that this approach is important because public awareness is central to the subsidiarity principle, which requires an active role of the people in governance, when it is optimal to do so.

In the Kenyan context, public participation in issues of project designing and environmental governance is highly dominated by state actors. The local people who are the majority beneficiaries of such projects do not get the opportunity to effectively participate in the planning and designing of projects which are meant to benefit them. This limited role of participation during the project inception stages creates minimal project ownership from the local stakeholders (Emilie, 2014).

The lack of effective public participatory in the designing and managing of climate change projects has a net effect on the governance of climate change activities in the country since according to the United Nations Development Programme (UNDP, 1997) good governance has eight major characteristics: it is participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law. Missing one of the characteristics therefore undermines the quality of governance, especially since ‘public participation’ assures that corruption is minimized, the views of minorities are taken into account and that the voices of the most vulnerable in society are heard in decision-making. It is responsive to the present and future needs of society (UNESCAP, 2005; UNDP, 1997).

2.10 Summary of the Literature Review and Research Gaps

The study establishes evidence of changing climate in the country that has consequently led to socio-economic and environmental challenges. The study further reveals that there are substantial efforts by government and other development partners in addressing critical issues of climate change through the development and enactment of legislations, policies and strategies to address the impacts of climate change while funding adaptation projects that are meant to cushion the public against the harsh impact of the changing climate. Public participation is identified as important in project planning, designing and managing as this promoted local ownership of the projects, inclusion of local ideas and opinions in the projects and minimized corruption and project failures. It was also found that the public is consulted to some on issues of ‘climate change adaptation projects’. Studies did not provide clear mechanisms for engaging the public effectively and at what stages they should be involved. There are also no literature of how the public should be engaged in designing and managing projects that are specifically meant to address issues of climate change in the country and to what levels their opinions shaped decision making and governance of climate change issues.

Summary of Knowledge Gaps

Variables	Author and Year	Findings	Knowledge Gaps
Effective public participation	Freeman, R. E. (1984). Philip, (1997). Renn, <i>et al.</i> , (1995) Cooke, <i>et al.</i> , (2001). Donaldson, Thomas, and L. E. Preston. 1995. OECD, (2008). GoK, (2014). Emilie, (2014). Philips, R. (1997). UNDP, (1997) Pokharel, M. P., 2011.	Found that public participation was important in project planning, designing and managing as this promoted local ownership of the projects, inclusion of local ideas and opinions in the projects and minimized corruption and project failures.	Studies did not provide clear mechanisms for engaging the public effectively and what stages they should be involved. Also no clear indication of what how the public should be engaged in designing and managing projects that are meant to address issues of climate change in the country and to what levels their opinions shaped decision making.
Public participation and climate change governance	IPCC (2007). Houghton D (2002) Hegerl GC, et al. (2007) Nelson V, et al (2002) IPCC (2012) Eriksen, (2007) GOK, (2010b), Kinguyu M. et al (2008) Kabubo (2007). GoK (2010). NEMA, (2011) UNEP/GoK 2010). GoK (2013). GoK (2016).	Found that there are legal provisions that encourage public participation. It was also found that the public is consulted to some levels on issues of climate change adaptation projects.	Studies did not provide clear steps for the public to be engaged in climate change projects and to what levels their opinions and ideas shaped the climate change governance and decisions. The roles and responsibilities of the public in managing climate change adaptation projects were also not provided while there were also no clear steps of how to mobilize the public for engagement and participation in climate change projects.

CHAPTER THREE: STUDY DESIGN AND METHODOLOGY

3.1 Introduction

This chapter describes the study design and methodology that was applied in carrying out this study. The methodology is set out in sections under sub-headings containing location of the study, research design, target population, sample size and sampling procedure, research instruments, data collection, data analysis, limitations of the study and concludes with the ethical issues that were considered in the study.

3.2 Study Area

The study was conducted in Turkana Central Sub-County, which is one of the seven administrative sub counties in the larger County of Turkana (fig 3.1). Constraints attributed to the ‘expansive geographic nature of the Turkana County’ and the limited time and financial resources only allowed for one Sub County to be sampled, moreover the study focused on the Lake Turkana Fish Processing Industry, which is located in Turkana Central sub-county. The Sub-County has three administrative wards, which are Kerio, Kalokol and Central (GoK, 2015).

The county had a population of 855,399 as of 2009 (GoK, 2009). The county population’s average growth rate is 6.4% per annum, with a population density that varies from 24 persons per Km² in Turkana Central Constituency to 5 persons per Km² in Turkana East Constituency (GoK, 2009). Turkana Central has the highest ‘concentration’ of people because it is the County headquarters and has many infrastructural and social amenities.

The study area lies between 300m and 450m above sea level (Anyumba, 2003). The topographical features are quite variable and the common features include plains, plateaus, hills and minor scarps (Anyumba, 2003). There are areas of barren land where vegetation is very scarce in the study area. However, *deciduous dwarf shrubs*, such as *Indigofera spinosa*, *Duosperma eremophilum*, *Sericocomopsis hildebrandtii*, *Acacia reficiens*, *Acacia mellifera* and *Commiphora africana*, cover most of the land (Anyumba, 2003). The most prominent trees in the study area are *Acacia tortilis* and *Delonix elata* found along the laggas (DRSRS, 2007). Annual grasses that are common during the rainy season include *Aristida mutabilis*, *Aristida adscensionis* and *species of Enderopogon* and *Cenchrus*. Salt tolerant grass *Sporobolus spicatus* is common along the lake (DRSRS, 2007).

Turkana County is arid and semi-arid and is characterized by warm and hot climate. The temperatures range between 20°C and 41°C with a mean of 30.5°C (Avery, 2010). The rainfall pattern and distribution is erratic and unreliable with both time and space. The long rains (akiporo) usually occur between April and July and the short rains between October and November and ranges between 52 mm and 480 mm annually with a mean of 200 mm. The driest periods (akamu) are January, February and September. The rainfall is distributed on an east-west gradient with more rainfall in the western parts and other areas of higher elevation. The rainfalls in brief, violent storms result in flush floods. The surface runoff and potential evaporation rates are extremely high (RoK, 2002, Avery, 2010).

Majority of the residents in Turkana County depend on nomadic pastoralist, fishing and weaving as their source of livelihood. Fishing is practiced in the waters of Lake Turkana with 'Tilapia' and Nile perch being among some of the fish species caught in the lake. Goats, Donkeys, Camels and zebu cattle are the most common livestock kept by the community in the region according to the Turkana County Integrated Development Plan 2013-2017.

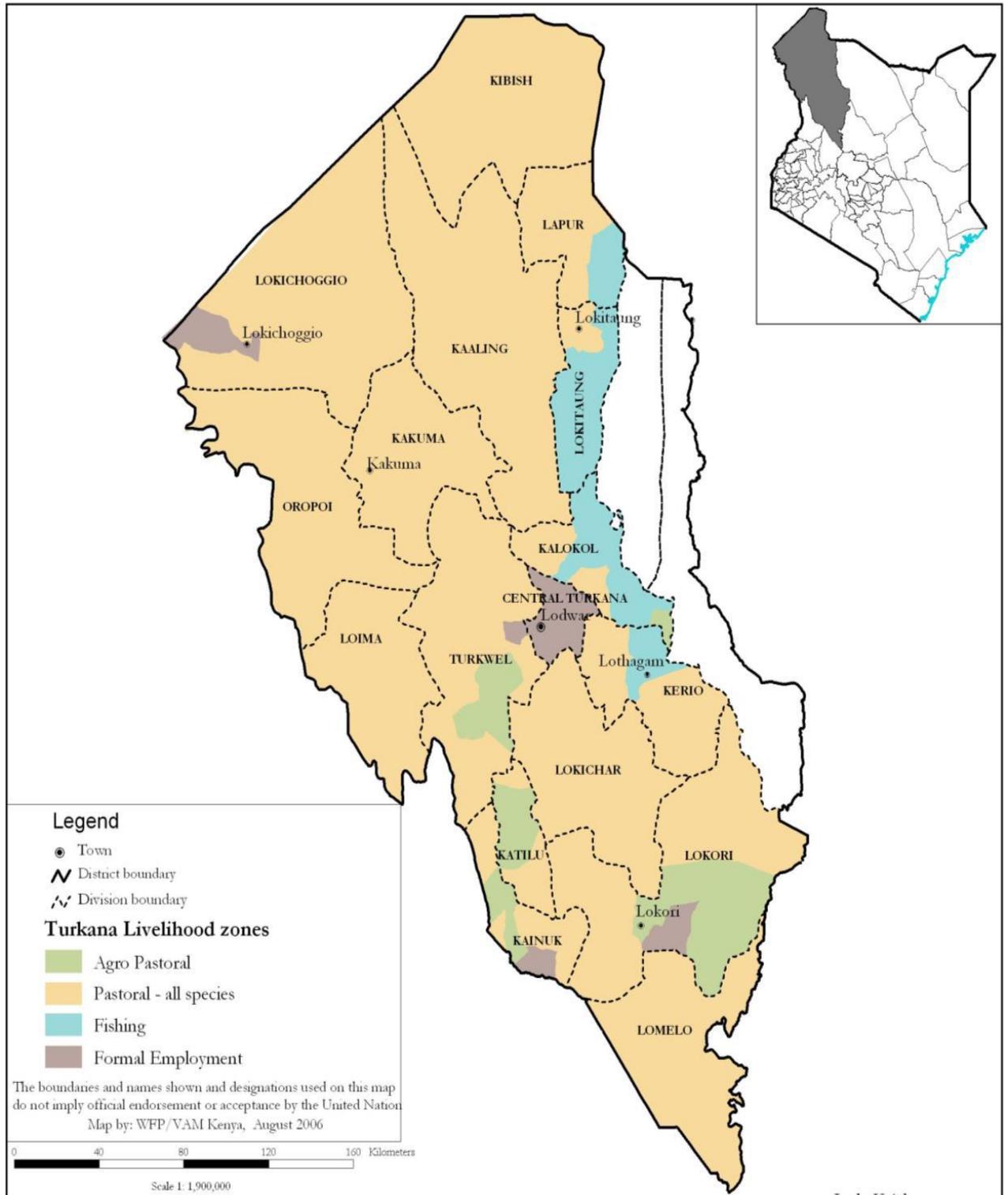


Fig 3.1: Map of the Study Area

3.3 Target Population

The main target population for this study was the members of the Lake Turkana Fish Cooperative Society. The study considered the cooperative member as suitable respondents to the study since they had witnessed the implementation of the Lake Turkana Fish Processing Industry project that was meant to improve adaptation capacities to ‘climate change’. As beneficiaries of the project, they were therefore best suited to answer question relating to the project and provide information related to this study. The study further identified individuals from Government Institutions and Aid Organizations that are working in the climate change sector as important key informants. These respondents would be important on providing information on how climate change governance influences public participation in the designing and managing of climate change adaptation projects.

3.4 Study Design

3.4.1 Data Collection Method

In this study both ‘primary and secondary’ data were collected. In answering research question objectives one and two, primary data was collected through researcher administered questionnaires. Key informant interviews were used to get views of climate change experts, key community informants and local leaders. Objective three was addressed by both primary and secondary data. Primary data collection instruments were employed to get views of the fishermen. Finally, key employees in relevant government departments including the National Environment Management Authority (NEMA), State Department of Fisheries, Metrological Department and the National Climate Change Secretariat were interviewed as key informants. Three international organizations working on climate change adaption projects in the country were also interviewed as key informant interviews.

3.4.2 Sampling Frame and Sampling Procedure

1. Sampling the Fishermen

According to the records held by the Lake Turkana Fishermen Cooperative Society, who were the main beneficiaries of the ‘Lake Turkana Fish Processing Industry’ Project, there are 180 registered members of the society who were residents of Turkana Central Sub County. This formed the frame of the study. The list of the registered members was further divided into three clusters based on their wards of residence. The purpose of choosing this method was to avoid bias and ensuring a representative sample is selected. Respondents for the study were randomly selected from each of the three clusters as below:

A) **Sampling Stage One:** The 180 registered members of the Society from the Turkana Central Sub County were divided into three clusters based on their administrative wards:

1. Kalokol – 52 members
2. Central- 75 members
3. Kerio- 53 members

B) **Sampling Stage Two:** All the names of the members in each clusters above were written on a piece of paper and assigned a number. Each number was thereafter written on a small paper and folded. All the folded papers in each cluster were then put in a small container and were shaken thoroughly. Numbers were then drawn from the container, one after another, until the sample size was reached. A random sample of 40 fishermen was picked from each of the ‘three administrative’ cluster samples in the study. A total of 120 respondents were selected for the study.

2. Sampling Key Informants

In this study, no sample frame was prepared for the key informants. They were perceived to have particular insight, knowledge and experience on the topic under study. In this study therefore, the main criteria for selecting the key informants was based on their knowledge and experience on climate change and adaptation projects. Key informants that were interviewed included officials from the National Environment Management Authority (NEMA), the State Department of Fisheries, ‘Metrological Department, and the National Climate Change Secretariat’ Three international organizations working on climate change adaption projects in the country and two local leaders were also interviewed as key informants as indicated below.

Table 3. 1: Key informants Sample Size

Key Informants Categories		Sample size
Government institutions	National Climate Change Secretariat	1
	Metrological Department	1
	Ministry of Environment and Natural Resources (Fisheries Department)	1
	NEMA	1
Aid organizations	NORAD	1
	USAID	1
	UNDP	1
Local leaders	Area Chief	1
	County Commissioner	1
Total		9

Source: Author 2018

3.5 Research Instruments

The study employed researcher administered questionnaires and key informant guide to collect the required information. The application of more than one instrument in data collection for this study was vital in order to provide checks and balances with regard to shortfalls characterized by each instrument of data collection.

A 5-point likert scale ranging from 1 to 5 was used to answer to statement-like questions. The likert - type format was selected as the format yields equal - interval data, a fact that allows for the use of more powerful statistical to be used to test hypotheses. The questionnaires were administered directly by the researcher to the respondents. The questionnaire contained both open ended and close-ended questions. Further, the key informant guide was used to interview the key informants (government institutions, aid organizations and local leaders). The ‘key informant guide’ was unstructured containing only open-ended items.

3.6 Validity and Reliability

Before the research tools were finally administered to participants, pre-testing of the instruments was carried out to ensure that the questions were relevant, clearly understandable and made sense. The pre-testing aimed at determining the reliability of the research tools including the wording, structure and sequence of the questions. This pre-testing involved 5 respondents; the responses were not included in the final analysis. The purpose was to refine the ‘questionnaire and the key informant guide’ so that respondents in the major study did not have problems in answering them. Research experts from the faculty were also requested to comment on the representativeness of the sample size and the suitability of the ‘questions’ and further give suggestions of corrections to be made to the structure of the research tools. This helped to improve the content validity and reliability of the data that was collected.

3.7 Data Analysis

Qualitative analysis was an ongoing process that was conducted right from the field. After collection of data, field notes were prepared and organized into categories. Then development of a coding scheme followed i.e. coding responses and assigning numbers to the categories. ‘Analysis’ was then conducted with the aim of searching for emerging patterns, themes and consistency of ideas. Data was then presented in a narrative way. The data collected from the questionnaires were coded and entered into an excel spreadsheet after which analysis was done using the Statistical Package for the Social Sciences (SPSS). Quantitative data were then subjected to descriptive statistics after which the results including ‘demographic’ information, impacts of climate change on the livelihoods of the local people, the level of public participation in the designing and managing of the Lake Turkana Fish Processing Industry and how climate change governance influenced public participation in the designing and managing of climate change adaptation projects were summarized in tabular and graphical forms.

3.8 Data Presentation

The findings were presented using tables and graphs for further analysis and to facilitate comparison of the results. Explanation to the table and figures were given in prose format. This generated ‘quantitative’ reports through tabulations, percentages, and measure of central tendency save for the qualitative results that were presented in prose format.

3.9 Ethical Issues

The researcher had a moral obligation to treat the information with utmost confidentiality. The researcher ensured the ‘respondents’ confidentiality of the information given to make sure that the respondents are not reluctant to give the information as sought by the study. The reporting of the study findings was anonymous. This was done to conceal the identity of the respondents who had been assured of the ‘confidentiality’ of the information that they gave. Further, the researcher informed the respondents that they could withdraw from the study at any time before completion of data collection. Also, the researcher assured the respondents that they would get a feedback on the study upon request. The researcher further assured the respondents that the study was for academic purposes only. The study only focused on respondents above the age of 18 years.

CHAPTER FOUR: RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the results and discussions of the findings. The chapter is organized into sections based on the research objectives. These include the respondents' 'demographic' information, impacts of climate change on the livelihoods activities of the local people of Turkana Central Sub County, the level of public participation in the designing and managing of the 'Lake Turkana Fish processing industry' and the how climate change governance influences public participation in the designing and managing of climate change adaptations projects.

4.2 Demographic Information

4.2.1 Gender Distribution of the Respondents

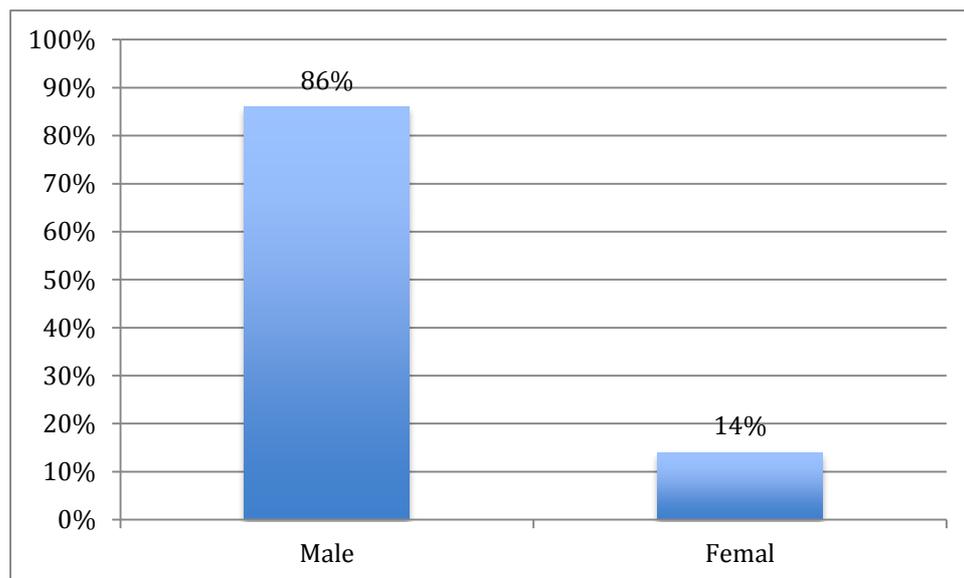


Figure 4.1: Gender Distribution of the respondents

The respondents were requested to indicate their gender. Figure 4.1 show the distribution of responders as per the gender category. From the research findings, the study noted that majority of the respondents as shown by 86% were male whereas 14% of the 'respondents' were female.

4.2.2 Age Category of the Respondents

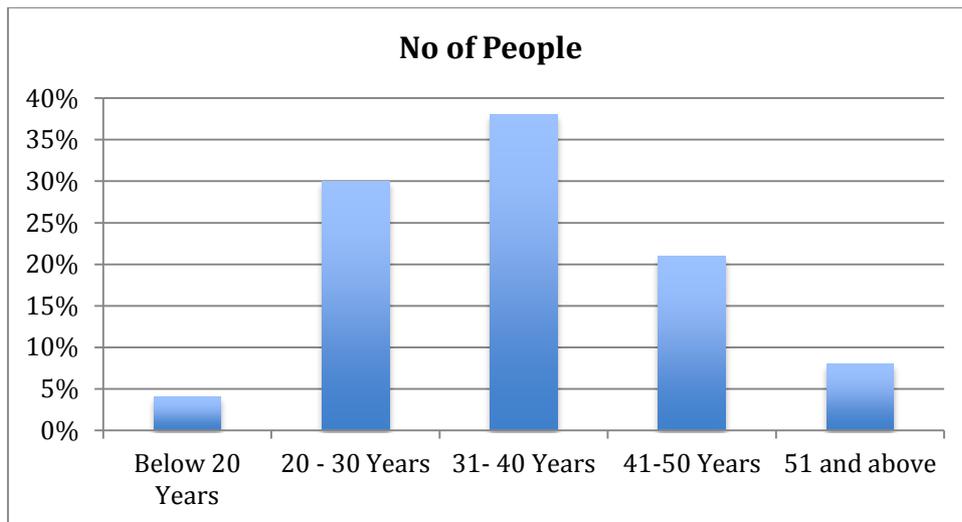


Figure 4.2: Age Category of the respondents

Various age groups hold different opinions on the subject of study, therefore, in ensuring that various age groups were fairly engaged in this research, the respondents were requested to indicate their age category. An analysis of the results on 'age category' as shown in figure 4.2 shows that most of the respondents were between 31-40 years of age represented 38%, 30% of the respondents were aged between 20-30 years, 21% of the respondents were aged between 41-50 years, 8% were above 51 years whereas 4% of the respondents were aged below 20 years. This implies that all age groups were fairly engaged in this research.

4.2.3 Level of Education of the Respondents

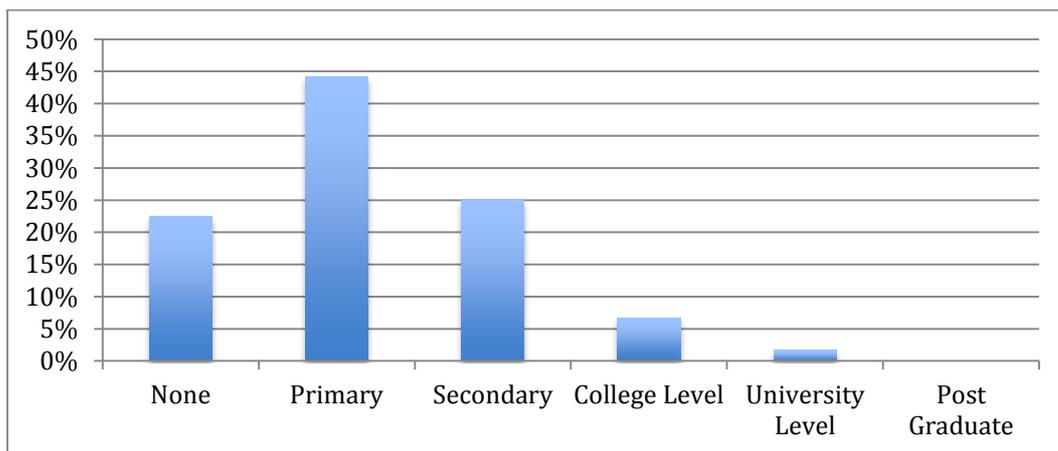


Figure 4.3: Level of Education of the respondents

Respondents were requested to indicate their highest level of education attained. This was fundamental in establishing the respondents' literacy level of understanding the issues of discussion. From the research findings as shown in figure 4.3, 44% of the respondents had primary education as their highest level of education, 25% of the respondents had secondary school education as their highest level of education, 23% of the respondents had no formal education at all while 7% of the respondents held college diploma certificates. Only 2% held bachelor's degree while none of them had a postgraduate qualification.

4.2.4 Period which the Respondent had lived in the Study Area

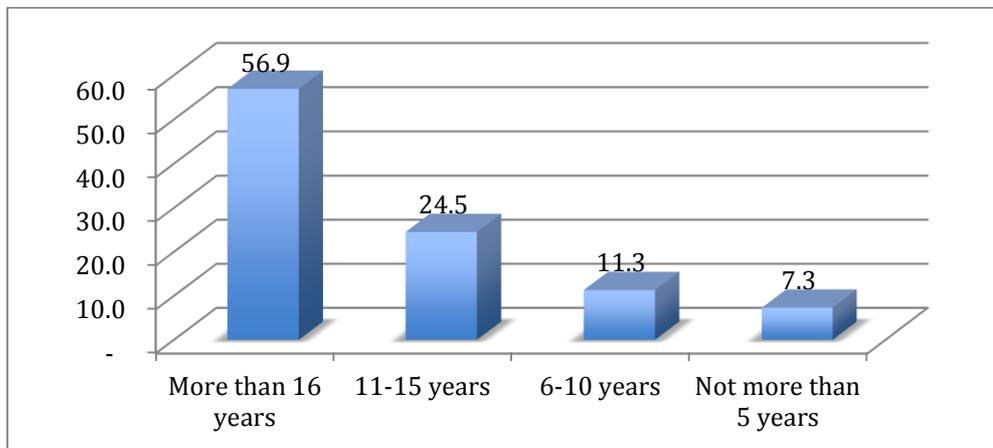


Figure 4.4: Period which the respondent had lived in Turkana Central Sub County

Respondents were requested to indicate the period that they had lived in Turkana Central Sub County. Establishing the respondent's period of stay was critical in gauging their understanding of the area under study. Results in figure 4.4 show that majority of the residents as shown by 56.9% had lived in Turkana Central Sub County for more than 16 years, 24.5% of the respondents had lived in the area for a period of 11 to 15 years while 11.3% of the respondents had lived in Turkana Central Sub County for a period of 6 to 10 years. Further, 7.3 % of the respondents had lived in Turkana Central Sub County for not more than 5 years. This implies that majority of the respondents had lived in Turkana Central Sub County for a considerable period of time and therefore they were in a position to give credible information relating to this study.

4.3. Extent to which climate change has influenced the livelihood activities

The research sought to determine the extent to which climate change had influenced the livelihood activities in the area. From the study findings, majority of the respondents as shown by 45% indicated that climate change influenced livelihood activities in the area to a medium extent, 34% of the ‘respondents’ indicated that changes in the climate have affected livelihood in Turkana Central Sub County to a high extent whereas only 21% of the respondents indicated the impact to be of a low extent.

Table 4.1: Extent to which climate change has influenced the livelihood activities

Extent	Frequency	Percentage
High extent	41	34%
Medium extent	54	45%
Low extent	25	21%
Total	120	100

The results are in line with the findings of NEMA (2011) and IPCC (2007), where the impacts of climate change in the country was found to have resulted to widespread poverty, recurrent droughts and floods, inequitable land distribution, overdependence on rain-fed agriculture, and with few coping mechanisms hence increasing people’s vulnerability to climate change. This implies that climate change has influenced livelihood activities in the area to a great extent.

4.3.1 Impacts of climate change on different livelihood activities in the area

Using a scale of 1 to 5 where 1 = Significantly Increased 2 = Increased, 3 = No Significant Change, 4 = Decreased, and 5 = Significantly Decreased the respondents were asked to determine the influence of climate change on different activities. Majority of the respondents represented by 65% indicated that due to climate change there was a decrease in access to water, while 61% indicated that income levels had decreased in the sub county due to the changing climatic conditions. Fifty four percent respondents further indicated that due to climate change human health had deteriorated. Forty nine and forty one of the respondents indicated that forest cover had decreased and ‘significantly’ decreased respectively. Forty nine percent of the respondents indicated that food security had decreased due to the changing climate while 44% of them showed that accessibility to grazing land for livestock had decreased in the sub county due to climate change. The

study also noted that climate change as resulting to significant increase in migration levels and livestock diseases within the study area as shown by 53% and 54% respectively.

Table 4.2: Impacts of climate change on different livelihood activities in the area

Activity	Significantly Increased	Increased	No Significant Change	Decreased	Significantly Decreased	Mean
Income levels	1%	2%	2%	61%	34%	4.35
Food security	2%	8%	7%	49%	35%	4.09
Human Health Care	1%	3%	4%	54%	39%	4.31
Access to Water	1%	1%	1%	65%	32%	4.47
Access to Grazing Lands for livestock	9%	3%	3%	44%	41%	4.05
Forest Cover	0%	4%	6%	49%	41%	4.19
Migration	53%	43%	1%	2%	2%	1.54
Employment levels	1%	2%	4%	41%	53%	4.41
Livestock Diseases	43%	54%	3%	0%	0%	1.68

The results are supported by the reports from the key informant where it was noted that due to severe droughts associated with the changing weather patterns, majority of the people in Turkana County who were pastoralist were living in poverty and are often forced to accept a second or third job in order to live. They ‘further’ reported that climate change resulted in population displacement; where many people had become squatters and relied on relief aid/handouts. Migration to nearby towns in search of ‘relief’ and/or better opportunities (e.g. paid work, women involved in prostitution - often associated with HIV/AIDS risk), and the influx of slums where facilities and services are limited was also mentioned as an impact of climate change on the livelihoods of the people in the study area.

It was also established from the key informants that due to ‘climate changes’ there were increasing levels of livestock diseases in the study area, which resulted to severe consequence including hunger and cattle rustling in order to restock. Other challenges that were experienced as a result of climate change included persistent water stress caused by drying up of rivers and wells during prolonged droughts, increase in disease epidemics affecting humans, livestock, and crops and increased cost of living. The results are further consistent with the findings of the Stockholm Environment Institute (2009) where climate change is noted to have adversely affected the economic, social and environmental spheres in Kenya with future economic costs of close to 3% of GDP per year by 2030 and potentially much higher than this (more than 5% of GDP per year) by 2050.

4.4 Public Participation in Programming of Climate Change Projects

4.4.1 Respondents' awareness on projects that seek to respond to the impacts of climate change in Turkana County.

The study sought to establish whether respondents were aware of projects that were aimed at responding to the impacts of 'climate change' in the area. From the research findings majority of the respondents as shown by 53.3% indicated that they were not aware of such projects whereas only 46.7% of the 'respondents' knew of these kinds of projects. This implies that majority of the respondents in the study area were uninformed of projects that were aimed at responding to the impacts of climate change in the area.

Table 4.3: Awareness of projects that seek to respond to the impacts of climate change in Turkana

Opinion	Frequency	Percentage
Yes	56	46.7%
No	64	53.3%
Total	120	100

4.4.2 Success levels of project in addressing the impacts of climate change

Respondents were requested to indicate how successful projects implemented in their area were in addressing the impacts of climate change. From the research findings, "majority of the respondents indicated that most of the projects as shown by 60.8% were unsuccessful in addressing the impacts of climate change, while 22.5% of the respondents were not aware of the results while 16.6% the respondents indicated that the projects were successful in addressing the impacts of climate change." This implies that, "most of the projects in the area that were meant to address issues of climate change were unsuccessful in realizing the expected objectives."

Table 4.4: Success levels of project in addressing the impacts of climate change

Level of success	Frequency	Percentage
Successful	20	16.6%
I don't Know	27	22.5%
Unsuccessful	73	60.8%
Total	120	100.0%

The results from the study conform to the findings by Termeer, *et al.*, (2011) in which they note that some projects, which were initiated to address issues of climate change in Africa, had failed to meet their objectives due to lack of proper public consultation, needs assessment, poor planning and limited budgetary allocations. The study findings are also in line with the analysis by Pandey, (2002), in which it is noted that although there were significant efforts by the country to improve climate change adaption, there were however concerns that mitigation and adaptation preparedness still remained inadequate and partly due to poor coordination of the necessary multi-actor, multi-sector and multi level approach and governance in climate change.

4.4.3 Awareness of the Lake Turkana Fish Processing Industry Project

The study sought to establish whether the respondents were aware of Lake Turkana Fish Processing Industry Project. From the research findings, majority of the respondents as shown by 93.3% indicated that they aware of Lake Turkana Fish Processing Industry Project whereas 6.6% of the respondents said they were not aware of the project. This implies that, majority of the respondents were aware of Lake Turkana Fish Processing Industry Project in the area and could therefore provide adequate information to guide this study.

Table 4.5: Awareness of the Lake Turkana Fish Processing Industry Project

Opinion	Frequency	Percentage
Yes	112	93.3%
No	8	6.6%
Total	120	100%

4.5 Levels of Public Participation in the Lake Turkana Fish Processing Industry
4.5.1 Extent to which public were involved in project designing and implementation

Using a scale of 1 to 5 where 1 = to a very low extent and 5 = to a great extent, the respondents were requested to determine the extent to which the public were involved in the designing and planning of the Lake Turkana Fish Processing project, from the research findings, majority of the respondents as shown by 45.8% indicated that the public participation for the project was of a very low level, 35.8% on the other hand noted that the public participation was low level, 11.6% said the public participation was moderate level while 4.1% and 2.5% said that the level of public engagement for the project was high and very high respectively. This is as shown by a mean score of 1.85. This implies that there was low level of public engagement in the designing and managing of the Lake Turkana Fish processing Industry.

Table 4.6: Extent to which public were involved in project design and implementation

	Very Low Level	Low Level	Moderate Level	High Level	Very High Level	Mean	Std Deviation
Public participation (individual citizens, community groups, civil societies)	55	43	14	5	3	1.85	0.21
Percentages	45.8	35.8	11.6	4.1	2.5	-	-

The results conforms to the findings by Emilie (2014) in which she established that, civil society organisations and local communities in the country had so far played a limited role in the contribution towards climate change adaptation mechanisms and the formulation of national climate change policies and strategies. She further noted that the situation could undermine key governance principles such as equity, stakeholder participation, accountability and transparency. The lack of effective public participation in the designing and managing of climate change projects is also noted by UNDP (1997) and attribute it to poor governance. The study notes good governance as having eight major characteristics: participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law.

4.5.2 Statements relating to Public Participation in Designing the Lake Turkana Fish Processing Industry

The study sought to determine the extent to which the respondents agreed to statements relating to public participation in the designing, managing and implementation of the Lake Turkana Fish Processing Industry. From the research findings, most of the respondents strongly disagreed with the statement that the public had the potential to complicate decision making hence they should be avoided as indicated by a mean score of 1.65. Further, the respondents disagreed with the statement that, the public' opinion influenced the planning, budgeting and implementation of the project as indicated by a mean score of 2.30 and that public participation improved implementation efficiency by reducing citizens' resistance to the project as indicated by a mean score of 1.90. The respondents strongly disagreed with the statements that, the fishermen were adequately consulted and involved during the project planning and implementation as indicated by a mean score of 1.86 and that the different public sectors were invited to comment and provide feedback on analysis, alternatives or decisions during the project planning and implementation as indicated by a mean score of 1.80. The respondents further strongly disagreed with the statement that, the local community members were involved in the designing, planning and development of the project activities as indicated by a mean score of 1.79.

Table 4.7: Statements relating to Public participation

Statements	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean	Std Deviation
The local community was involved in the designing, planning, and development of the project.	50	58	2	5	5	1.79	0.24
The different members of the public were invited to comment and provide feedback on analysis, alternatives or decisions during the project planning and implementation.	55	51	3	7	3	1.80	0.23
The fishermen were adequately consulted and involved during the project planning and implementation.	48	57	5	7	3	1.86	0.21

The public opinion influenced the planning, budgeting and implementation of the project.	34	31	45	5	5	2.30	0.27
The public had the potential to complicate decision-making hence avoiding them.	58	49	3	7	3	1.65	0.23
Public participation improved implementation efficiency by reducing citizens' resistance to the project	38	60	16	4	2	1.90	0.24

This information is further supported by the findings from the key informant interviews in which lack of proper and effective public participation during the planning, designing and implementation of the Lake Turkana Fish Processing Industry was identified as being very poor. It was noted that only the elite members of the community who had networks in Nairobi were aware of the project details. From the discussions, it was further established that the project idea had originated from the donors and not the community members who had other needs to be addressed as of that time.

4.6 Influence of Public Participation in the Governance of Climate Change Adaptation Projects

4.6.1: Respondents Awareness on their rights as “members of the public” to participate in the governance, design and implementation of climate change adaptation projects

The study sought to establish whether respondents were aware of their right as members of the public to participate in the governance, design and implementation of climate change adaptation projects. From the research findings, majority of the respondents as shown by 85% indicated that they were not aware of the existence of such rights and provisions whereas 15% of the respondents said they were aware. This implies that, majority of the respondents in the study area were not aware of their rights as members of the public to participate in the governance, design and implementation of climate change adaptation projects.

4.6.2: Extent to which public participation influences the designing, implementation and governance of climate change adaptation projects

Table 4.8: Extent to which public participation influences the designing, implementation and governance of climate change adaptation projects

Extent	Frequency	Percentage
Very Low Influence	82	68.3%
Low Influence	28	23.3%
Moderate Influence	10	8.3%
High Influence	0	0.0%
Very High Influence	0	0.0%
Total	120	100%

From the study findings, majority of the respondents represented by 68.3% indicated that the public had very low influence and that most of their opinions and ideas were not incorporated in the project, while 23.3% said the public had low levels of influence and 8.3% of the respondents indicated the level of influence to be moderate. None of the respondents indicated the influence to be high nor very high. This therefore means that the public have very low or low influence in the designing, implementing and governance of climate change adaptation projects.

The findings are supported by the results from the key informant discussions in which it was noted that, there were no clear and consistent policies for identifying the members of public to participate in a the designing of a given climate change adaptation project, their

level of engagement in which their ideas and opinions would shape the project formulation process and their role in the implementation of climate change adaptation projects once identified for implementation. It was also noted that there was general lack of accountability for measuring the levels of engaging effectively the public in the formulation and implementation of climate change adaptation projects in the country and that there was poor public awareness of the existing policies and climate change governance. It was also further noted that, although there were good policies on issues of climate change, there was still lack of a national framework for reporting on issues of climate change and hence the existence of gaps and inadequacies in the sector.

4.6.3: Examining strategies for effective public participation

The study sought to determine the extent to which respondents agreed with statements relating to the role and influence of the public in designing, implementation and governance of projects that seek to address the impacts of climate change using a scale of 1-5, where 1- Strongly disagree, 2- Disagree, 3- Neutral, 4- Agree, 5- Strongly agree. From the research findings, majority of the respondents strongly agreed to the statement that poor governance and lack of proper legislative framework limits the influence of the public in issues of climate change adaptation projects as shown by a mean of 4.30 and that the existing climate change institutions need to change their traditional practices and approaches of involving the public in addressing issues of climate change as shown by a mean of 4.25.

Respondents also strongly agreed to the statement that, there was lack of awareness among the public on their role in designing, implementing and governance of climate change adaptation projects shown by a mean of 4.21. They further agreed to the statement that, climate change institutions in the country had played vital roles in initiating, promoting, improving and sustaining adaptation practices to climate change and that effective public participation can help in the identification, designing and implementation of better projects that can help in climate change adaptation as shown by a mean of 4.17 and 4.26 respectively.

Respondents also strongly agreed with the notion that, there was absence of accountability to measure the levels of public participation in designing, implementing and governance of climate change adaptation projects as shown by a mean of 4.15. They further agreed to the notion that, poor coordination between the different ministries and departments working on issues of climate change as limiting public participation as shown by a mean of 3.88. Finally, some of the respondents agreed to the statement that the public should be compensated for the time that they take contributing to issues of climate change and designing of projects as shown by a mean of 2.9.

Table 4.9: statements relating to the role and influence of the public in designing, implementation and governance of projects that seek to address the impacts of climate change

Statements	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Mean
Effective public participation can help in the identification, designing and implementation of better projects that can help in climate change adaptation	2	3	6	45	64	4.26
	1.6%	2.5%	5%	37.5%	53.3%	-
Climate Change institutions in Kenya play vital roles in initiating, promoting, improving and sustaining adaptation practices to climate change	3	7	5	59	46	4.17
	2.5%	5.8%	4.1%	49.1%	38.3%	-
Existing climate change institutions need to change their traditional practices and approaches of involving the public in addressing issues of climate change	3	6	9	60	42	4.25
	2.5%	5%	7.5%	50%	35%	-
The current climate change institutions need better capacities for effective public participation	1	6	10	63	40	4.16
	0.8%	5%	8.3%	52.5%	33.3%	-
There is lack of awareness among the public on their role in designing, implementing and governance of climate change adaptation projects	3	2	5	59	51	4.21
	2.5%	1.6%	4.1%	49.1%	42.5%	-
Poor coordination between different ministries and	2	8	22	58	30	3.8

departments working on issues of climate change is limiting public participation						8
	1.6%	6.6 %	18.3 %	48.3%	25%	-
Poor governance and lack of proper legislative framework curtails the influence of the public in issues of climate change adaptation projects	1	4	6	61	48	4.3
	0.8%	3.3 %	5%	50.8%	40%	-
There is absence of accountability to measure the levels of public participation in designing, implementing and governance of climate change adaptation projects	5	4	8	53	50	4.1
	4.1%	3.3 %	6.6 %	44.1%	41.6%	-
The public should be compensated for the time that they take contributing to issues of climate change and designing of projects	17	10	70	14	9	2.9
	14.1%	8.3 %	58.3 %	11.6%	7.5%	-

The findings are supported by the discussions with the key informants in which they reported that the government had made significant effort in enhancing climate change adaptive capacity through policies and institutions, however it was noted that there existed notable contradictions within policy designs, structure and roles, which had caused some part/ sections of the climate change policies in Kenya to be ineffective, duplication of efforts and some even difficult to implement. The results are further supported by the study findings that, although Kenya had made remarkable strides in prioritizing climate change in its development agenda, coordination and governance of climate change policies were spread across different government ministries and agencies (Nzau, 2013). Hence limiting factors such as lack of “political good” will among the Ministries, lack of understanding of the problem and its drivers, poor coordination between different departments, bureaucratic hurdles and so forth greatly undermined the progress that could be achieved.

Nonetheless, according to the key informants there were significant progress being made in the development of policies that were meant to shape the development of climate change adaptation projects such as the constitutional recognition of sustainable development, public participation in environmental decision-making and equal socio-economic rights as enshrined in the Constitution of Kenya 2010, the development of a long-term national development blueprint to transform Kenya into an industrialized, middle-income country providing a high quality of life to all its citizens in a clean and secure environment pursuant to Vision 2030, the National Climate Change Response

Strategy (NCCRS), which focuses on developing comprehensive and robust adaptation and mitigation interventions to address the adverse impacts of climate change in the country, the National Climate Change Action Plan to effectively implement and operationalize the NCCRS and the Environmental Management and Coordination Act, Act No. 8 of 1999 (EMCA); the key legislative authority on environmental coordination and management in Kenya. All these “policies” were also identified as giving the public an opportunity to participate in the designing and managing of their projects.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the research findings, conclusion and recommendations of the research findings based on the research questions.

5.2 Summary of the Study

The study found that the changing climate had led to decrease in access to water in the sub county, decrease in income levels, deterioration in human health, decrease in forest cover, decreasing food security and grazing lands for their livestock. The study further noted that “climate change as resulting” to significant increase in migration levels and livestock diseases within the study area.

The study sought to establish the efficacy of engaging the “public in designing, implementation of the Lake Turkana Fish Processing Industry”. To begin with, the study pursued to establish whether respondents were aware of project that was aimed at responding to the impacts of climate change in their area. Majority of the respondents indicated that although they were aware of the project, they didn’t know it was meant to help them adapt to the impacts of climate change. This implies that majority of the respondents in the study area were uninformed of projects hence poor public awareness and lack of information by the public on the main objective of the project.

Additionally, the research pursued to established the effectiveness of the public participation and it was found that the public (individual citizens, community groups, civil societies) participation in the design, implementation and governance of the project was of a very low level and most of the members of the public were not consulted nor engaged. This implies that there was low level of public engagement in the design, implementation and governance of the Lake Turkana Fish processing Industry.

The study further sought to determine the extent to which the respondents agreed to statements relating to effective public participation in climate change adaptation projects. Majority of the respondents strongly disagreed with the statement that the public had the potential to complicate decision making hence a reason for their avoidance in the project. The respondents also strongly disagreed with the statement that, public opinion influenced the planning, budgeting and implementation of the Lake Turkana Fish Processing Industry. The respondents further disagreed with the statement that “public participation” improved implementation efficiency by reducing citizens’ resistance to the project. In regards to project inclusivity, the respondents strongly disagreed with the statements that, the Lake Turkana fishermen were adequately consulted and involved during the project planning and implementation of the Lake Turkana Fish Processing Industry and that the different public sectors were invited to comment and provide feedback on analysis, alternatives or decisions during the project planning and implementation. The respondents further strongly disagreed with the statement that, the local community members were involved in the designing, planning and development of the project activities.

In regards to the role of the “public” in influencing the design, implementation and governance of climate change adaptation projects, the study pursued by establishing whether the respondents were aware of their rights as “members of the public” to participate in such projects. Majority indicated to have no knowledge of this right. This implies that lack of public awareness among the respondents on their rights significantly led to their low participation and hence low levels of influence in the project.

Finally, in examining the strategies for effective public participation in climate change adaptation projects, majority of the respondents strongly agreed to the statement that poor governance and lack of proper legislative framework limits the influence of the public in issues of climate change adaptation projects and that the existing climate change institutions needed to change their traditional practices and approaches of involving the public. Respondents also strongly agreed to the statement that, there was lack of awareness among the public on their role in designing, implementing and governance of climate change adaptation projects. They further agreed to the statement that effective public participation could help in the identification, designing and implementation of better projects that can help in climate change adaptation.

Respondents also strongly agreed with the notion that, there was absence of accountability to measure the levels of public participation in designing, implementing and governance of climate change adaptation projects agreed to the notion that, poor coordination between the different ministries and departments working on issues of climate change as limiting public participation.

5.3 Conclusion

The study established that climate change impacts had significantly affected the livelihoods of the local people which is characterized by a decrease in access to water in the sub county, decrease in income levels, deterioration in human and livestock health, decreasing forest cover and food security, shrinking grazing lands and increase in human migration levels.

The study also revealed that there were low and poor levels of public participation and consultation processes, which characterized the project under study during the project formulation phase and its implementation. The local community members were not adequately involved in the designing, planning and development of the project, relevant stakeholders were also not invited to comment and provide feedback on analysis, alternatives or decisions during the project planning and implementation, the fishermen were not adequately consulted nor were their opinions and ideas taken into the project. The study therefore concludes that the public did not have much influence in the project. The study therefore concludes that the lack of effective public consultation and participation in all the phases of implementing the project and the lack of “public power” could be attributed to the project’s failure to achieve its objective and hence its collapse.

Finally, in examining the “efficacy of public participation in climate change adaption” projects, the study attributes the low levels of public participation and their “lack of power” in climate change adaptation projects to the lack of effective legislative framework for engaging the public, lack of awareness among the public on their role in designing, implementing and governance of climate change adaption projects, the absence of accountability to measure the levels of public participation and to what extents their opinions could shape the designing, implementing and governance of climate change adaptation projects and lack of strong coordination among the different ministries, departments and organizations working on issues of climate change .

5.4 Recommendations

In order to improve the effectiveness of public participation and for the successful implementation of climate change adaptation projects, there is need to consider various recommendations which are meant to improve the value of public participation in such projects.

- a) Development of a strong “legal framework” for an effective public and other stakeholders’ engagement in the designing, planning and implementation of projects aimed at addressing issues of climate change in the country.
- b) There is need to create “strategies for strong public awareness” on issues of climate change adaptation and specifically the role of the public in the design, implementation and governance of projects that are meant to address this issues.
- c) The national and the county governments should come up with strategies to curb social economic effects of climate change. This should also necessitate intense civic training on likely impacts of climate change as well as strategies for coping up with impacts.
- d) So as to control and streamline the many “uncoordinated climate change” adaptation projects in the country, there is need to develop legal framework for monitoring and auditing the success of such projects. This will help reduce wastage of resources on unaccounted projects in the country.
- e) The management of climate change adaptation projects should consider and ensure the implementation of strong monitoring and evaluation processes that would guide the projects in achieving the intended objectives
- f) The study also recommends that all “climate change adaption projects” in the country to have a clearly defined goals and objectives, further the objectives and mission should be well understood by all participants, this will help to ensure that each participant clearly understands his role thus avoiding bureaucracy.

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APPENDICES

Appendix one: Questionnaire

This questionnaire aims at gathering your views on assessing the efficacy of public participation in climate change adaption projects: the case of Lake Turkana Fish Processing Industry, Turkana County. Information obtained will be treated as confidential. Please tick where appropriate and give a brief explanation where necessary.

PART A: Demographic Information

1. Gender

Male

Female

2. Age:

Less than 30 Years

31-40 Years

41-50 years

More than 50 Years

3. Highest level of education

Secondary level

College level

University level

Postgraduate level

4. How long have you lived in Turkana Sub County?

1- 5 years

6 - 10years

11 - 15

Above 16 years

Part B: impacts on the livelihood activities of the local people in Turkana Central Sub County

5. Do you feel the patterns of weather have generally changed in the past 20 years?

- Not at all [] Not significantly []
 I don't know [] Significantly []
 Very Significantly []

6. To what extent has climate change influenced livelihood activities in your area?

- Low extent [] High extent []
 Not aware []

What impacts has climate change had on the following livelihood activities in your area?

Use a scale of 1 to 5 where 1 = Significantly Increased 2 = Increased, 3 = No Significant Change, 4 = Decreased, and 5 = Significantly Decreased.

Activity	1	2	3	4	5
Income levels					
Food security					
Human Health Care					
Access to Water					
Access to Grazing Lands for livestock					
Forest Cover					
Migration					
Employment levels					
Livestock Diseases					

7. Please briefly explain other ways in which climate change has affected the livelihood of the people in your area

.....

Part C: Public Participation in Programming of Climate Change Projects

8. Are you aware of any projects that seek to respond to the impacts of climate change in your area?

Yes []

No []

i). If yes, please name the project.....

ii). Please rate how successful the project was in addressing the impacts of climate change

Unsuccessful () Successful () I don Know ()

9. Are you aware of the Lake Turkana Fish Processing Industry Project

Yes []

No []

If yes, to what extent do you think do you think the public were involved in the in the designing and planning of the project? Use a scale of 1 to 5 where 1 = to a very low extent and 5 = to a great extent. (If no, please proceed to question 12)

	1	2	3	4	5
Public participation (individual citizens, community groups, civil societies, government institutions)					

10. Kindly indicate your level of agreement with the following statements relating to public in regards to the Lake Turkana Fish Processing industry. Use a scale of 1-5, where 1- Strongly disagrees, 2- Disagree, 3- not sure, 4- Agree, 5- Strongly agrees.

Statements	1	2	3	4	5
The local community was involved in the designing, planning and development of the project.					
The different public stakeholders were invited to comment and provide feedback on analysis, alternatives or decisions during the project planning and implementation					
The fishermen were adequately consulted and involved during the project planning and implementation					
The public opinion influenced the planning, budgeting and implementation of the project					
Public participation had the potential to complicate decision making hence avoiding them					
Public participation improved implementation efficiency by reducing citizens' resistance					

11. In your opinion, were the various stakeholders involved in the designing and implementation of the Lake Turkana fish industry?

.....

Part D: The Influence of Public Participation in the Governance of Climate Change

Adaptation Projects

12. Are you aware of your rights as “a member of the public” to participate in the governance, design and implementation of climate change adaptation projects?

Yes []

No []

13. To what extent do you think the participation of the public influences the designing, implementation and governance of climate change adaptation projects?

To a very low extent []

To a low extent []

To a moderate extent []

To a high extent []

To a very high extent []

14. Kindly indicate your level of agreement to the statements below relating to Policy and Institutional Capacity and its influence on climate change adaptation projects. Use a scale of 1-5, where 1- Strongly disagree, 2- Disagree, 3- Neutral, 4- Agree, 5- Strongly agree.

Statements	1	2	3	4	5
Effective public participation can help in the identification, designing and implementation of better projects that can help in climate change adaptation					
Climate Change institutions in Kenya play vital roles in initiating, promoting, improving and sustaining adaptation practices to climate change					
Existing climate change institutions need to change their traditional practices and approaches of involving the public in addressing issues of climate change					
The current climate change institutions need better capacities for effective public participation					

There is lack of awareness among the public on their role in designing, implementing and governance of climate change adaption projects					
Poor coordination between different ministries and departments working on issues of climate change is limiting public participation					
Poor governance and lack of proper legislative framework curtails the influence of the public in issues of climate change adaptation projects					
There is absence of accountability to measure the levels of public participation in designing, implementing and governance of climate change adaptation projects					
The public should be compensated for the time that they take contributing to issues of climate change and designing of projects					

15. Kindly recommend on how best the public can be engaged in the governance, designing and management of climate change adaption projects?

.....
.....

16. In your opinion, how has public participation influenced the implementation of projects that seek to address the impacts of climate change?

.....
.....
.....

Appendix Two: Key Informant Guide

This Key Informant Guide aims at gathering your views on assessing the efficacy of public participation in climate change adaption projects: the case of Lake Turkana Fish Processing Industry, Turkana County. Information obtained will be treated as confidential. Please provide a brief explanation to the following questions.

1. Kindly comment on how climate change has affected the livelihood activities of the people in Turkana.
2. In your opinion, what are the factors that enhance the success of projects aimed at addressing the impacts of climate change?
3. How does public participation influence the governance, designing and implementation of climate change adaptation projects?
4. What are the legal strategies for effective public participation in the design and implementation of climate change adaptation projects?
5. How significant does your organization/department take the opinions and ideas of the public in designing and implementing of climate change adaptation projects?
6. To what level do you consider the engagement of the public on issues of climate change to be relevant?
7. Please comment on the relevance of the existing legal frameworks for public participation and their effectiveness.
8. Kindly recommend what should be done to enhance the effective participation of the public in the designing, implementation and governance of climate change adaptation projects?

THANKS

Appendix Three: Letter of Research Approval



UNIVERSITY OF NAIROBI BOARD OF POSTGRADUATE STUDIES

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P. O. Box 30197 - 00100
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Our Ref: Z51/75568/2014

June 17, 2016

Mr. Mohammed Adan Hussein
C/o Director
CASELAP

Dear Mr. Hussein,

RESEARCH PROPOSAL AND SUPERVISORS

This is to inform you that the Director, acting on behalf of the Board of Postgraduate Studies has approved your M.A research proposal titled: **"Assessment of Factors Influencing Climate Change Adaptation Projects in Kenya: The Lake Turkana Fish Industry"**.

She has also approved **Dr. Collins Odote** and **Dr. Robert Kibugi** as the supervisors of your thesis.

You should therefore begin consulting them and ensure that you submit your thesis for examination on or before the end of December 2016. The Guidelines on Postgraduate Supervision can be accessed on our website (www.bps.uonbi.ac.ke) while the Research Notebook is available at the University Bookstore.

Yours sincerely,

J. K. GACHUNGA
FOR: DIRECTOR, BOARD OF POSTGRADUATE STUDIES

c.c Director, CASELAP
Dr. Collins Odote (Supervisor) - C/o Director, CASELAP
Dr. Robert Kibugi (Supervisor) -C/o Director, CASELAP

JKG/mv

Appendix Four: Introduction to Collect Data from the field



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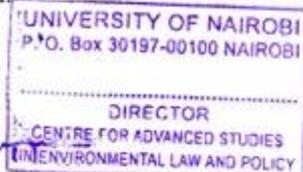
May 13, 2016

Ref: Z51/75568/2014

Re: REFERENCE FOR HUSSEIN MOHAMED ADAN
REGISTRATION NO. Z51/75568/2014

This is to confirm that Mr. Hussein Mohamed Adan is a Masters student at the Centre for Advanced Studies in Environmental Law and Policy (CASELAP). This is a two year programme leading to the award of Master of Arts degree in Environmental Law. Mr. Adan is currently working on a research project entitled "Assessment of Factors Influencing the Success of Climate Change Adaptation Projects."

Any assistance accorded to him in respect to his research project will be highly appreciated.




Nicholas O. Oguge (PhD)
Director
And
Professor in Environmental Policy