

**THE EFFICACY OF KENYA'S CRITICAL SECTORAL ENVIRONMENTAL
POLICIES IN MEETING WOMEN'S CLIMATE CHANGE MITIGATION AND
ADAPTATION NEEDS: BUNGOMA COUNTY, KENYA**

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**A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of
Master of Arts in Environmental Policy, of the University of Nairobi**

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DECLARATION

This Thesis is my original work and has not been submitted for an award of a degree in any University.

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DEDICATION

This work is dedicated to my late Dad, Mr. Fredrick Wekesa Lupao who denied himself the pleasures of life in order for me to pursue the heights of education.

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LIST OF ACRONYMS & ABBREVIATIONS

ASALs	Arid and Semi-Arid Lands
BAT	British American Tobacco
FAO	Food and Agricultural Organization
BPFA	Beijing Platform for Action
GHG	Green House Gases
IUCN	International Union for Conservation of Nature
IPCC	Intergovernmental Panel on Climate Change
NCCRS	National Climate Change Response Strategy
NFLS	Nairobi Forward-looking Strategies on the Advancement of Women
SSPS	Statistical Package for Social Sciences
WED	Women, Environment and Development
WID	Women in Development
UNFCCC	United Nations Framework Convention on Climate Change
CBD	Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme

ABSTRACT

The impacts of Climate change affect various people in the society in different ways. The effects project differently among the different sections of the community such as the old, the young, women and men. Various studies carried out have shown that women in particular suffer much more from the disasters associated with climate change than men. This is largely due to their vulnerability, a complex interaction between poverty and gender relations which often makes women poorer than men in many societies. When consequences of climate change are not adequately addressed, women are deprived further and this creates the need for action at policy level to mainstream their affairs for better adaptation and mitigation against the effects of climate change. This calls for policy-makers to place women affairs at an elevated level of importance during formulation of key policy documents to help them adapt to and mitigate against the impacts of climate change effectively. It is critical that such policies take into account the interests of women at all the stages of their development. Kenya has several sectoral environmental policy documents that are perceived to be relevant in addressing climate change, sustainable development and environmental issues. However, their efficacy in aiding women adaptation and mitigation against the effects of climate change remains untested. The aim of this study therefore was to examine the provisions of the Forest Policy, the Water Policy and select sub-sector policies in agriculture, to determine their efficacy in addressing the climate change adaptation and mitigation needs of women in Bungoma County. From results of the study, appropriate recommendations were given on how to make the policies more efficacious. The study area was Bungoma County in the Western part of Kenya. Both primary and secondary data was used in this study. The sampling design method chosen for the study was non-probability. Through both purposive and quota sampling, 900 participants were selected from the County. Primary data was collected using questionnaires from the respondents. Interviews were carried out with key informants and focus group discussions. This was to deduce the knowledge and perceptions of the respondents on climate change impacts on women, the corresponding environmental polices available in addressing these impacts as well as their efficacy. Secondary data was collected through review of the existing literature in order to obtain

relevant information. Kenya's Forest Policy, Water Policy and select sub-sector policies in Agriculture were examined as well as other relevant international, national and local policies and action plans relevant to the study. The data collected was analysed using appropriate tools, the SPSS and presented according to the various themes in the form of discussions, tables and charts. The study findings revealed various consequences of adverse climatic conditions affecting women in Bungoma County. In order of importance they are as follows: diseases, 67%, food security, 61%, soil erosion, 45%, drought conditions, 15%, massive flooding 12%, unprecedented cold spells 9%, while others were at 9%. It also deduced that critical sectoral environmental policies are not efficacious enough to aid women adaptation and mitigation against the adverse climate change effects. Thus, there is need to review the various policies to enhance their efficacy in climate change adaptation and mitigation needs for the women in Bungoma County.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The global warming phenomenon explained as the rise in the average temperature of the earth's atmosphere and oceans is caused by the emission of greenhouse gases such as carbon dioxide and methane (Collier *et al.*, 2008). This phenomenon causes changes to the climate with various effects. Some of the effects are; a rise in sea level leading to flooding especially along the coastal areas; a decline in water available for consumption and erratic changes in the weather system which include changes in rainfall patterns. Others such as increase in temperatures cause heat waves which can be a great risk to people's lives. All these phenomena affect economic growth and increase in poverty incidences (Brauch, *et al.*, 2011; IPCC 2007b; Boko *et al.*, 2007; Pascual *et al.*, 2006; Stern *et al.*, 2006; Davies *et al.*, 2008). Human activities such as fossil fuel burning, land use changes, mainly deforestation, cattle rearing, rice cultivation and landfill activities contribute to environmental degradation and increase the emission of greenhouse gases that cause global warming, hence climate change, (IPCC 2001a; Masika, 2001), FAO 2007; Klein *et al.*, 2005; Tschakert *et al.*, 2008).

Stern (2007) has stated that there is differentiated responsibilities and vulnerabilities as well as modes of adjustments to the effects of climate change between men and women. Women are affected more by the adverse effects of climate change. Yet, amidst all these glaring realities, actors and discourses surrounding climate change adaptation and mitigation have not included women. This is due to, first, the complexity and uncertainty that climate change brings with it. The second reason for this is the insistence on women's universal vulnerability, especially in the developing world, which has contributed to the lack of inclusion of women affairs in climate change debates (Kameri-Mbote, 2013). It is assumed that the problems and vulnerability of women are known and an obvious fact. Such assumptions take away the vital voices of women. The situation is made worse when women take on additional roles that were traditionally male roles within the context of gender roles. Third, the generalizations often conceal other climate change related causes of vulnerabilities such as drought, hazards and famine (Enarson, 2000). Women adaptation and mitigation against the effects of climate change can be aided where there is availability of efficacious sectoral environmental policies.

Kenya as country has made attempts at addressing environmental related problems by enacting various sectoral environmental policies. There are others, which are still in draft form. In the light of emerging concerns that have been raised, there is need to critically examine the efficacy of the existing critical environmental policies and action plans to ensure that they meet the needs of both gender and take into consideration specific needs of women. This unfortunately has not been done in regard to Bungoma County. This research therefore sought to make an incisive and detailed evaluation of the efficacy of Kenya's critical sectoral environmental policies in meeting Bungoma women's climate change mitigation and adaptation needs and where necessary, point out their deficiencies. The critical policies under focus were; the Forest Policy, the Water Policy and the crucial sub-sector policies in agriculture. Their choice, as shall be later demonstrated, was informed by the critical place they hold in Bungoma County.

The choice of Bungoma as a case study was primarily informed by the fact that it is a huge agricultural county contributing significantly to the national food basket, National Food and Nutritional Security Policy, (2011). The main economic activities in Bungoma County are crop farming and livestock rearing. The crops include sugarcane and maize farming, while livestock keeping and breeding as well as some poultry farming also takes place in the county with women being the main actors. They till the land, weed and harvest the crops. They are the primary providers of livelihoods in the community, just as they are the main agents of conservation of forest resources in the county.

Nzoia Sugar Company is the main factory in the County. It is a great source of employment to the local community. There are also tobacco factories such as British American Tobacco (BAT) Malakisi and Mastermind Tobacco (K). The county also has Kitinda Dairies which forms part of the industries.

1.2 Statement of the Problem

Research based evidence by Enarson, (2000), Wedo, (1999) show that women and men experience the effects of climate change differently and so is their response during occurrences of disasters occasioned by climate change. Difficult menial roles in the society for example, fetching water from the rivers, searching for firewood, and extracting vegetables and medicines from the forests are carried out by women. Yet they have limited access to and ownership of land, housing and education. They also lack authority to make important decisions on

exploitation of environmental resources. One of the ways in which women can be aided to adapt to and mitigate against the effects of climate change is through enactment of efficacious environmental policies that address their adaptation and migration needs.

It is important, therefore, that sectoral environmental policies and action plans put a great focus on women adaptation and mitigation against the effects of climate change. The focus on women adaptation and mitigation against climate change effects through sectoral environmental policies cannot be articulated without, first, testing the policies' efficacy. Unfortunately, this has not been done in regard to Bungoma County. This is what the researcher went out to address.

1.3 Research Questions

The study was guided by the following research questions

- i. What is the role of women in the management of environmental resources in Bungoma County?
- ii. To what extent do Kenya's critical environmental policies aid Bungoma women's adaptation and mitigation against the effects of climate change?
- iii. What are the impacts of climate change on women in Bungoma and what are the tentative mitigation and adaptation measures?

1.3.1 Main Objective

The main objective of the study was to assess the efficacy of Kenya's Forest Policy, Water Policy and select sub-sector policies in Agriculture in meeting Bungoma women's climate change mitigation and adaptation needs. The specific objectives of the study were to:

- i. Assess the role of women in the management of environmental resources in Bungoma County.
- ii. Assess the extent to which Kenya's critical environmental policies aid Bungoma women's adaptation and mitigation against the effects of climate change.
- iii. Deduce the climate change impacts that affect women in Bungoma and suggest tentative mitigation and adaptation measures.

1.4 Justification of the Study

Kenya has made attempts at enacting various policies towards the forest, water and agriculture sectors. Part of the aim of these policies, is to aid women adaptation and mitigation against climate change effects.

Despite this, the efficacy of these policies remains untested. This research is aimed at putting to test the efficacy of the Forest Policy, the Water Policy and various sub-sector policies in Agriculture and point out any deficiencies so as to enhance them in order to aid women's adaptation and mitigation needs. Without a critical analysis of the policies and appropriate recommendations, the country will not achieve sound sectoral environmental policies that can provide a framework for women to sufficiently cope with climate change adaptation and mitigation needs.

1.5 Significance of the Study

Policies are important in that they lay frameworks upon which Governments base legislations as well as response strategies in order to address a particular problem. According to Norgward and Howarth (1991) environmental and development policies will not attain sustainability in regard to environmental conservation measures unless the present generation transfers resources and capital to women to champion these initiatives. It is for these reasons that testing the efficacy of the sectoral environmental policies, which aim at aiding women adaptation and mitigation against the effects of climate change, should be given primacy. This is important to cure the existing gaps in these policies so as to tailor-make them to suit women adaptation and mitigation against the effects of climate change.

The nature of the phenomenon of climate change is such that global measures that are taken to curb it need to be backed by regional, national and local plans. Indeed while international agreements to curb, for instance; greenhouse gas (GHG) emissions are negotiated between states, the plans and actions to deal with them need to be taken by individual states. The study is in tandem with the need for states to deal with plans and actions as well as policies at the local level. This study aims to interrogate the efficacy of the key sectoral environmental policies in Bungoma County, the findings of which should aid policy decision makers in the county in enhancing the policies' efficacy where deficiencies are established. This is in order to aid women adapt to and mitigate against climate change effects.

1.6 The Key Policy Instruments Examined in the Research; the Forest Policy, the Water Policy and select sub-sector Policies in Agriculture

The aim of this study was to critically examine the efficacy of critical sectoral environmental policy instruments in meeting Bungoma women's' adaptation and mitigation needs against the effects of climate change. The study focused on three key policies that are vital to the women of Bungoma County in regard to their adaptation and mitigation needs. These are Kenya's Forest policy, the Water policy and the select Agricultural sub-sector policies. These policies are critical to Bungoma County due to its position as a major food basket contributor in the country. A detailed analysis of these policies will be examined later in this work.

1.7 Scope and Limitations of the Study

In terms of scope, the study concentration was on the plight of women in Bungoma County and existing sectoral environmental policies that should aid them to combat and cope with negative effects of climate change. The focus was specific to three key policies considered vital to the study theme; the Forest policy, the Water policy and the various Agricultural sub-sector policies.

There were a number of limiting factors in carrying out this research. These included;

- i. Shortage of time that would not allow for a much more extensive and detailed research.
- ii. Suspicions from some residents as to the true intend of the research
- iii. Cultural attitudes; Conducting an interview with middle-aged female participants was problematic because of the suspicion attached when a male person engages in private conversations with women
- iv. Limited financial resources to cover the entire County effectively. Also some participants expected financial reward for taking part in the survey.
- v. Low literacy level and challenges of translation of words such as policies into the local language for proper comprehension of the questions. Many of the participants needed a one-on-one explanation of each question from the researcher. This was time consuming and exhausting, especially when the participant could not comprehend the questions and it had to be repeated to them so many times.

The researcher addressed these limitations by explaining in detail the purpose of the study, the rationale of the study as well as why it was important that the respondents co-operate and be truthful with the answers they gave. Familiarizing with the sample target groups before embarking on the interviews also served to reduce suspicion from the interviewees.

1.8 Ethical Considerations

During the research process, the researcher ensured that there was informed consent on the part of the respondents by encouraging them to sign a written consent form. The respondents were assured that the data being collected would be solely for the intended research. In order to gain the respondent's confidence, the researcher did not record their names on the questionnaires.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviewed studies that have been carried out in the past around the research topic. The first part highlighted the impacts of climate change on women, bringing out the fact that the effects of climate change are not gender neutral. This was necessary to build up a case for adoption of women centered sectoral environmental policies that would aid them for adaptation and mitigation against the effects of climate change. The primary thread in this part demonstrates the fact that climate change effects impact women more than they do for men.

The second part of the chapter highlights the relationship between women and environmental resources, demonstrating their unique knowledge and interaction with these resources. It makes a case for involvement of women in environmental resources management and conservation through enactment of effective sectoral environmental policies for management of these resources, whose proper care and management would help control and keep in check the adverse effects of climate change. The last part of this chapter takes a critical look at the available literature on the role of sectoral environmental policies in aiding women adaptation and mitigation against the effects of climate change.

Case studies from around the world, regionally and locally were reviewed and a comparison made with the literature available on the existing policy initiatives to establish if the available sectoral environmental policies are indeed effective in aiding women adaptation and mitigation against the effects of climate change. This is aimed at identifying the gaps that exist in the available literature on environmental policies that were the central focus. The aim of this was to find appropriate measures to fill the gaps in the literature in order to build strategies for the women of Bungoma to adapt to the effects of climate change through effective policies.

2.2 Women and Climate Change

The severity of climate change effects are felt by women more than they are felt by men. Scholarly work on climate change recognizes the fact that climate change effects will be more harsh in tropical countries especially in the sub-Saharan Africa region, with women bearing the biggest brunt of the effects. Climate-related disasters have been found to impact hard on female-headed households, particularly where they have fewer assets (Marteen *et al.* 2008; Collier, 2008;

Unruh, 2008; Barauch *et al.*, 2011). In addition, women are likely to be less successful, and find it more difficult to restore their livelihoods after such phenomenon as floods (Baden *et al.*, 1994; Thornton *et al* 2006). Similarly IPCC (1995) also recognizes the fact that smallholder farmers, mostly women, often don't have the coping mechanisms for adaptation and mitigation against the effects of climate change. Hence, it calls upon stakeholders to develop effective policies in environmental aspects such as agriculture to deal with adaptation and mitigation measures as far as the effects of climate change are concerned.

The adaptation and mitigation strategies include the use of accurate technology for accurate weather forecasts in order to aid farmers plant the right varieties of crops at the onset of the rainy seasons to enable them maximize the benefits from the rain water, especially where the rainfall intensity is eventually reduced due to changing climatic conditions. According to McCarthet *al.*, (2001) accurate weather forecasts can help African farmers plan to align their farming activities according to the needs of the crops, hence maximize the yields. Adoption of improved crop varieties as well as better livestock breeds should be included.

According to Travis *et al.*, (2010) the adoption of better animal and plant varieties that are better suited to adaptation to climate change will result into less use of pesticides and fertilizer which in turn aids the famers' adaptation to climate change. Good farming techniques that can avail food crops as well as ensure farm management such as Agro-forestry should be adopted. They have the potential of improving soil fertility; create favorable micro-climate for growing crops as well as meeting the needs of other food crops such as fruits.

Women have roles at household levels that make them reliant on trees as well as plant resources, which are often destroyed by climate change induced calamities. Tasks such as fetching water and firewood, places them under great strain whenever there is scarcity of these resources, since they have to walk longer distances in search of firewood due to diminishing plant resources. At the same time, drying up of water bodies means longer walking distances to fetch water for household use, a task that is generally the domain of women. This calls for enactment of sectoral environmental policies that can aid women adaptation and mitigation against the effects of climate change.

The drastic weather changes associated with climate change take a big toll on women's health due to problems that accompany these changes. Women's roles in societies as care givers are

compounded by the frequency of health problems occasioned by the effects of climate change and therefore women often end up having poorer nutritional status and resistance to diseases as compared to men (Balaike *et al.*, 1994). This situation is made worse by their inability to access health services. To help alleviate such problems, women need sound environmental policies that are favorable to them hence aid them in adaptation to and mitigation against the effects of climate change.

Climate change tends to exacerbate food scarcity. This cause's food insecurity in households which is an additional strain on women who have to make sure that there is enough for families because women are seen as being responsible for ensuring food availability to their families. This is particularly in rural settings (Dankelman, 2002). According to Enarson (2000), women experience high levels of pre-disaster and post-disaster poverty. They have unequal status in the workforce, being more unlikely to be employed in the informal sector and having less equitable access to land and other natural resources compared to men. Women also constitute one of the poorest and most deprived segments of the society hence more prone to the effects of climate change (Denton, 2001). Studies have also demonstrated that households which depend on women's labour in subsistence, cash cropping or plantations are usually most affected by storms and droughts (Nelson *et al* 2002). The attendant burdens and problems that women face as a result of climate change occasioned disasters are bound to be lessened where sectoral environmental policies provide for women specific mechanisms that engender aspects of adaptation and mitigation as focal points of response initiatives to these disasters.

Climate change impacts can also exacerbate household food hierarchies. In many traditional African contexts, men are placed above women, and so disasters that reduce food availability can reduce the total amount of food available to women. The resultant effect is that women are likely to have poorer nutritional status and resistance to diseases, thus, making them more likely to be at risk of malnutrition as compared to men. This is increased by their desire to feed their families in preference to themselves (Blaikie *et al.*, 1994; Reyes, 2002). Boyd (2001) argues that climate mitigation projects have mainly been informed by Western ideas of science and development, and therefore the discourses revolving around the ways to mitigate climate changes are dominated by men.

Both the local and global decision-making frameworks to the local implementation of climate mitigation projects have been dominated by male voices. The predominant decision-makers at all levels of decision-making are men either as bureaucrats negotiating on behalf of their governments; NGO representatives; extension workers; and decision-makers in local organizations as well as individual activists. Women are absent from decision-making processes, and policy formulation within conservation, protection, rehabilitation, and environmental management which predominantly follow male agendas (Denton, 2001). The demands on women's time and labour, together with widespread social constraints on their freedom to participate in public action as well as the prejudices that they face in the community, often leave them with few opportunities for constructive political and economic decision making. This leaves women without a voice in the decision-making processes that affect their lives and, in particular, their ability to contribute fully to sustainable Development through environmental conservation and management (Roy and Venema, 2002). This can be remedied by developing efficacious sectoral environmental policies to aid the women meet their adaptation and mitigation needs.

2.3 Women and the Environment

Since time immemorial, women have been known to interact very closely with the environment (Apusiga, 2009). They earn a living from natural resources hence they have a unique knowledge of the environment and the importance of sustainability (Roy & Venema, 2002). Because of this unique way that women interact with the environment, they tend to take care of the environment better than men. They are aware that climate change will impact negatively against their livelihoods by reducing their income opportunities through loss of biodiversity hence erode the basic support systems for their livelihoods (Barauch *et al.*, 2011). According to the Centre for Science and Environment (CSE), based in New Delhi (India), and in a report titled '*The State of India's Environment Report in 1985*', it states that '*there is no other group that is more affected by environmental destruction than poor village women.*' The report went on to state as follows:

“Every dawn brings with it a long march in search of fuel, fodder and water...As ecological conditions worsen, the report concluded, the long march becomes even longer and more tiresome. Caught between poverty and environmental destruction, poor rural women in India could well be reaching the limits of physical endurance” (CSE 1985).

Women are also consciously aware that climate change could exacerbate the current gender inequalities leaving them more marginalized hence they have a sense of obligation to take care of the environment (Roy & Venema, 2002). This is why most of them have developed special interest in sustainable utilization of environmental resources. This has been aided at global level by some attempts, which have been made to integrate women affairs in environmental policy initiatives that are meant to aid their mitigation and adaptation against the effects of climate change.

For instance, during the World conference on Women in Nairobi that took place in 1985, participants expressed the need to factor women adaptation and mitigation needs against the effects of climate change in environmental policies. According to Sterling (1999) donors too have made the same rallying calls and this received a major boost in the 90s when the Women Action Agenda 21 was enacted in the wake of the 1992 United Nations Conference on Environment and Development. Similarly, the 1992 Rio Earth Summit helped to moot a gender perspective with women in focus in the output of the Rio Summit. These have resulted into strong voices calling for tailoring of environmental policies with women perspectives in order to aid them in the adaptation and mitigation against the effects of climate change.

Pavel and Fulco (2009) argue that it is necessary to integrate women concerns in the development of environmental policies and programs to give them an active voice in the environmental matters. Their role of natural resource conservation can only be effective if it is backed up by sound environmental policies, which will avail them an opportunity to play a critical role. This position was reinforced during the signing of the Millenium Declaration at the 2000 United Nations Millennium Summit where the call to promote Gender Equality and Empower Women were made. This goal was intended to be achieved by the year 2015! The said declaration resulted into a further boost that tied empowerment of women and the environment at policy level, with a rallying call to enact effective environmental policies to aid women adaptation to the effects of climate change.

The need to tailor sectoral environmental policies to foster women adaptation and mitigation against the effects of climate change is exemplified further when the interaction of women with environmental resources is put into perspective. It has been demonstrated that in most societies across the globe, women are considered the primary users of natural resources such as water and

forests. This is due to their household chores of gathering these resources (Van 1998). This is particularly so in developing countries. They are mostly pre-occupied with farming in order to feed their households. This interaction with the environment enables them to gain more experience in dealing with environmental resources in a sustainable manner. They therefore advocate for more conservation and sustainable use of these resources (Jigging, 1994).

For instance, when it comes to the use of water, women spend a considerable amount of time searching for it and would willingly preserve its quality for sustainability and convenient accessibility. A water Policy that guarantees access to water would go a long way in ensuring that women and entire families are less burdened accessing and using water resources as well as freeing time for them to attend to other responsibilities (Boserup, 1989). It is also argued that women have accumulated knowledge about water resources, including location, quality and storage mechanisms. Their preference on the use of water is different from men, with women having emphasis on conservation. Hence, women should always be incorporated in Water Policies that are geared towards management of water resources in order to avail its sustainable use (Nozibele, 1998). Additionally, apart from the special knowledge that women have in water resources management, they also face unique challenges. According to the UNDP Report (2006) access to safe drinking water in sub-Saharan Africa is a pipedream for many societies. This in itself has contributed to enormous food security challenges leading to poverty, hence conflicts. It therefore calls upon policy makers to formulate sound policy provisions as far as women access to and management of water resources is concerned (Gender & Water Alliance, 2005). This will no doubt aid in their adaptation to the apparent effects of climate change that tend to diminish water availability. One way of achieving a policy perspective in the management of an environmental resource such as water is by opening avenues for women participation in its exploitation.

According to Mjoli (1998) policies should aim at breaking the marginalized positions of women in the management of water supply and sanitation. Her argument is that water and sanitation projects are more sustainable when women have ongoing responsibilities for their operations and maintenance. According to her, women will ensure the water projects' success since they fear the adverse effects of its unavailability to themselves. Kenya's sectoral Environmental policies such as the Water Policy should therefore have a gender-based approach to ensure sustainability. This

approach would foster women's participation and aid their adaptation to the effects of climate change in this sector.

2.4 Relevant Policy Framework; The Forest Policy, the Water Policy and the Agricultural sub-sector Policies

Climate change is projected to have profound effects on various environmental sectors. Kenya's National Climate Change Action Plan recognizes the need to incorporate climate change programs into the national development plans and policies. The need is even greater for the same to be incorporated into the critical sectorial environmental policies in order to aid women adaptation and mitigation against climate change effects. This thesis sought to examine the efficacy of Kenya's critical sectorial environmental policies in meeting Bungoma Women's climate change mitigation and adaptation needs.

The three key and critical sectorial environmental policies, whose efficacy was examined in detail, were; the Forest Policy, the Water Policy and various critical policies in the Agricultural sub-sector. The rationale for choosing to examine efficacy of the identified policies is due to their specificity for relevance in issues and the potentiality to cascade to the grassroots level, which is appropriate for the women in Bungoma who are mostly rural. According to Dower *et al.*, (1999) the sectors that will be affected the most by climate change are agriculture, water and forestry. Significant changes in precipitation caused by Climate Change will cause adverse effects on agricultural production and at the same time, rapid climate change will alter forest productivity and could as well trigger an increase in pests and diseases. As such, stakeholders therefore ought to enact effective environmental policies which will aid women adaptation and mitigation against the effects of climate change (UNCED, 1992). This includes policies that empower women for full participation in the management of environmental resources such as water and forests and agricultural activities on the farms including crop growing and animal husbandry.

There was a rationale for examining the policies in agriculture, water and the forestry sectors:

The Agricultural Sub-sector Policies;

Kenya's agricultural sector is governed by a number of sub-sector policies which aim at addressing specific aspects within the agricultural sector. The National Agricultural Extension

Policy (2001) aims to aid Kenyan farmers have access to high quality extension services from the best providers leading to increased production, incomes and improved standards of living by the year 2020.

The National Livestock Policy (2008) on the other hand aims to attain appropriate livestock management systems that attain sustainable development within the sector including genetic conservation of the animal resources, disease and pests control, carry out research on the best animal rearing practices, marketing initiatives and address both cross cutting issues that affect the livestock sub-sector in the country. Meanwhile, the National Irrigation Policy (2015) aims to provide an orderly and rapid development of the irrigation sub-sector and to create an enabling environment for effective stakeholder participation. It is also designed to seek ways to stimulate and guide the irrigation sub-sector and drainage development through targeted technical support, intensified investment in the sector, research and technological advancement and build capacity for farmers to achieve maximum agricultural production. It should be appreciated that as the climate changes and arable land in Bungoma County dries up, there is need to sustain crop growth by employing irrigation measures to maintain the farm yields.

Studies on the contribution of the Agricultural sector to Kenya's Gross Domestic Product (GDP) show that the sector contributes up to 26% directly and another 25% indirectly. It also accounts for 65% of the total export earnings by the country and accounts for more than 18 % and 70% of the formal and informal employment respectively. Due to the fact that livestock production and crop cultivation follow an annual pattern of the rain cycle, which are sometimes not reliable, irrigation must be actively embraced to attain the annual food demands in the country. Women, therefore, being the main agents of cultivation will gain when they are facilitated to embrace irrigation.

Apart from performing their household chores, women participate in land preparation, planting, weeding, fertilizer application, harvesting and transportation of the farm produce. They also undertake the cultivation of vegetables while others are also involved in the processing of food for family consumption. Given this unique interaction between women and agriculture, women are affected the most when climate change effects impact on agricultural activities, thus the need for the policies to clearly spell out their adaptation and mitigation measures.

A dissection of the above policies, regrettably, demonstrates that they have no provisions for aiding women as far as adaptation and mitigation against the effects of climate change is concerned. This is despite the fact that the bulk of Kenyan farmers particularly in small holdings in areas such as Bungoma County are women (Enarson 2000; Baden *et al* 1994; Thornton *et al.*, 2006; Dankelman 2002). They are the ones who are involved in the day to day tilling of lands for food production. The extension services prescribed in the National Agricultural Extension Policy would no doubt go a long way in aiding women fulfill their aspirations as far as productivity is concerned. However, these extension services are not administered for free. Yet, women have less access to farming capital hence alienating them from accessibility to the prescribed Agricultural Extension Services. These sentiments were also echoed at the field level during data collection.

Bungoma County is an Agricultural zone, forming part of Kenya's bread basket belt and contributing significantly to the national grain reserve. According to Kenya's Economic Review of Agriculture (2013), Bungoma County is one of the top producers of maize as well as other cereals such as sorghum and millet. Other crops growing in the County include rice, potatoes, bananas, beans and all forms of vegetables as well as cash crops including sugarcane, tobacco, coffee, tea and sunflower, with women as primary farm managers. An examination of the Policies in agriculture was thus crucial.

Women play the greatest role in food production. They determine the amount of food available in the homes and also provide the labour needed in tilling the lands for food production (Kameri-Mbote, 1992). According to Wanjama (2004) women are a critical factor in ensuring availability of food in many rural households. Todaro (2003) argues that women constitute 70% of the work force on the land in their effort to produce food. This is true of women in Bungoma County. Yet, climate change is projected to have significant negative impacts on the agricultural sector. According to Wheeler *et al.*, (2000) the envisaged high temperatures that will be occasioned as a result of climate change will impair the flowering process of most food crops, thus dipping the yields. Similarly, Climate change affects atmospheric temperatures, soil fertility, moisture and the duration with which the crops take to mature, hence the overall aspects of agriculture. This according, to IPCC (2001) will lead to a decline in food productivity. This has called for measures that would aid women adaptation and mitigation against these adverse effects of climate change as far as food production is concerned.

According to the Bungoma County's Provincial Director of Agriculture Report, Bungoma County Report (2010), the County has experienced considerable decrease in food production due to the effects of climate change and the smallholder farmers are now struggling to cope with this new phenomenon. According to this report, measures to aid farmers adapt to the changing trends in the climatic conditions are called for. The report goes on further to ask stakeholders to aid farmers harness their indigenous knowledge in agriculture so as to meet food requirements in the households. Nangendo (1992) argues that the Bukusu family system (the dominant inhabitants of Bungoma County) is very authoritative and women are seen as mere pawns and they are often deprived of their economic rights including the farm produce (Dawyer and Bruce 1988; Gisbert *et al.*, 1992).

In the above context, the women are just working machines on the farm but what is planted and the harvest is a decision for the man. This kind of behavior and attitude necessitates the development of sound policy initiatives that should give women more say. There is therefore need to tailor the various policies in the Agricultural sector to appreciate such realities to empower and make provision for the place of women in ensuring food security. This therefore requires that agricultural policies should be tailored to respond to these emerging trends since they will no doubt become increasingly problematic if women continue to follow traditional growing and harvesting patterns.

Although Kenya has made some attempts in formulating some Agriculture sector specific policies to address various needs in the sector, women adaptation to the effects of climate change and mitigation against the same is not well catered for. The National Agricultural Extension Policy (NAEP) 2001 recognizes the fact that the biggest percentages of small scale farmers in Kenya (80%), a category in which most of the Bungoma farmers fall are women. Estimates documented reveal that women account for 80% of the agricultural work force. There is therefore the need to recognize and empower them in agricultural programmes geared towards food security initiatives in the County. Research has also established that the impact of agricultural extension services is not gender neutral. This brings out the need to formulate agricultural policies that will aid women adaptation and mitigation against the effects of climate change.

Similarly, even though the National Agricultural Extension Policy recognizes the fact that the impact of Agriculture Extension Services is paramount, it doesn't sufficiently provide for the programs to empower women in order to make them full beneficiaries' of the extension services. One would expect programs that are clearly defined such as financing mechanisms for women activities, knowledge dissemination programs and other initiatives whose goal is to aid women have maximum benefit from agricultural extension services. This, however, is not the case. If there were such initiatives, they would increase women's efforts in an attempt to have food secure households. The policy however lacks sound measures and provisions to address women specific adaptation to and mitigation needs against climate change effects.

As far as the National Livestock Policy (Sessional Paper No 2 of 2008) is concerned, its objectives included sustainable use of the environment. It recognizes that women contribute between 60-80% of the labour force in the livestock production and management sector. Despite, the critical role that women play in this sector, there are no provisions in the policy tailored towards empowering women to achieve even higher productivity. Thus, stakeholders should develop special gender sensitive programs for women to enable them access efficient production facilities like credit, land and technology and market information in order to play a more significant role in measures that are geared towards their adaption and mitigation against the effects of climate change. According to this Policy, the agricultural sector used to receive as much as 10% of the total government budget. Today, it only receives about 3% of the budget, thus affecting agricultural productivity. It is even worse since there is no special fund to aid women in agricultural activities. Despite women accounting for 60-80% of livestock production, there is no special fund for women as far as livestock production is concerned. Women farmers are resource poor with no collateral to offer and therefore cannot afford the cost of credit from major Financial Institutions. This limits their capacity to fully participate in exploiting the full potential of the livestock sector in aiding them achieve adaptation measures against the effects of climate change.

Lastly, a major policy initiative to address the challenges facing the agriculture sector was through the enactment of the Agricultural Sector Development Strategy (2010) which is meant to cover the period between 2010-2020. This was a build-up to the earlier strategy, the Strategy for Revitalizing Agriculture (SRA) of 2004. It is intended to provide a guide for public and private sector's efforts in overcoming the myriad of challenges that bedevil the agriculture sector in

Kenya. It also aims at positioning of the agriculture sector as a key driver in achieving 10% annual growth rate under the economic pillar of Vision 2030. The Strategy acknowledges the fact that Kenya's agriculture is predominantly small-scale farming. This small-scale production, the Strategy states, accounts for 75 per cent of the total agricultural output and 70 per cent of marketed agricultural produce. According to the Strategy, small-scale farmers produce over 70 percent of maize, 65 per cent of coffee, 50 per cent of tea, 80 per cent of milk, 85 per cent of fish, and 70 per cent of beef and related products.

Despite the good intentions embodied in the Strategy, it doesn't recognize the fact that in Kenya, majority of the small scale farmers, which the Strategy acknowledges do the bulk of the agricultural produce production, are women. It doesn't give them their special place in these roles and doesn't elaborate how women will be facilitated to achieve the desired food security envisaged in the strategy. It therefore, just like many other agriculture sector policy initiatives, risks falling to the same fate; just good intentions without recognizing and empowering the main players in the sector; women.

Thus, this Strategy's efficacy should be improved so as to aid women remain better actors at food production, thus aid them in adaptation to and mitigation against the effects of climate change.

Policy on the Forest Sector;

Bungoma County is endowed with a rich belt of forest cover, the Mt Elgon forest, which acts as a significant rainfall catchment. Depletion of forest resources has a direct bearing on impacting women the most since they are the primary beneficiaries of the major uses and functions of forest resources. These include; provision of firewood products, food productions, regulation of rainfall among others. The forests too, absorb carbon in the atmosphere hence their importance in fighting adverse climatic change. The biggest beneficiaries of regulation in climate change effects by forests are women. This is because women are the most predisposed to the vagaries of climate change

Currently, Mt. Elgon forest, which is the major forest resource in Bungoma County has its ability to satisfy steadily increasing appetites for timber and non-timber product needs stretched to the limit. Despite this, the sector is expected to play a significant role in aiding the County's

adaptation to and mitigation against the effects of climate change. This requires an efficacious forest policy and action plans tailored towards this.

An efficacious forest policy must address the challenges of forest productivity and growth which have been increasingly dwindling off. It must also address the restoration of bio-diversity which has been eroding due to the loss and fragmentation of the forest ecosystem and the effects of climate change which currently threaten the forestry sector health and productivity. Such a policy needs to capture and address these challenges, otherwise as it is, women are currently being condemned to the margins as passive observers in forest resources exploitation as large commercial enterprises take centre stage (ILO 2001).

Various attempts, however, have been made at addressing, comprehensively, the various aspects affecting the forest sector. One such major attempt was reflected in the enactment of the Forest Policy of 2005 (Sessional Paper No. 9 of 2005). The key objectives of this Forest Policy were to contribute to; poverty reduction, employment creation and improvement of livelihoods through sustainable use, conservation and management; sustainable land use through soil, water and biodiversity conservation, tree planting through the sustainable management of forests and trees; promotion of participation of the private sector, communities and other stake-holders in the forest management to conserve water catchment areas, create employment, reduce poverty and ensure the sustainability of the forest sector; promotion of farm forestry to produce timber, wood fuel and other forest products, dry land forestry to produce wood fuel and supply wood and non-wood forest products, forest extension to enable farmers and other forest stakeholder to benefit from forest management approaches and technologies and forest research, training and education to ensure a vibrant forest sector. The policy also dedicated a whole chapter on the legal and institutional arrangements for the reform of the sector.

Despite the above, the Policy fails to articulate the place for women as far as their knowledge for conservation and how the same can be tapped for utilization in the forestry sector conservation. It equally doesn't allocate them any special role in the management of the forest resources. This is despite the fact that women have been known to be good stewards of forest resources conservation (Roy and Venema 2002; Wasonga, *et al.*, 2010). The same is true with the most recent Forest Policy (2014) which has strong Policy Statements on, among others, provision of a framework for improved forest governance, resource allocation, partnerships and collaboration

with the state and non-state actors to enable the sector meet the country's growth and poverty alleviation goals within a sustainable environment. The Policy goes ahead to acknowledge the fact that formulating a policy on its own is insufficient to bring about the envisaged reforms within the forestry sector. Yet, it does not make any express provisions for the place of women in forest resources management, conservation and sustainable utilization.

According to Arnold (2001) it has been demonstrated that transferring or returning ownership of forest assets to poor people, especially women and guaranteeing their long term access and management rights will be the ultimate answer to sustainable forest resources management. Good forest policies should therefore make provisions, which set guidelines to protect women against exploitation when it comes to sharing in the forest resources. The current forest policies and action plans lack this. There should be mechanisms for transparency and improved access to the forest resources by women as well as the right to information and technologies and communication channels that assist women in decision making processes as far as forest sector benefits sharing is concerned.

A forest policy that interprets women's concerns and affairs through encouraging participatory planning informed by the best practices and experiences is central to a more sustainable forest sector in Bungoma County. An ambitious initiative that employs conservation programs by women in the forefront is needed to protect the forest eco-system in Bungoma County as well as commensurately aid women adaptation against the effects of climate change. Women should be involved in planning and implementation of policy decisions guiding public and private decision making that are central in all undertakings in the forest sector.

The role of forests of acting as a major store for carbon goes a long way in aiding women adaptation to and mitigation against the effects of climate change. In Bungoma County, forests provide food products and medicinal herbs. They also act as wildlife habitat, watershed protection, source of energy supply, for recreation and also have aesthetic benefits. According to Reid (2004) deforestation in the tropics, where Kenya lies, is responsible for yearly carbon emission of up to 1.7 billion tons per year. Their destruction therefore means emission of the carbon into the atmosphere. Conservation of the forest will go a long way in ensuring that there is a check on the amount of carbon that is released into the atmosphere. Women's role of forest

resources management is therefore essential in the forest ecosystem conservation so as to play the critical role of carbon sequestration from the atmosphere (Chandler *et al*, 2002).

It should be noted that women in Kenya have played a leading role in championing for forest resources conservation. The late Prof. Wangari Maathai (a woman) whose focus was on protection of forests through her Green Belt Movement is estimated to have planted in excess of 50 million trees across various countries in Africa (Green Belt, 2006). Similarly, it is documented that after the over exploitation of the woodland cover that led to the depletion of the Kambiri woodland cover in Kenya, the women's project of reforestation resulted into the regeneration of the vegetation cover, improved fertility in the soil and plenty of firewood, thus minimizing the over exploitation of the adjacent forest (FAO).

According to Grewal & Jyoti (2014), the Chipko movement in India too arose to fight against the Indian Government's licensing of big companies, which were involved in large scale cutting of forests for timber products. The Chipko movement prevented the corporations from carrying out logging by ensuring that the women involved embraced the trees to prevent the corporations from felling them. Breton (1998) asserts that the women did this to keep the trees for food production. Research has also reaffirmed that the relationship between people and the environment is not gender neutral. According to Clay (2005) women's domestic chores have tailored them to focus more on nature as compared to men. This has ensured women's close focus on environmental aspects. Worsening ecological conditions put a big strain on women while they are engaged in extraction of environmental resources such as food, water, herbal medicine making them more mindful of sustainable exploitation of forest resources as compared to men.

Notwithstanding the evidence demonstrating the women's efforts to forest resources conservation, Kenya's Forest policy is generally gender neutral. According to Agarwal (2001) the women are excluded from the community based forest groups, which are meant to look into the ways in which the forest resources benefit the community. This is true with the women of Bungoma who were quick to indicate that the men in the community represent them in the affairs of forest resources since that is viewed as a man's role. All the focus on matters concerning forests has mainly been on men, while women's involvement with the forests receiving little attention. Their voices on environmental matters have been drowned in male dominated

environmental discourses (Angula, 2007). This is sometimes made worse by some beliefs, which have not made things easy. For example, it is commonly believed in Bungoma that if a married woman plants a tree such as eucalyptus, the roots of the tree will snake all the way to where a house is built and cause it to crack (Mwangi, 1993).

According to Kenya's Forest Policy (2015) the Country's forest cover stands at 6.99% of the land area. This is below the Constitutional requirement of 10%. This is despite the fact that the forest sector is estimated to contribute 3.6% of the Country's GDP, excluding charcoal and direct substance use. Women, who have been proven to have enormous knowledge in the management of forest resources would no doubt be a good catalyst in helping the Country increase its forest cover to the desired threshold (IIED, 2000). However, even the latest forest policy, the Forest Policy (2015) does not make mention of the place of women in terms of their role in the management and utilization of forest resources with a keen focus on their adaptation and mitigation against the effects of climate change. The general policy statements on indigenous forests, plantation forests, farm forests, their products' utilization and forestry research and education lump all the roles of the actors and players in this sector in terms of benefits and roles in a gender blind way, without regard to the special place of women in terms of knowledge, needs, and usage of forest products for adaptation to the effects of climate change.

Thus, the available policy framework instruments lack express provisions on women participation as forest resources managers which would give them a sense of ownership. Women should be empowered through policy provisions so as to acquire full knowledge on the current and future trends with regard to issues concerning forests in the various social political, environmental and technological contexts. These should focus on benefits and utilization as well as providing capacity building for women on knowledge and skills for forest resource conservation and participation of women stakeholders at National and sub national levels in forest resources management and utilization and be simplified enough to be understood and interpreted by women for ease of implementation.

The existing policy provisions failed to factor in the identity and cultural rights and practices for conservation, as understood by women. Likewise, appropriate conditions should be advanced in order to enable women to claim an economic stake in forest resources and extract sustainable livelihoods in order to act as incentives for the sustainable management of the forest resources.

Importantly, the stakeholders should create a special fund for women for utilization in forest resources management. Financial resources should be provided to women to utilize for farm practices such as afforestation, reforestation and fighting deforestation. It is also important that women should be impacted with more knowledge on forest resources management and mechanisms be availed for them to benefit more from scientific knowledge on forestry conservation (Nhira *et al.*, 1998).

The Policy on Water

As far as the water resources are concerned, the first major attempt in formulating the Water Policy was through Sessional Paper No 1 of 1999. The Policy's objectives were to; preserve, conserve and protect available water resources and allocate it in a sustainable, rational and economic way, supply water of good quality and in sufficient quantities to meet the various needs, including poverty alleviation, while ensuring safe disposal of waste water and environmental protection; establish an efficient and effective institutional framework to achieve a systematic development and management of water and develop a sound and sustainable financing system for effective water resources management, water supply and sanitation development (Sessional Paper No 1 of 1999).

The policy also provides for key guiding principles for the water sector, chief among them, the provisions for gender considerations in the management of water resources. In addition to this, the new Constitution of Kenya, 2010, elevates the prominence of water resources to the level of land and gives the right of access and utilization to all. Despite the above policy measures, , women involvement in water resources management will remain a pipe-dream as long as their place in society is considered below that of the male counterparts. In a male dominated society such as is the case in Bungoma County, the policy should have given a clear pathway on how women's role in water management ought to be realized so as to aid them in adaptation and mitigation against the effects of climate change. This, it fails to articulate.

In Bungoma County, rivers such as Nzoia, Sio, Malakisi, Mayanja and various Dams are the main sources of water for both domestic and agricultural activities including irrigation and watering of the animals, duties particularly relegated to women in Bugoma County. The importance of an efficacious water policy in aiding women adaptation and mitigation against climate change effects in Bugoma County therefore cannot be overstressed.

Women's livelihoods are directly linked to adequate quantity and quality of water resources. In Bugoma County, women have the responsibility to ensure that there is water in the family for washing, cooking as well as farming activities. Climate change influences inter and intra annual rainfall variability including increased flooding and early onsets of drought cause higher evaporation cover, water levels in water bodies and occasion drying up of arable lands, directly affecting women as the primary laborers on the farms. There have been considerable gains made in the reform agenda in the water sector based on the National Water Policy of 1999, coming all the way to the provisions of the 2010 Constitution as far as the issues in the water sector are concerned. Nevertheless, there are considerable challenges that are still being experienced in the sector which include; climate change aspects, disaster management, environmental management aspects which have not been sufficiently taken on board among others.

The Water policy fails to recognize and elevate the role of women in the management, use and exploitation of water resources in order to aid them in their pursuit for adaptation and mitigation against the effects of climate change. For instance, whereas the Water Act (2002) prescribes the kind of people to be appointed to an authority for water resources management at the grass root levels and requires that in making the appointments, due regard shall be among other considerations, the degree to which water users are represented on that board, there are no mechanisms of ensuring that this representation gives attention to the place of women on such boards. It even narrows down to prescribing the categories of people from whom the representatives should be picked, who include; the business community, the farmers, pastoralists, the NGO world but does not make any express mention of women.

Despite the fact that the women are the primary users who go out to fetch water at the household levels, due to the patriarchal nature of the society in Bugoma County, women are not likely to be considered or offered these appointments hence the need for express provisions for such. The State centered nature of the Water Act does not do much to correct this either. According to the Water Act, the right to usage of water resources is vested in the Cabinet Secretary and this right too is acquired through a permit. This has quite some implications when it comes to women in terms of exploitation of these water resources because they have limited access to state based systems.

Climate change has had profound effects on the availability of water resources as streams and rivers and water wells in Bungoma County are currently drying up. This calls for urgent policy intervention to aid women adaptation and mitigation against the effects of climate change through enactment of a sound and efficacious water policy. The unavailability of safe drinking water will also lead to an increase in diseases due to increased contamination of the available water as a result of stagnation (Hufkes, 1983).

As climate change effects increase; women will pay an even higher price. They will pay more money in order to buy water. Climate change is thought to exacerbate the drying up of wells and springs causing women to walk for long distances in search of water. This calls for women to play a role in the design, implementation and monitoring and evaluation of the water projects because they know that failure of such projects will be an added burden to them in their search for water resources as a result of scarcity. According to Eriksen *et al.*, (2008) the current problem of water scarcity is going to worsen due to the effects of climate change. Whereas increased rainfall is likely to increase the incidences of flooding, reduced runoff will exacerbate the prevailing water stress, compromise its quality and quantities available and significantly reduce accessibility. This will most likely be a source of conflict.

According to GWA (2009) women have particularly special knowledge on the management of water resources due to their daily chores which utilize water. This knowledge includes aspects of its availability, quality and modes of conservation. They endeavor to sustainably use it due to their understanding that in the event of its depletion, they are the ones who labour in walking long distances to get it, (Todaro, 2003). They ought therefore to be incorporated into the management of water resources in order to have influence and a say in the running of water resources within the community. A case for incorporation of women in the water sector management was highlighted during the international conference on fresh water that was held in Bonn in the year 2001. In this conference, it was resolved that water resources should be managed in a participative way with women voices being recognized (Rodgers and Hall, 2003). This need has been articulated under the provisions of the Constitution of Kenya, 2010 where everybody is given a right to clean and safe water in adequate quantities. It also emphasizes proportionate representation in all matters of governance including environmental governance, with at least one third of either gender being considered for representation in various bodies of representation, water committees and boards being some of them. The same is appreciated in the Water Master

Plan of 1999, which calls for incorporation of women in the management of water resources. Despite these provisions, during the interviews conducted in this research, women were quick to point out that men in Bungoma County do not allow them to have much say nor are they represented in decision making on matters of water. This demonstrated the need for the stakeholders to relook at the efficacy of the water policies in meeting the women's climate change mitigation and adaptation measures.

Effective policy provisions for water resources management and utilization are necessary to aid women adaptation to and mitigation against the effect of climate change. Water resources availability is directly linked to food availability since during the dry season, the water resources are utilized for irrigation, hence the need to have policies that guarantee its availability. This will guarantee water availability, on the farms for irrigation which in itself is linked to food security as well as for use in the households by women.

There are various ways of enhancing the efficacy of the environmental policies to adaptation and mitigation strategies against the adverse effects of climate change. An excellent beginning point is the comprehension of the nexus between women and sectoral environmental policies in the context of climate change adaptation and mitigation and the collection of gender disaggregated data in the particular sectors such as those in this study, Water, Forestry and Agriculture. This can be followed by ensuring that the policies embrace the concept of women centeredness, which should feature throughout the life cycle of the policy, that is, from the design stage, through implementation, monitoring and evaluation with clear indicators incorporated. An inclusive participatory environment for both men and women to participate in decision and policy making process to safeguard the interest of both genders ultimately leads to great success.

Parts of the initiatives for enhancing of the efficacy of the policies under focus in this thesis includes; promoting irrigation in agricultural farms, encouraging soil conservation measures, promoting value addition in the products, supporting women centered adaptation measures and providing women with drought resistant crop seeds for planting. In the water sector, the policies should spell out such measures and steps as measures for efficient water resources management, water conservation initiatives, water quality monitoring and reporting , protection of water catchment areas and sources and spelling out of cost effective water conservation mechanisms. As far as forestry resources are concerned, there is need to empower women to carry out

intensified afforestation and promote agro-forestry initiatives for women groups for community forest management.

As demonstrated above, whereas the available literature acknowledges the fact that women are affected more by climate change and that they would benefit from efficacious environmental policies, there is no demonstration in the literature in advocating for such efficacy, a deficit that this research sought to address.

2.5 The Theoretical Framework of the Study

This research was anchored on the women, environment, and development (WED), a theoretical framework, which argues that at a fundamental level, women have been victims of marginalization in narratives and discourses in environmental matters. Emerging in the 1980s, it acknowledged ‘women’s peculiar role as the main users and managers of environmental resources and the environment generally within the rural settings’ (Dankelman and Davidson 1988; Rodda 1991).

Women in the rural areas depend on environmental resources and their successful accomplishment of their roles depends on the environment and this makes them intrinsically responsible custodians and caretakers of the environment. According to Joekes, Green and Leach (1996), ‘Women’s responsibilities make them closely dependent on, and give them distinct interests in, environmental resources management. They have deep and extensive knowledge of natural resources, deriving primarily from their intimate daily interaction with them hence, their interests lie in sustainable environmental management and resource conservation which includes sound environmental policies.

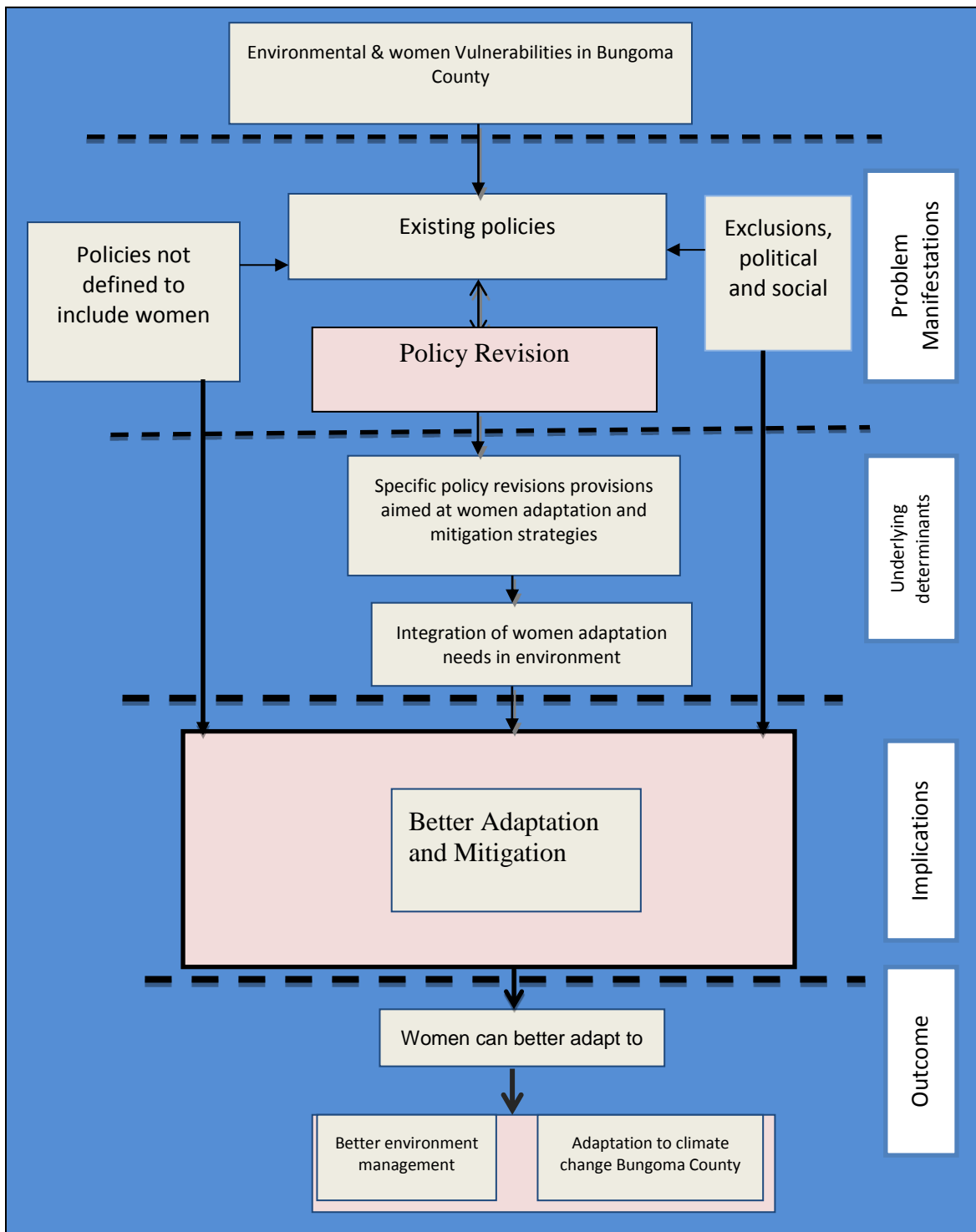
This theory has been criticized for making serious assumptions such as fronting women as being the primary victims of the environment and expert managers of natural resources purely because they depend on it. In addition, it has been observed that the women who represent other women on environmental issues are privileged and knowledgeable and they can and have taken advantages of opportunities even as they misrepresent poor women who are much more deserving of the benefits that have been fronted in the environmental discourses and narratives.

Bungoma is still predominantly rural and the women folk lead a subsistence life that is dependent on agriculture and environmental resources. They too suffer from various forms and

aspects of discrimination. It is for this reason that the thesis is anchored on this theoretical framework, advocating for sectoral environmental policies that are efficacious in aiding women in adaptation and mitigation against the adverse effects of climate change.

2.6 The Conceptual Framework

The conceptual Framework illustrated below is developed from the theories and literature reviewed. In her article, ' *doing what comes naturally, Women and environment in development* ', Jackson C., (1993) states that gender analysis provides a superior framework for understanding women's and men's environmental relations and the synergy between gender interests and environmental conservation. In the context of this study, when gender lenses is applied to policies that govern environmental issues, it provide, a better understanding of the compelling forces that interact positively or negatively on women's mitigation and adaptation strategies. The framework used in this study demonstrates the direct correlation between empowering women (through integration of their adaptation and mitigation needs) by enactment of efficacious sectoral environmental policies and achieving better adaptation and mitigation to the effects of climate change. The problems manifest when women issues are excluded at the policy development level. The underlying determinants are isolated and addressed and the implications and outcomes are processed.



Source: Authors Construct

CHAPTER THREE: STUDY DESIGN AND METHODOLOGY

3.1 Introduction

This chapter provides a description of the Study Area and the Methodologies used in conducting the research. The description includes the Study design, the techniques and methods of data collection and analysis as well as pointing out the Ethical considerations of the study.

3.2 Study Area

Bungoma County lies in the Western part of the Republic of Kenya and covers a total area of 3,032.2 square kilometers. It neighbors Kakamega, Trans-Nzoia, and Busia Counties. There are 9 constituencies in Bungoma County, namely; Mt. Elgon, Sirisia, Kabuchai, Bumula, Kanduyi, Webuye East, Webuye West, Kimilili and Tongaren. It has a population of 1,675,063 people within an area of 3,032.2 Km² (2010 Census report). The temperatures range from a minimum of 15°-20°C and a maximum of 22°-30°C. It has two rainy seasons with an average of 1800mm per annum making it one of Kenya's bread baskets.

The main economic activities in Bungoma County are crop farming. The residents grow sugarcane and maize as well as breed and keep livestock in addition to poultry farming. Women are the main players in these activities which made it ideal as an area of study. They till the land weed and harvest the crops. Nzoia Sugar Company is the main factory in the County. It is a great source of employment to the local community. There are also several tobacco factories namely British American Tobacco (BAT), Malakisi and Mastermind Tobacco (K) as well as Kitinda Dairies, which also form part of the industries.

The County boasts of tourist attraction sites such as Sang'alo, Nabuyole, Musikoma, the Chepkitale Forests, Mt. Elgon National Park, Kiptoro, Mt. Elgon Forest Reserve, Malakisi Falls, Kabuchai Hills and the historic Cheptambe Hills Fort Ruins. The dominant community residing is the Bukusu who occupy most parts of the County. The other communities that live within the borders of Bungoma are the Tachoni, Kabras, Wanga, Teso, the Kikuyu, Sabaot, Luos, Wanyala, Somali, and Indians. The predominant religion is Christianity. However, there are also a few Muslims, the Hindu and followers of traditional faiths such as *Dini ya Msambwa* and followers of Jehova Wanyonyi.

The study targeted 900 participants selected from nine constituencies that make up the Bungoma County. The researcher targeted 100 participants from each of these constituencies. The participants were selected randomly from varying backgrounds and age.

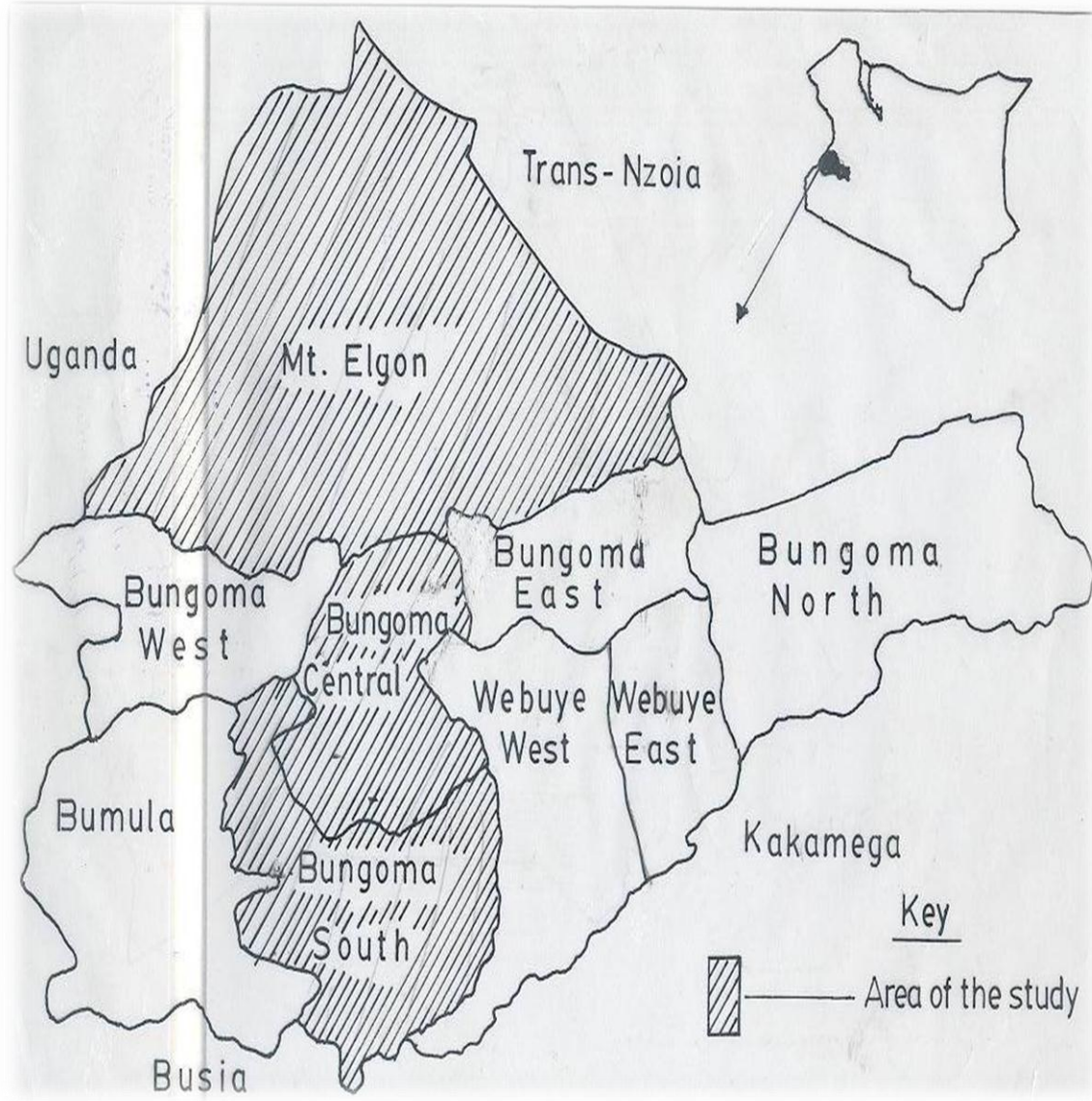


Figure 3.2: Bungoma County Map (Source: Downloaded from the Internet)

3.3 Research Design

The research adopted a case study research design. This is an investigation of a single entity in order to gain insight into the larger case. Oso (2005) argues that in a case study where the numbers of respondents that can be investigated are few, a small sample is available, and an in-depth analysis is necessary; a case study is the most appropriate. The survey was done in the form of questionnaires distributed to the respondents. Questionnaires were tools used for data collection in the study. Collected data was analyzed by narrative and inferential analysis deduced. However, there were a few special cases of voice-recorded interviews but these strictly adhered to the questions on the questionnaire and the data collected from these interviews were considered to be of the same value as that from the questionnaires.

The research focused on the efficacy of Kenya's environmental policies in meeting Bungoma women's climate change mitigation and adaptation needs. The study focus was the entire County, and for purposes of this particular research, three policies were examined, i.e the Forest Policy, the Water Policy and select policies in Agriculture.

3.4 Sample Size

Bungoma County has 9 constituencies with a total population of 1,675,063 people. Each constituency has several locations. The study targeted 100 respondents per constituency which would give a total target of 900 respondents for the research. From each location, 10 respondents were identified through simple random sampling of the homes. In those constituencies that had more than 10 locations, the researcher interviewed slightly fewer respondents and those with less than 10 locations a few more people were interviewed to meet the 100 respondents per constituency target. Participants were people who ordinarily resided in Bungoma County and were presumed to have some knowledge about climate change and the environmental aspects related or affected by it. The sample size was balanced by gender, age, social and economic classes of the vast community.

3.5 Sampling Procedure

The sampling study focused on the members residing in both the rural and the urban settings of the county to enable the researcher to get a deeper understanding of specific climate change issues and the various ways in which women are affected and how they cope. Adult members were purposively selected from the community as participants in the research because the researcher believed that they understood the issues concerning the environment. The participants were of diverse social and economic classes in the community. This was to avoid biases in the responses.

3.6 Research Instruments

The research instrument used in the collection of data for this study was the questionnaire. However, in a few isolated cases where the participant could not write, the researcher opted to do voice-recording as a tool of conducting and getting information from the participants.

3.6.1 Questionnaire

The Questionnaire was given to the 900 respondents. The questionnaires contained sets of both closed and open-ended questions (See Appendix). This method was chosen because it is an efficient way of collecting information from a large number of respondents and is relatively easy to administer. The issues that were to be captured by this tool included the respondent's knowledge of existing sectoral environmental policies and laws, how these laws have aided women adaptation to climate change as well as mitigation measures against the effects of climate change. Opportunity was availed for the respondents to explain the answers in order to ensure that the meanings of their answers were well captured. The researcher gave assurance to the participants of the confidentiality of the information being sought before commencing the data collection. A consent form was also signed before answering the questions on the questionnaire so that the respondents were appropriately aware of what the study entailed.

3.6.2 Voice-Recorded Interviews

Green and Thurgood (2004) define an interview as “a conversation that is directed, more or less, towards the researcher's particular need for data”. The voice recording device was used where the researcher wanted to get oral but accurate answers especially from illiterate participants. One-on-one interviews were carried out on a Simple Random basis from the select population

from each constituency of the County to extract the desired information. Structured questionnaires were employed to conduct these interviews. The interviewees included the samples from the general population and from the respondents in the county representing each of the 9 constituencies. This method of data collection was adapted by the researcher for the few isolated cases where he felt it was necessary to collect data from a particular respondent yet the respondent could not write or fill in the expected answers to the questionnaires.

3.6.3 Key Informant Interviews

There were in-depth interviews with people who have a sound knowledge of the affairs of the phenomenon being researched on and the purpose for this was to collect information from a wide range of people such as community leaders, professionals and key opinion shapers such as the County's agriculture, forestry and water sector officers. All these people have some primary information about the area of research within the community. These people provided insightful information by highlighting the problem and offering tentative solutions to the problem. The biggest advantage of this mode of data collection is that it came with suggested solutions to the problem, making work easier for the researcher to derive conclusions and recommendations.

Interviews were conducted with key informants giving information with regard to their experience of the knowledge on the efficacy of the sectoral environmental policies in meeting Bungoma Women's climate change mitigation and adaptation measures. The people mostly interviewed were Government employees and non-governmental organizations especially working in the various ministries that focus on sectoral environmental aspects such as forests, water, land, energy etc.

3.6.4 Review of Existing Literature

There was desk literature review and analysis of secondary data from existing sources in order to extract information about the subject. The sources of this information included; sectoral environmental policies, Government reports, international reports (United Nations, World Bank Reports, and local as well as International NGOs), other relevant documents, and scientific reports.

3.7 Data Analysis

This research utilized both descriptive and inferential methods for analyzing data. Patton, (2002) argued that qualitative data analysis is a continuous process that begins at the data collection stage and entails the process of examining, categorizing, tabulating, and compiling empirical evidence to address the research questions. The data analysis process involved an examination of what has been collected in the survey and making deductions and inferences based on both qualitative and quantitative analysis techniques. Qualitative data collected by questionnaires was transcribed. The data that was obtained through interviews and FGD was subject to content analysis, Yin, (2009). The discrepancies and incongruence between the various interviews and between the interview results and the results of the documents reviewed had to be identified and resolved. The data was then coded by giving labels to words, phrases and paragraphs. The data was then differentiated and combined with the interview data into categories to create ideas, themes or concepts.

The data was presented by using direct quotations to arrive at conclusions to the various ideas and themes. Data collected through questionnaires was cleaned through proof reading and coded to enable empirical analysis. Excel software package was used to store, manipulate and analyze the data as well as reporting the same. Codes were created in preparation and entries were made. Once all entries had been validated, frequency tables and cross tabulations were generated based on analytical framework. Presentation of the analyzed data was done in form of graphs, tables and charts.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the information and data collected from the respondents. The data was analyzed using both the qualitative and quantitative methods and then presented in percentages highlighting the various responses.

4.2 Demographic Characteristics of the Population

4.2.1 Gender of Participants

The study showed that 53% of the participants in the survey were male and 47% were female. This information could imply that men were easier to find to participate in the data collection. It can also be assumed that their female counterparts could have been restrained from participation in the exercise because of cultural or social beliefs and also other commitments within their respective communities.

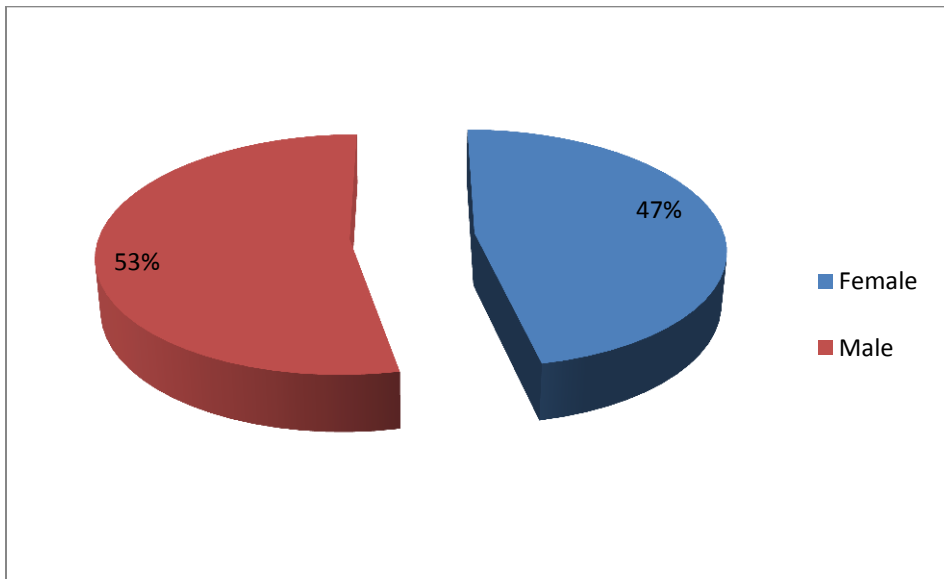


Figure 4.2.1: Gender Participation in Percentage

4.2.2 Age of Participants

Results from this survey showed that 37.2% of the participants were between the ages of 18 and 25, 24.6% were aged between 26 and 35, while 29.6% were aged between 36 and 45, and 7.2% were between 46 to 55 years old, while 1.4% were above 55 years of age. Given that the majority

of the participants were aged between 18 and 25 years could imply several implications. It can be inferred that this is an active age group and therefore could easily and comfortably fill in the questionnaires. It is also in this age group that many would have completed school and would be looking for jobs, or have just started their marriage life and so they are more interested in issues that affect their environment and are keen to understand and participate in such matters. It is also the group of people with open minds and ideas that they are willing to share.

On the contrary, the least number of participants who accepted to participate in the study were above the age of 55 years. Most of these people are confined to their homes and are not easily accessible for discussions. In as much as they would wish to preserve the environment this group of people is not able to do it on their own. This was also the group of people whom the researcher spent more time with when conducting the survey because they were slightly slow in comprehension of questions than their younger counterparts. However, this would have perhaps been the most useful group in terms of narrating environmental issues and the subject matter over a longer historical timeline especially if they had been resident of Bungoma for long.

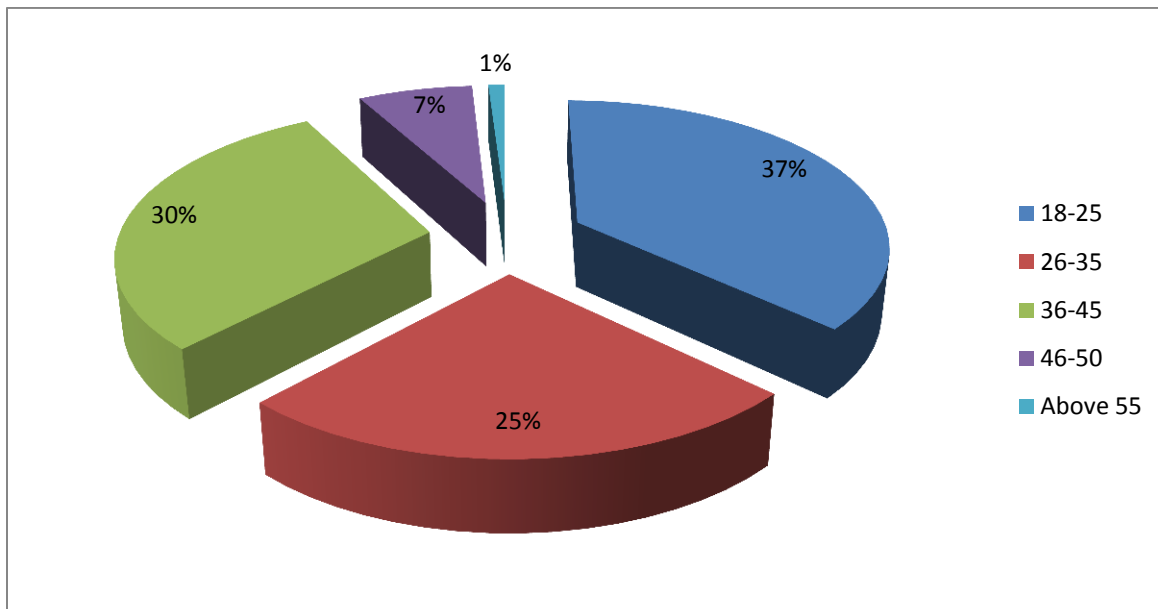


Figure 4.2.2: Age of Participants in Percentage

4.2.3 Marital Status of the Participants

The study revealed that 42% of the participants were married, 53% single, 4% were divorced while 1% did not specify their status. The high % of single participants could be attributed to the fact that single people are more at liberty to engage in a study. However, the married people were also many among the participants of the study. This could mean that they are interested in matters that concern their environment and how it affects women. The divorced were relatively few among the participants. It can be assumed that people do not like disclosing their status as divorcees, or that there are very few divorcees in Bungoma County or it could also be that divorcees are not interested in participating in studies such as this one. The smallest group did not have an identity and it can be assumed that either they did not want to disclose their marital status or they were not sure of the status of the relationship.

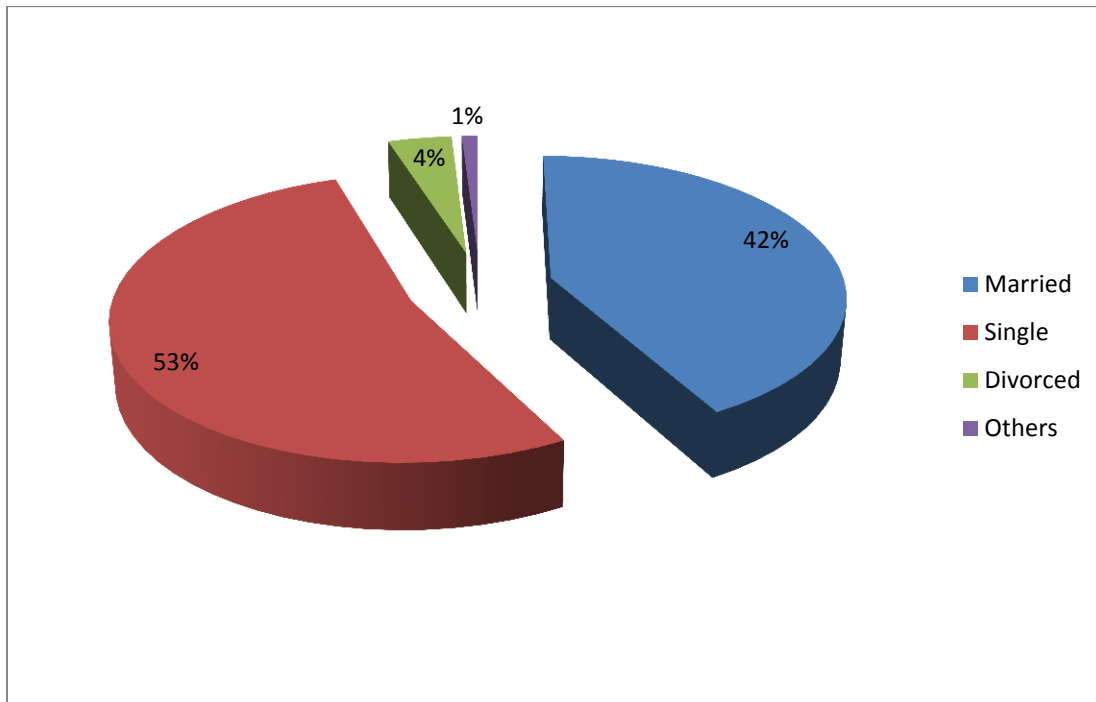


Figure 4.2.3: Marital Status of the Participants in Percentage in the Study

4.3 Socio-Economic Characteristics of the Population

4.3.1 Literacy Level of Participants

Table 4.3 below presents data with regard to the level of education of the participants. When asked to state their level of education, a majority of the respondents indicated that they had at least been educated to a tertiary level institution. Those who had attended a tertiary institution were (43.8), while (31.1) had a maximum of secondary school education. There were (15.5) who only managed to attend primary school. The remaining (9.6) were university graduates.

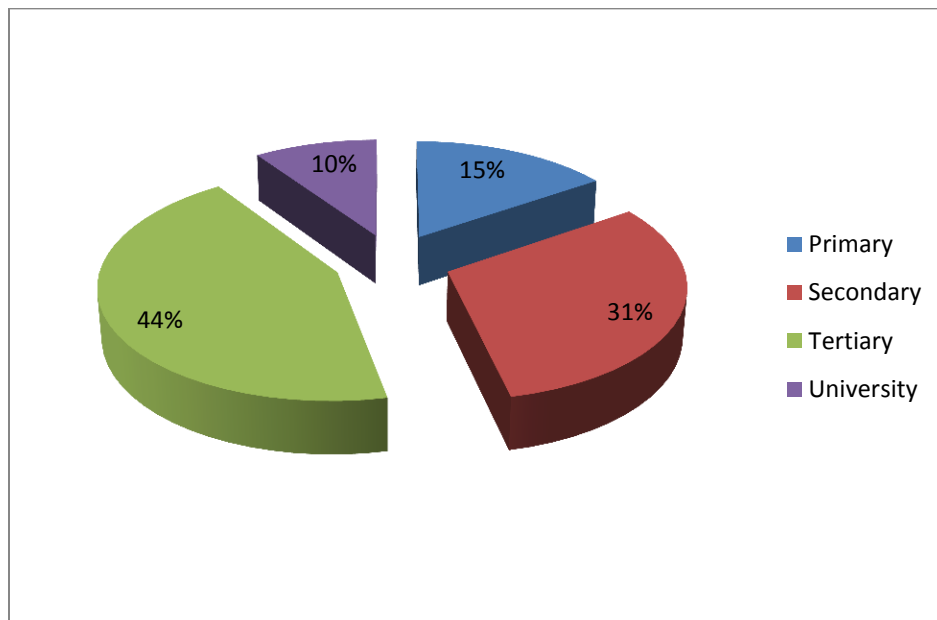


Figure 4.3.1: Level of Education of Participants in Percentage in the Study Period

4.3.2 Employment Status of the Participants

The researcher was interested in knowing how the participants earn a living. This prompted an inquiry into their employment status. Out of the 737 participants that answered this question, 353 had jobs while the remaining 384 did not have any formal employment. This means that 47.9% of the participants were formally employed while the majority, 52.1%, was unemployed. Figure 4.4 below illustrates this.

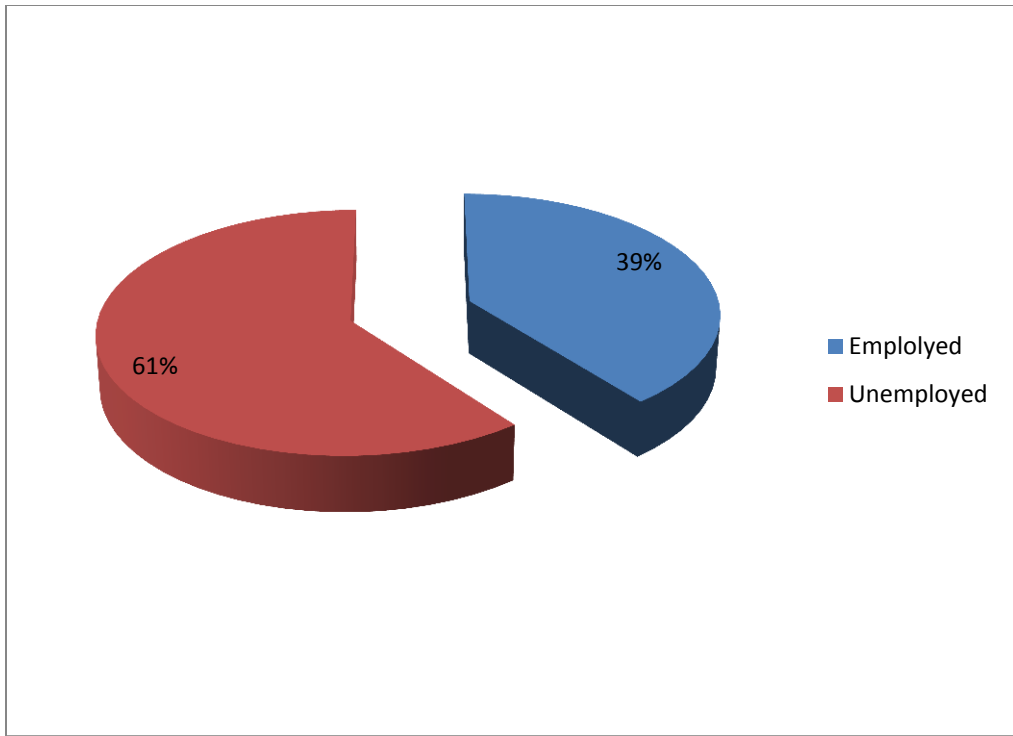


Figure 4.3.2: Occupation of the Participants in Percentage

4.3.3 Occupation of the Employed Participants

The 353 participants who indicated that they had formal employment were further requested to specify the kind of occupation. There were six options to choose from, and one slot for any other job that may not have been specified. The majority of the participants were farmers at 38%, teachers at 28%, and religious leaders at 15%. Managers/ senior official’s level was at 9%, civic administrators were at 6%, and politicians were at 3%. There was a minority at 1%, representing those who had other occupations besides the ones mentioned. No one mentioned any other occupation besides the ones provided in the questionnaire. This data is illustrated in figure 4.5 below.

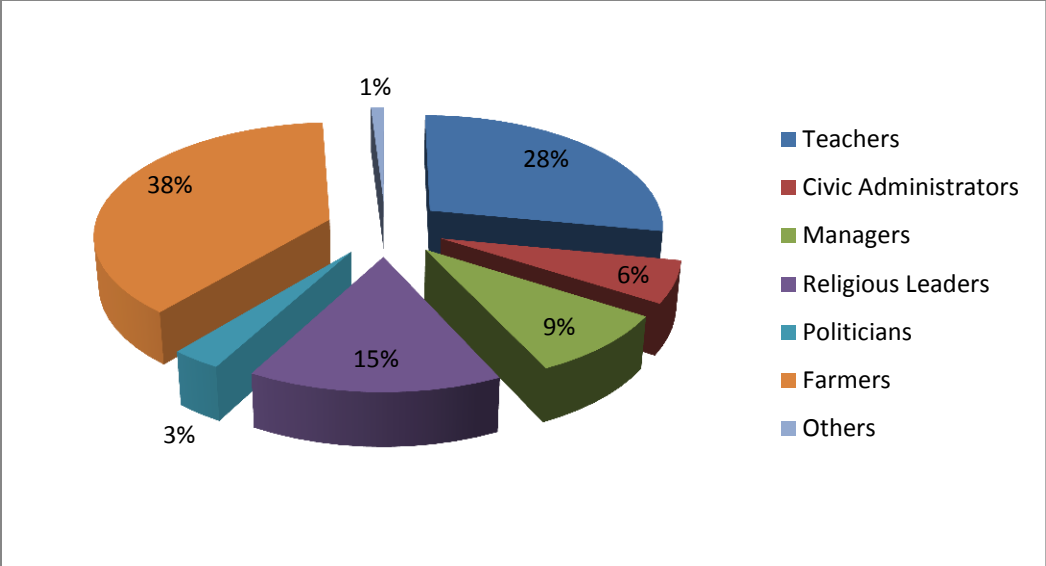


Figure 4.3.3: Types of Employment of Participants during the Study Period

4.3.4 Length of Participant Residence in Bungoma County

The study revealed that 15% of the participants had lived in the County for less than a year, 28% had been residents in the County for a period of 2-5years, 22 had been in Bugoma between 6 to 10 years while 35% had resided in the area for more than 10 years

It was also vital that the researcher understands how long the participants had resided in Bungoma County. This is because the average weather change usually has a pattern by which it transforms itself within a specific area for a given considerable period of time (climate change). And so it was perceived that the climate of an area can best be described by someone who has resided in the area for a longer period of time.

To this question, 15% of the participants indicated that they had lived in the county for less than a year while 28% of those who answered this question had been residents of the county for a period between 2 to 5 years. Another 22% of the participants had lived in Bungoma County for 6 to 10 years, while the majority 35% of them had resided in this county for more than 10 years.

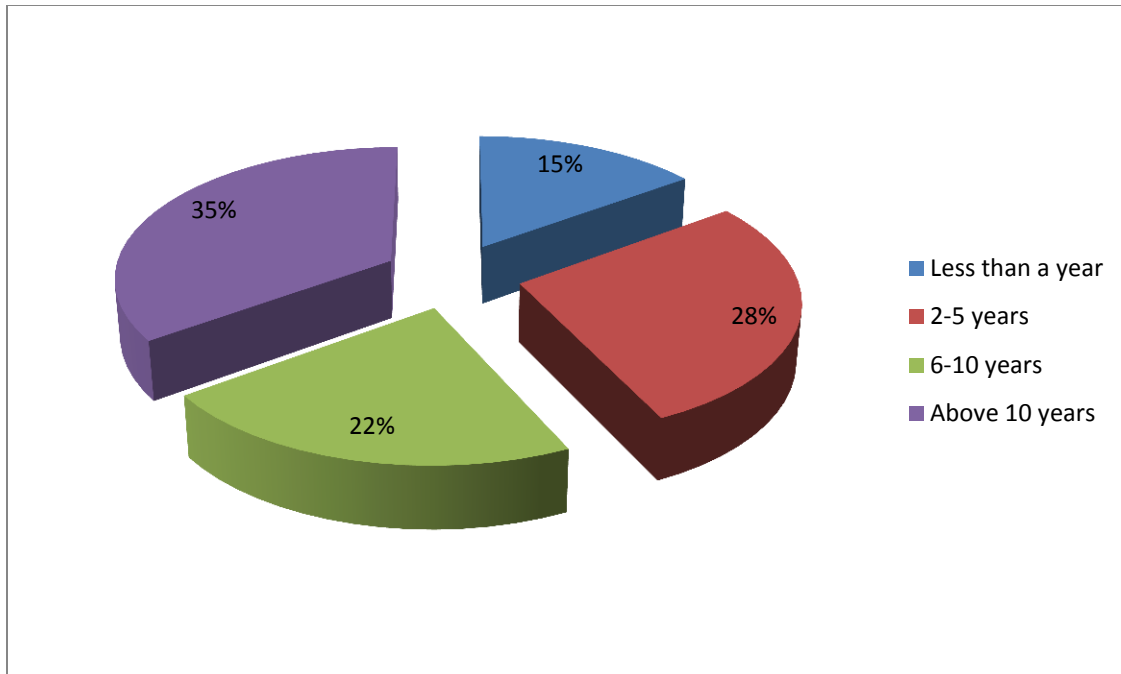


Figure 4.3.4: Period of Residency in the County

4.4 Research issues and findings

4.4.1 Climate Change Effects and Vulnerabilities

This section had questions that focused specifically on the climate change, how it affects people, and those precise effects. It is a section whose questions sought to know if the participants understood the climatic conditions that surround them. There were three main questions for this section (8-10). However, question 10 had two sections (a and b) and 10 (b) was an open-ended question that required the participant to state an explanation. In question 8, the participant was required to pick one or more answers that were appropriate from the given options while question 9 and 10(a) required that the participant picks just one appropriate answer from a list of provided options.

4.4.2 Common Forms of Adverse Climatic Conditions Affecting Women in Bungoma County

a) Diseases

The statement ‘adverse climatic conditions cause disease’ was an overwhelming response. The majority of the participants (67%) indicated that there are diseases associated with climate

change such as Highland Malaria as well as diarrhea, which occurs especially when there are floods due to sudden torrential rains. They also mentioned vector-borne as well as water-borne diseases. The respondents indicated that most of these diseases killed quickly and therefore should be handled by specialized personnel within the shortest time possible. The figures mentioned were alarming hence the government should enhance the efficacy of available policies in the country and aid women mitigation against these effects associated with climate change. Although a small number, 9% of the participants stated that there are extreme and unprecedented cold spells in Bungoma County, they asserted that these conditions cause illnesses such as pneumonia and asthmatic attacks and also slow down the normal working processes. This mostly affects children and the aged in this society.

b) Food Security

The study showed that 61% of the participants felt that there was food insecurity in the county as a result of the adverse climatic conditions. Food insecurity threatens the very existence of the populations with women being the most burdened as they are primarily involved in providing for household food. An increase in types of pests and lengthened life spans of endemic insects in Bungoma County was affirmed by 52% of all the participants that answered this question. These insects that include locusts, ants, caterpillars (butterflies) among others appear at certain seasons of the year and more often than not they are very destructive, especially to crops in the farm.

c) Soil Erosion

Soil erosion is also an issue that affects the county as a result of adverse climatic conditions. 45% of the participants indicated that soil erosion exists in Bungoma County. In areas where this has happened, there have been increased food shortages and poor drainage during rainy seasons, which then result into poor crop output leading to food shortages. The poor drainage systems also host water, which carries diseases. Bungoma County most often experiences excessive rainfall. This is a conclusion reached as a result of the response from 27% of the participants in this survey. The excessive rainfall in Bungoma County is for short periods but it sometimes becomes destructive.

d) Drought and Floods

The County has experienced worsening drought conditions and desertification. 15% of the participants responded to the existence of these conditions in Bungoma County. This is not an annual occurrence but when it does happen, it impacts the community negatively. It creates prolonged periods of dry spell leaving livestock with no food. Vegetables become scarce and very expensive when available. Clean water has to be collected from distant places because most of the water sources in the County are seasonal.

Massive flooding was claimed to be part of the adverse climatic conditions that affect Bungoma County and this was stated by 12% of the participants in this survey. The respondents indicated that while it is quite rare, there are cases of massive floods reported in the County. Participants from areas like Sirisia, near Namwanga attested to cases of floods that ‘carry away houses’.

As a result of such extreme weather conditions, the respondents noted a reduction in poultry population. Bungoma County is famous for keeping poultry because of the cultural values attached to the chickens as special food for visitors and certain ceremonies. However, there are some breeds of chicken that cannot withstand adverse temperatures and when it is too high or too low, the chicken perish. Sometimes this would occur as a result of diseases, but more often the deaths were attributed to extremities in the weather conditions.

Another equally small number of participants (9%) also felt that there are other forms of adverse climatic conditions affecting the county. Although none of the participants mentioned these other climatic conditions, it seemed that the existence emanated from an instinctive feeling and they could not describe nor could they give name to the occurrence. This might be because of the cultural beliefs of the people.

	Climatic Condition	Participants in Percentage
A	Diseases associated with increasing temperatures vector-borne and water-borne diseases	67
B	Worsening drought conditions and desertification	15
C	Excessive rainfall	27
D	Soil erosion	45
E	Reduced or increased populations of animal species due to warmer temperatures	12
F	Increase in new types of insects and lengthened life spans of endemic insects	52
G	Food insecurity	61
H	Massive floods	12
I	Extreme and unprecedented cold spells	9
J	Others (specify)	9

Table 4.4.2: Effects of Adverse Climate Change

4.4.3 Frequency of Occurrence of Climatic Change Situations

Seeking to know the frequency of the occurrence of the various aspects of climate change and if the respondents had made noticeable observation of the same. A majority of the participants at 70% stated that these conditions occur in Bungoma County every year; 15% of them said that these happen after every 5 years; 6% were adamant that none of the above conditions occurs in Bungoma County. The remaining 6 % of the participants claimed that the conditions happen in the County after every 10 and 20 years respectively.

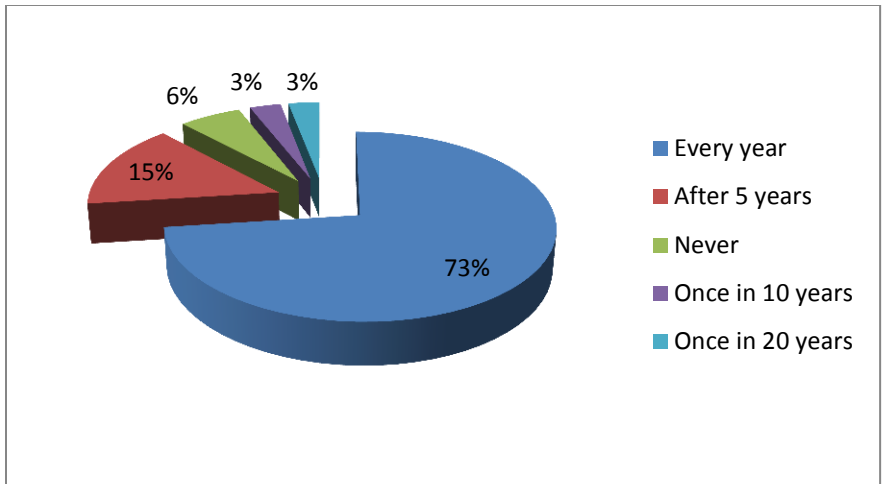


Figure 4.4.3: Frequency of Occurrence

4.4.4 Segment of the Society Most Affected by Climate Change Effects

Of the number that participated, 45% of the participants believed that when the above conditions happen, children suffered more than anyone else. A further 39% of the participants stated that the women were the most affected while 9% stated that men were the most affected by adverse climatic situations. The aged, irrespective of the gender are the most affected and this was from a response of 15% of the participants in this Study. Although the above groups represent all members of the society in their respective percentages, 6% of the participants in this study were of the opinion that everyone is affected by the conditions.

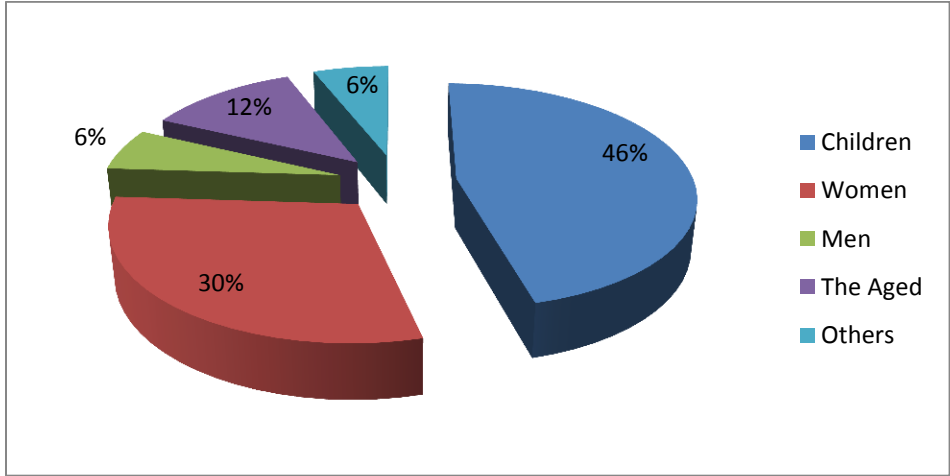


Figure 4.4.4: People most Affected by Climate Change

4.4.5 Effects of Climate Change on Women

The respondents were able to clearly articulate and point out how climate change impacted women of Bungoma County which has been categorized as follows;

a) Fuel and Energy Issues

Lack of firewood for cooking affects women. In Bungoma County, it is expected of women to prepare meals for their families irrespective of the source of cooking energy. The absence or scarcity of firewood is a major problem to a society that depends on firewood for energy. It means that women have to walk long distances in search of firewood which sometimes do not yield results and hence forced to improvise other means of cooking energy. Although there may be alternatives to firewood, most are expensive, inaccessible, seasonal, or even too complicated to use by a common village woman. This is true according to WEDO (1999); Enarson (2000) and Masika (2002)

More revelations on the topic on firewood came from a participant who stated that sometimes the risk comes from unexpected sources when women go to fetch firewood from the forests and the government officials who guard the forests sometimes harass them out of the forests. Sometimes, they have to pay or bribe to access the forests for firewood. Participants also stated that the scarcity of affordable alternative sources of cooking fuel also affects women, especially during the extreme wet season. This is because most women in the county cannot afford electricity and cooking gas. The only other available source of cooking energy is the maize cobs, which unfortunately are seasonal, and barely enough to last for even three months.

b) Health Issues

When the climate changes, there are frequent occurrences of illnesses in children. Women are the caregivers and they do the nursing of the sick as expected by the society. In such circumstances, they have to abandon other responsibilities expected of them and take the sick to the hospital and nurse them back to health increasing their overall workload which they still have to come back and do. In circumstances that the sick are beyond being nursed at home, women still suffer in that they have to stay in hospital with the sick even as they try to manage the home from the hospital. A participant added that in many instances, the distances are long and in many cases

they have to walk because of lack of money to take the bus and pay the medical bills at the hospitals.

Health issues related to the wet seasons were also raised. According to some participants, women are exposed to the dangers of contracting water-borne diseases such as bilharzia and dysentery because of the nature of tasks they perform such as collecting water from the streams or firewood from the wet forests irrespective of the weather conditions. This confirmed documented literature as far as the effects of climate change on women are concerned Denton (2002); Enarson (2000); Masika (2002).

Other participants stated that in addition, women are exposed to the dangers of contracting vector-borne diseases such as asthma or pneumonia because they wake up very early to brave the cold weather to prepare breakfast for the families and they also sometimes sit up late in the evening performing various duties.

During maternity and nursing of the baby, women suffer much more by the adverse climatic conditions. According to some participants, it is worse for such a woman who are weak and whose bodies demand large amounts of energy-giving food when there is none in the home. They have to go for many hours without eating or share the little available that their bodies so desperately need with the rest of the family members. This matter has also been documented by literature (Masika, (2002).

c) Food Yield and Scarcity

Adverse climatic conditions affect food production. The participants stated that women suffer when the yields are low because they are not able to provide enough food for their families throughout the year making them subjects of societal ridicule. This cultural attitude causes gender-based humiliation to women. Although in a home, both parents should be responsible for feeding the family, in most communities of Bungoma County it is socially expected of women to provide food for the family irrespective of its availability. This increases the burden of women in their daily struggle to ensure that their families have at least one decent meal in a day.

Most women in this county are very poor. They have to depend on their husbands to help feed the family, especially during the seasons when food is scarce. And when they ask for money to

buy food from their husbands sometimes they are violently abused. A participant stated that not all husbands are willing to provide food for their families during the entire 'famine' season.

In Bungoma County, the staple food is maize meal (ugali). This meal must be accompanied by some kind of stew made from meat, chicken, fish, milk, or vegetables. However, a participant mentioned that there are no vegetables during the dry spells, neither is there milk. In fact the participant concluded by stating that sometimes even the maize meal for the ugali may not be available at all in such circumstances.

According to some participants, in many cases when animals die because of situations related to adverse climatic conditions, women sometimes lose their only sources of livelihoods and the men would lay blame on them for such losses leading to strife in family relations.

d) Water Issues

Water shortage forces women to walk long distances in search of clean water for cooking and drinking. During the dry spell when the seasonal rivers have dried up, and in the words of some participants, women have to walk for long distances to fetch water (Denton (2002); Enarson (2000); Masika (2002)). Poverty has pushed many of them to these levels because they cannot afford to drill boreholes or install tap water in their homes, and they are also ignorant of the affordable water disinfecting options.

Women are also expected by society to keep the home, children, as well as the household clean. This becomes a challenge in cases when there is no water because of the poor rains or prolonged dry spell which may lead to the drying of seasonal rivers and water sources. Participants in this study were concerned that in such cases women are condemned and ridiculed for not meeting the hygiene standards that are expected of them yet in a real sense it is not their fault.

Soil erosion caused by depletion of minerals in the soil when the top soil is eroded by heavy rains has a significant impact on the lives of most women in this county. One participant mentioned that most family land is under the control of the husband and therefore the woman is usually left with a small portion of land to cultivate vegetables while the rest is used for cash crops such as sugar cane and coffee. Although they grow maize too, most homes have limited land for growing vegetables whose yield get reduced by soil erosion and the women have to seek for alternatives. The effect of too much rain would sometimes cause mudslides in the home and

it is the responsibility of women to clear this out. Otherwise the women will be condemned for being untidy. This is very tiresome for them because they have other responsibilities in the home.

e) Politics and Social Issues

Women are always engaged in the running and maintaining the home. They barely get time to seek political power like their male counterparts and as a result, they rarely get included in important decisions that are made for the society. In effect, women lag behind in the knowledge of political trends and activities in the county and this scenario repeats with equal force in the environmental issues where they do not participate in environmental policy making that is specific to their situation in adaptation and mitigation against the effects of climate change.

There are areas in the county that are prone to jiggers. In these places, the participants believe that women get affected more because they are the ones who remove the jiggers from the feet of the children, their husbands, as well as their own. These jiggers are usually seasonal and come about mostly during the wet seasons. The jiggers if not removed early enough can deform the feet of the affected person and hinder the normal thinking ability of an individual. Normally, women would abandon all other tasks and give priority to remove jiggers.

4.5 Efficacy of Water, Forest and Agriculture Sub-sector Policies

This is the section through which the issues of policies and government measures were introduced to the study. The relevance of women in matters concerning the environment is also emphasized in this portion of the study.

4.5.1 Availability of Policies that Aid Women Adaptation and Mitigation

On average respondents did recognise the government's role in having various policies but they did not believe that the government had put certain measures in place to assist women to mitigate the effects of climatic changes.

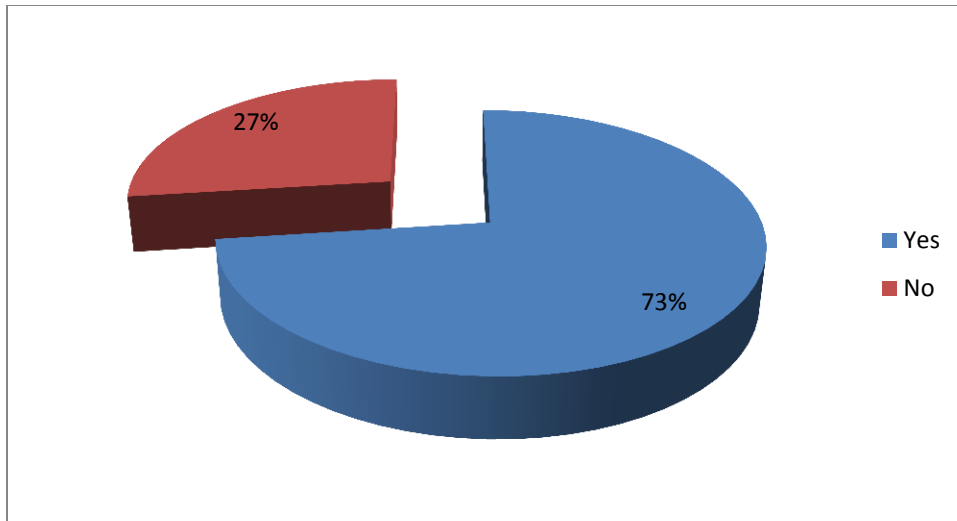


Figure 4.5.1: Availability of Government Resources to Women

4.5.2 Details about Government Policies

Details about the government policies attracted a 73% response and 45% of the participants claimed that there were other measures put in place by the government in the environmental policies to take care of the effects of climatic change that affect women. According to 36% of the participants, they believe that the government has effected measures for afforestation and reforestation. Of equal percentage are participants who acknowledged that there are measures that avoided deforestation. The government has facilitated access to land and water by women in Bungoma County as stated by 33% of the participants in this study. Sustainable forest management, agro forestry systems, and the facilitating of women participation in decision-making and implementation processes in the county have been attained. This is according to 30% of the participants in this study. There are sensitization programmes to enhance most of the measures that the government has put in place to cater for the diverse climatic conditions in Bungoma County. This is according to 27% of the participants in this study.

Soil conservation measures are available according to 24% of the participants. This assumption is a result of the response obtained from 24% of the participants in this study. Cropland and grazing management, as stated by 21% of the participants in this study, is practiced in the county. Of equal percentage, responses from participants in the same study affirmed proper farm management through Government facilitation. According to 18% of the participants in this study,

the government has sensitized them on energy efficiency and that biofuel/bioenergy and fuel projects are active in the county. 15% of participants appreciate livestock management skills provided by the government to the county while 9% of the participants appreciated biodiversity conservation.

Table 4.5.2: Women and Climate Change Mitigation and Adaptation Measures

	Activities	Percentage By
1	Afforestation and reforestation	36
2	Avoided deforestation	36
3	Sustainable forest management	30
4	Agro-forestry systems	30
5	Cropland and grazing management	21
6	Soil conservation measures	24
7	Fertilizer switch or management	21
8	Livestock management	15
9	Biofuel/bioenergy and fuel-switch projects	18
10	Energy efficiency	18
11	Biodiversity, watershed and soil protection	9
12	Biodiversity conservation	9
13	Facilitating women's access to finance and enhance the above	33
14	Facilitating access to land and water	30
15	Facilitating women participation in decision-making and implementation processes	27
16	Sensitization programmes to enhance the above	45
17	Others	0

4.5.3 Policy Measures that target Women Adaptation and Mitigation

The government does provide information on forecasting and early warning systems of the diverse climatic conditions and this was stated by 52% of the participants while 45% of the participants acknowledged that the government sensitizes its citizens on increased natural water retention and storage capacity. This was mainly through the provincial administration, local *barazas*, schools, churches and occasionally at scheduled meetings with representatives of officials from the water related ministries at the grassroots level.

Another 45% of the participants indicated that the government has put in place pollution control measures such as a water treatment and recycling plant at Webuye along river Nzoia, which carries out the process of water treatment of contaminated water as a result of effluent discharged from industries.

Other respondents confirmed the availability of water supply management services facilitated by the government to the people of Bungoma County. This assumption is a result of the response from 39% of the participants in this study while 18% of the participants claimed that there is a water demand management measures put in place in Bungoma County by the government. Although they did not mention the specific measures, 3% of the participants who answered this question indicated that there are other measures, besides the ones provided above, that the government has put in place in Bungoma County to cater for the adverse climatic conditions that adversely affect women.

Another set of respondents indicated that there is water allocation and planning in Bungoma County. This was affirmed by 30% of the respondents. Similarly, 24% of the respondents stated that the Government has put in place flood protection measures. They cited the construction of dykes on some parts of the banks of River Nzoia. Yet, another set stated that erosion protection has been provided by the government. This was indicated by 24% of the participants of this question. Meanwhile, according to 21% of the participants who answered this question, there exists land planning measures that the government has carried out in Bungoma County.

Table 4.5.3: Government Measures to Aid Women Adaptations and Mitigation

	Activities	Participant By Percentage
1	Increasing natural water retention and storage capacity	45
2	Protection against flooding	24
3	Forecasting and early warning systems	52
4	Erosion protection	24
5	Water demand management	18
6	Water allocation and planning	30
7	Water supply management	39
8	Pollution control	45
9	Land use planning	21
10	Other	3

4.5.4 Existing Barriers against Women Benefiting from Policy Measures

Overall, 64% of the participants indicated that there are barriers that prevent women, especially in Bungoma County, from benefiting from the measures that had been mentioned above. These participants were therefore expected to proceed to the next question. The remaining 36% of the participants were expected not to answer the next question because they had indicated that there were no barriers that prevented women from benefiting from the measures provided by the government to meet the women's climatic change mitigation and adaptation needs in Bungoma County.

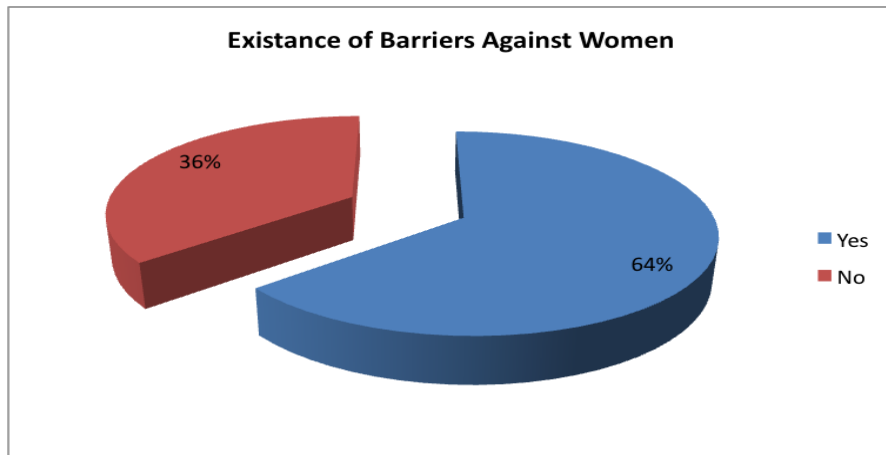


Figure 4.5.4: Existence of Barriers against Women

4.5.5 Barriers that Hinder Women against Benefiting from Policy Measures

Of the participants who responded, 67% indicated that women’s education level hinders them from benefiting from policy initiatives. Education is important for any society and therefore if women are left behind in literacy, it means that the society will not prosper well as expected by its elite members. When they are not educated, women will not understand the policies that help them in meeting their climatic change mitigation and adaptation needs that are very relevant to them. Another 67% of the same participants believe that poverty is a barrier that hinders women from benefiting from the measures provided through government policies. Poverty pulls behind most development agenda in society. High poverty translates to inadequate food supply in homes and therefore much time is spent looking for food. Decent education is not affordable for children from poor backgrounds hence they may not be able to push for environmental change aspects because they are not sufficiently empowered psychologically to do so.

Women’s social status is a setback towards attaining privileges from government policies received a 57% response in the affirmative. The status of a woman in society is important. Women who have low social status are not able to contribute in key social decisions that affect them. Most of the environmental degradation issues affect women, but if they are not able to be part of the key decision-makers in these matters, the situation will remain the same, or even get worse as the years go by. Lack of political power was also cited by 43% of the participants in this question as a reason why women do not benefit from the measures provided by the government. Politics plays a major role in the stability or downfall of any society. This is

because it is through politics that key policies concerning society are made. Politics determines the finances allocated to society for various roles and therefore it is relevant that women are actively involved in politics. When women are involved in politics of their society, they are better placed to advocate for policies that will improve their environment by meeting their climatic change and adaptation needs efficiently Agarwal (1997).

Cultural factors, according to the feedback from 57% of participants of this question, is a key reason why women have not been able to sufficiently benefit from the measures of the government policies in meeting their climatic change and adaptation needs. Culture defines a people and it dictates on how those people live in the society. Some cultures have rules and taboos that hinder women from performing certain roles and it is unlikely that these women can be part of the positive growth of the society irrespective of the possibility that they have great ideas.

Table 4.5.5: Barriers preventing Women from benefitting from Government Initiatives for Women Adaptation and Mitigation

	Barrier	Participants by Percentage
1	Women Education Level	67
2	Poverty	67
3	Women Social Status	57
4	Lack of Political Power	43
5	Cultural Factors	57

4.5.6 Categories of Policy Initiatives Available

There are land policies in place in Bungoma County that aid women adaptation and mitigation against the affects of adverse climatic change. This is according to 27% of the participants of this study who answered this question. 24% of the participants who answered this question believe that there are gender policies that the government has put in place geared towards assisting women in Bungoma County to adapt themselves against the effects of adverse climatic conditions. Forest policies were also acknowledged by 18% of the participants who responded to this question. They believed that these policies have enabled the government to help women during the adverse climatic conditions. 12% of the participants indicated that there is water

policies put in place by the government to cater for women in Bungoma County during times of adverse climatic conditions. 6% of the participants who answered this question indicated that there are climate change response strategies in place by the government in Bungoma County to counter adverse climatic changes that affect women.

None of the participants who took part in this study acknowledged the presence of energy policy by the government in Bungoma County. There was also no other policies provided by the government to Bungoma County that were mentioned by the participants.

Table 4.5.6: Government Driven Policies

	Policy Categories	Participants by Percentage
1	Land Policy	27
2	Forest Policy	18
3	Water Policy	12
5	Energy Policy	0
6	Climate Change Response Strategy	6
7	Gender Policy	39
8	Vision 2030 Blue Print (as a relevant policy to climate change mitigation and adaptation)	24
9	Other (Specify)	0

4.5.7 Participant Recommendations on Government Measures and Policies

In looking at the policy initiatives put in place by the government 24 % thought that the policies were efficacious enough while 76% of the participants stated that the policy initiatives by the government were not efficacious enough in aiding women adaptation and mitigation against the effects of climate change. They had various suggestions as to what the government should do to enhance the policies' efficacy.

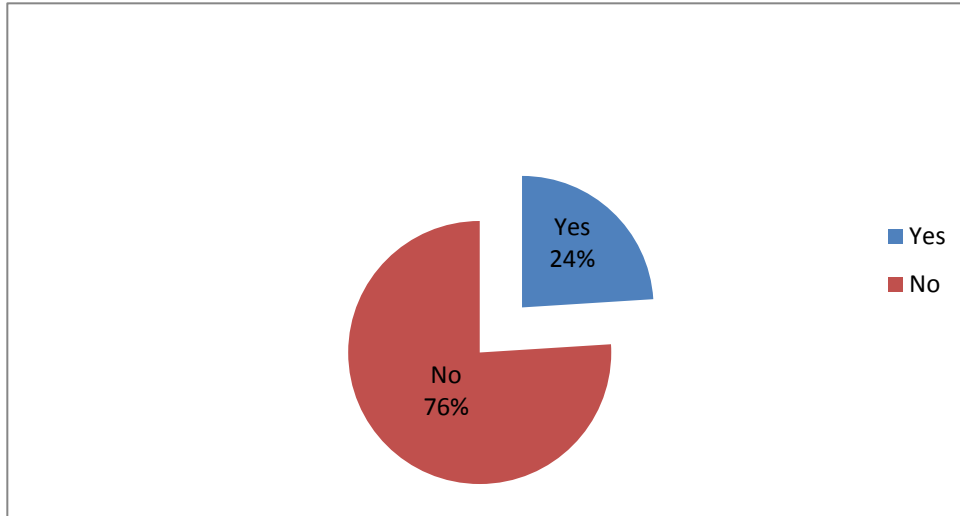


Figure 4.5.7: Efficacy of Existing Government Policies in Meeting Women's Climate Change Adaptation and Mitigation Needs

Alternative sources of energy topped the list and they suggested the need to have alternative sources which should be made accessible and affordable to many people. The government can provide electricity through rural electrification, which can offer alternative energy sources for cooking. These energy sources should be easy to use and available throughout the seasons. The government needs to provide clean water to the homesteads or within reasonable access to the women to enhance water security so that they can have more time to attend to other critical needs in the homes.

The women should be given priority to articulate and voice their issues in order to get a positive feedback. Campaigns towards environment change remedies should be made in the county at large. That although women can articulate their issues in Bungoma County, there is still a feeling that it is not enough and more can be done. They also require more time to be able to speak out their environmental grievances and through probing and patience, get a satisfactory feedback from the stakeholders. Participants indicated the necessity for education to members of the society on the available environmental policies and also on their right to certain issues in society. Although there have been workshops in some parts of Bungoma County, the participants felt that they needed more. Empowerment should aim at promoting gender balance and women should be involved in environmental resources development and management in their respective capacities.

There should be ways by which to improve the literacy standards of women. Women have to be educated, even if it is just the basic education that empowers them to read, write and count. This is necessary if society must prosper because they are the ones who have direct links with all members of the society and hence great influence. It is therefore necessary for government to package some policies that attract more women to go to school even when they are adults.

The government should sensitize the community towards cultural beliefs that affirms women in relation to land ownership and related properties. The Bukusu, and by extension the Luhya in general who are the major community in Bungoma county, believe that women should not own land and therefore they have no role in making any decisions concerning land or its ownership. Effort should be made to create awareness on the provisions of the Law especially the New Constitution of Kenya, 2010 on equal rights for men and women to own property such as land.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the conclusions and recommendations of the study based on the objectives.

5.2 Conclusions of the Study

5.2.1 The Efficacy of Kenya's Forest, Water and critical Sub-sector Policies in Agriculture

From the findings of the study, it was established that policy measures put in place by the Government in the Forest, Water and critical policies in Agricultural sectors to aid women in adapting to and mitigation against climate change were NOT efficacious enough. The participants confirmed the existence of these policies but also stated that the provisions do not expressly provide for women adaptation and mitigation against the effects of climate change.

The study established that even where there were clear provisions in the policies on how women would be aided in adaptation and mitigation against the effects of climate change, the same is never actualized through enforcement to meet the same. Other initiatives such as improving access to education and carrying out capacity building through medium such as public baraza's would go a long way in ensuring that there is full participation by women in environmental issues, thus aiding their adaptation and mitigation against the effects of climate change.

The study established that women in Bungoma County have a lot of knowledge for sustainable use and utilization of environmental resources even though there is little effort to enhance this by key stakeholders.

5.2.2 Critical Sectoral Environmental and Climate Change Policies and Response Strategies

There are various Sectoral Environmental Policies and climate change adaptation policies, plans, and strategies that exist in Kenya. However, they are not adequate enough to aid women in coping with climate change adaptation and mitigation needs. Other measures that would improve the actualization of the spirit of such policies in empowering women in their implementation should be pursued. Since this study mainly dwelt on policies in three broad areas, the theme of the study seems to cut across the entire spectrum hence measures should be developed so as to make the rest of the sectoral policies effective too.

5.2.3 Institutional Actors Involved in Climate Change Mitigation and Adaptation

From the findings, it was established that though there exist provisions for incorporation of women in the management of environmental resources in the sectoral environmental policies, few women know about this and this creates the need for awareness to keep them informed of such developments. The study established that the few women who have made it to the institutions of governance and actors in the field of environmental resources seem to view it as a favor; hence their voices are drowned by male voices. The need for practical steps to carry out civic education to instill awareness for women to take up their rightful roles in environmental resources governance in Bungoma County is thus urgent.

5.2.4 Role/s Played by Bungoma Women in Climate Change Mitigation and Adaptation Needs

The Study established that in Bungoma, women have the primary responsibility of meeting household needs such as food and water, maintaining sanitation aspects as well as health. The women are also expected to fetch firewood for energy for use in the house as well as take on the role of caregivers whenever a member of the household falls sick. Despite the important and heavy roles that women play in Bungoma County, the management and control over environmental resources such as land, water, is vested in men and women are simply treated as passive dependents and decision-making that affect the household is left to men. It also means that women are deprived of decision-making privileges that men enjoy over environmental resources. This takes away from them the opportunity to air their concerns at policy level, hence, their climate change adaptation and mitigation needs are rarely addressed.

5.3 Recommendations

Several recommendations have been suggested in this part that would see Kenya's Forest, Water and critical policies in agriculture are improved so as to aid women adaptation and mitigation against the effects of climate change within Bungoma County. These include;

5.3.1 Education and Capacity Building among Women

- a) Enhancing the training of women in Bungoma County and facilitating them in capacity building particularly in environmental resources management is critical. This is aimed at empowering them to participate in decision-making as well as in the formulation of policy

for adaptation and mitigation against the effects of climate change at the grassroots level. There ought to be initiatives for development of training programmes that mainly target women in Bungoma County to equip them with relevant skills for adaptation and mitigation against the effects of climate change through the use of environmental resources. These can be achieved through early girl child education in environmental management skills especially at primary and secondary education levels. Equally, stakeholders need to derive incentives that would encourage women to take environmental resources management seriously so as to enhance sustainable management of environmental resources. This should be done through mainstreaming a gender perspective in all policy work which is crucial since it evaluates the implication of women and men in all planned actions and at all levels. It is necessary to involve women in the entire process of development of projects that are geared towards environmental resource exploitation so that women too can have a significant say and their views factored in the implementation of such projects.

- b) There should be awareness programs on the impacts of climate change on women so that adaptation and mitigation specific provisions can be incorporated in the sectoral environment policies in order to aid them in adaptation and mitigation initiatives. There ought to be awareness creation on programs that centre on climate change effects on the socio-economic activities of women. Through education women, should be aided to form groups to access financial resources through the groups.
- c) In addition, there should also be programs for provision of extension services to women on appropriate technological innovations that would aid them in climate change adaptation and mitigation initiatives. Development of early warning systems for disaster preparedness for women and facilitation of market access by women are important steps towards this endeavour. In some instances, transporting and selling of forest products such as timber by large corporations and the Government are subsidized while the same initiatives by vulnerable groups such as women are highly regulated. This should change to enable market opportunities and access by women who are involved in production of timber and other forest products so that they too can benefit.
- d) There should also be encouragement of diversification of farming systems by women farmers through introduction of new crops, crop rotation, mixed cropping, multiple

cropping, alley cropping, agro forestry, and mixed livestock keeping. These farming systems can also be manipulated through plant and animal breeding, changing the crop calendar, as far as time for sowing and harvesting is concerned, adjusting livestock breeding practices using channels for crop production in order to enable women attain maximum yields.

- e) Ensure that markets for foresting services benefit women: Currently, there are market based mechanisms to pay for environmental resources such as watershed protection; bio-diversity conservation. Thus Kenya's Forestry Policy should advocate for compensation of women who are often the ones who maintain these forests. Women should be encouraged to participate in forest management and related businesses to tap into their diverse knowledge to achieve sound management of forestry resources.
- f) Above all, there should be political will and goodwill on the part of counties to facilitate women's participation and expanded role in forestry management. This can be achieved through facilitating women who have graduated from other disciplines in the rural sector such as forest economics to be encouraged to pursue careers in forestry and other related disciplines.
- g) Systems of subsidized food prices should be explored so that women can feed the households by being guaranteed access to enough food that meets all nutritional needs. At the same time, new technologies in farming should be explored so that farmers have ready information needed to optimize the management of their farm inputs and use management indicator tools to improve efficiency and profits.
- h) Ways and methods should be devised to insure female farmers against losses that sometimes occur due to unpredictable weather changes that occasion total crop failure.
- i) Efforts should be made to control soil erosion and other forms of land degradation to guarantee productivity of the farms. Use of pesticides should be minimal and pests managed through biological agronomic control mechanisms to avoid harming the soil as well as the women farmers. Similar effort should be expended on research in order to develop plant varieties that can survive climate change impacts such as droughts. Equally useful would be a databank of weather history to provide accurate information for weather predictions to guide farmers as to when to plant and harvest in order to yield maximum returns from the farms.

- j) Other farming methods such as sustainable agriculture which is “an integrated system of plant and animal production practices having site specific application that over the long term; satisfy human food and nutrition needs; enhance environmental quality and the natural resource base upon which the agricultural economy depends can be taught to women as well as teach them to adopt the methodologies. This includes empowering women to aid them increase the diversity of crops on the lands. Equally important is facilitating women to practice value addition to their farm outputs to help them achieve good returns to boost their income per capita.
- k) Women should also be taught and assisted to plant crop varieties and rear animal breeds that are resistant to diseases and pests bound to be prevalent as a result of climate change. In a study done in Philippines, use of a particular rice variety known as “super rice” increased yields by up to 25% without any additional farm practices such as irrigation on the same acreage of land where normal varieties were grown (FAO 2011). This should go hand in hand with devising ways to educate women on better storage, drying and processing of crops through which they can reduce post-harvest losses of crop. There should be ways for better weather prediction and information sharing with women farmers who often lag behind in access to such information which can help them know when to harvest their crops.
- l) Facilitate women to restore and enhance re-growth of forests on degraded lands through innovative financing mechanisms. Such financing could be tapped from low interest loans to women, cost-sharing agreements, profit sharing and other financing from both the Central and County Governments. A while ago, it was noted that the quality of parts of the ecosystem of Mt. Elgon forest for instance had declined over time, building a case for use of a wide variety of technical and scientific, legal and economic tools and measures to be employed to integrate conservation objectives into the management of forest resources.

5.3.2 Empowering Women through Financial Resources

Women in Bungoma County would benefit from financial incentives to assist them initiate business ventures where they can earn alternative sources of income to avoid over reliance on environmental resources for survival which increases their vulnerability whenever there are disasters associated with climatic change. This can be done by establishing a special fund for

catering for emergencies that befall women in Bungoma County whenever there are occurrences of such disasters.

These occurrences include such phenomena as El nino rains, which destroys everything including food crops and even clean water. At the same time, there is need to ensure that women have equal benefit from the proceeds of environmental resources that are communal in nature. Men tend to dominate the benefits emanating from the sale of environmental resources, despite the fact that women render a better role of the resources' conservation.

5.3.3 Improved Access to Environmental Resources

The need to ensure there is enhanced access; use and exploitation of environmental resources by women in Bungoma County cannot be overemphasized. Barriers to resources that include water, forests, wildlife that hinder women access should be removed. With equal force, marginalization of women in environmental resource management such as forests should be discouraged and eventually stopped. Otherwise, women are in great danger of being condemned to the margins as passive endorsers to commercial forest conservation and production as large corporations take a center stage in the affairs of forest exploitation.

Ways should be devised to aid women access improved farm inputs supply and facilitate export delivery information to enable them access market share for environmental resources in which they are involved. Equally, research should be conducted in order to come up with alternative crop and plant varieties which yield better in adverse conditions so as to enable women realize better crop yields in their endeavor to meet household food needs.

Also needed are measures to broaden research to incorporate adaptation to and mitigation against the effects of climate change by women farmers. This should include finding better farming technologies that can be sustained in emerging climatic conditions as well as development of alternative food systems and provide agricultural and forestry conservation extension services in addition to agricultural information to women farmers so that they play an active role in realizing maximum productivity in these sectors of the economy.

5.3.4 Mainstreaming Gender issues in Environmental Resources Management

This is a process by which women and men are factored equally in any plans of action in major policy initiatives. This should be equally true for women affairs in environmental resources

management and use by women in Bungoma County. The strategy here should involve incorporation of Bungoma women's concerns and experiences in the design, implementation and monitoring as well as evaluation of environmental policies and programs in all aspects of life.

Women aspects should be included in all aspects such as environmental resources conservation programs, policies, budgets, skills, financial and human resources systems etc. Support for women organizations is also important. Funding mechanisms should be improved and bureaucracies minimized for women access to financial aid to run programs for adaptation to climate change effects. This will ensure that the benefits that accrue to women are enhanced. The first step of achieving this is by carrying out a gender analysis in Bungoma County to understand the actual place of women in environmental aspects *vis-a-vis* their need to adaptation and mitigation against the effects of climate change.

Mechanisms for carrying out analysis for differentiation of the responsibilities, control and utilization of environmental resources should be developed so as to ensure that women are not disadvantaged in terms of benefits. These potential climate change effects to specific environmental aspects as agriculture, forests and water call for integrated adaptation strategies in the policies under focus i.e, Agriculture, Forest and Water Policies. It is vital to develop adaptation and mitigation measures which will aid women in adaptation and mitigation against the negative effects of climate change.

5.3.5 Gender Analysis Frameworks to highlight Impacts of Programs on Women

Gender analysis is the systematic way of exploring roles and responsibilities of women and men and their access to and control over resources and benefits within a particular setting, project, household or community. It looks at different impacts of development programs on men and women because each group performs different activities in the community and the outcomes of each activity affect the groups differently

It is crucial for stakeholders to carry out gender analysis programs in order to reveal the outcomes of the policy initiatives in terms of how well they are aiding Bungoma women in the adaptation and mitigation against climate change effects. These initiatives should recognize the fact that:

- a. Men and women have different needs particularly in matters of environmental resources

- b. Women of different calibres such as social status and levels of education determine their differences in the level of interest in natural resources management and benefits.
- c. The needs for women of different ethnicity, disability, levels of income determine their interest in natural resources management and focus on the benefits.
- d. There may be need for employing different strategies in the desire to achieve equality in incomes for both men and women as far as the benefits from natural resources are concerned.
- e. The policies should spell out ways by which researchers and policy makers could identify leverage points in policy, needed public instructional reforms, effective incentives and the costs of achieving and funding opportunities that would aid women carry out good management practices for the products.

5.3.6 Enforcement of Provisions of the New Constitution on Women Issues

Bungoma County is mainly a patriarchal society. Most important decisions in the community on important aspects such as land, forest and water resources are mainly done through male dominated forums. There is therefore need to educate the society on the provisions of the two-thirds gender rule in the Constitution so that forums which are charged with making important decisions that affect the use of environmental resources incorporate and encourage the participation of women and implement women views as well.

In addition to the enforcement of the provisions of the constitution, ensuring that provisions of laws for environmental resources geared towards aiding women adaptation to climate change should be thoroughly enforced.

5.3.7 Amendment of existing Forest, Water and Agricultural Sub-sector Policies in Kenya

This should be done with particular emphasis on the following areas;

- a) Putting in place mechanisms for sustainable utilization of natural resources to enhance climate resilience and adaptive capacity to protect the natural capital of Kenya. Mainstreaming climate resilience into national and county government development plans, processes and implementation and ensuring the integration of climate change risk and vulnerability assessment in the environment.

- b) Carry out Impact Assessment and Strategic Environment Assessment Development incentives to promote climate resilient actions of the public, private and other actors through appropriate policy reforms
- c) Identify and implement priority adaptation actions across key social, environmental and economic sectors under the framework of a National Adaptation Plan to attain a systemic and positive impact in the short to medium term.
- d) Granting women in Bungoma County opportunities as managers, designers, planners, implementers and evaluators of environmental projects that have a net effect of aiding them in climate change adaptation and mitigation measures.
- e) Placing mechanisms that will protect Bungoma women's indigenous knowledge, innovations and practices and assist them in application of such knowledge in responding to climate change occasioned disasters.
- f) Ensure the protection of Bungoma Women's intellectual property rights as relates to traditional knowledge in conservation and utilization of environmental resources. Mechanisms should be put in place to educate women on how to register their intellectual rights to protect infringement or utilization without compensation. This should also include putting in place mechanisms that would encourage and ensure fair and equitable sharing of benefits arising from the utilization of their traditional and indigenous knowledge, innovations and practices as far as conservation of environmental resources is concerned.
- g) Putting in place mechanisms that would aid in reducing environmental hazards within the homes since women bear the greatest task of dealing with the aftermath of disasters occasioned by climate change effects within the homes.
- h) Ensure integration of Bungoma women perspectives into the design and implementation of environmentally sound and sustainable resource management mechanisms.
- i) Simplify policies for better understanding by women and the rural communities. The available forestry policies and action plans should be simplified and if necessary translated into local languages for better understanding by women in Bugoma. They should also be shared widely. The policies should provide for sustainable forest sector plans, which should be broad enough to address all major forest products and services while factoring in the role of women in sustainable management of the forest resources. Monitoring

indicators should be used to track progress and provide the necessary input for evaluating how adaptation to climate change effects is aided by use of forest resources. The Central Government as well as the County Government of Bugoma should lead the broad and diverse participation needed to get wide support for a sustainable forest sector as well as set in place mechanisms for implementation of the policy.

5.3.8 Suggestions for further research

- a) There is need for further research on the efficacy of the other sectoral environmental policies such as the wildlife policy, the energy policy, the land policy, the other sub-sector policies in the agricultural sector such as the food policy to determine the exact extent of their efficacy in aiding women adaptation and mitigation against the effects of climate change
- b) Similar studies should be carried out across the country to establish the prevalence of the gaps that were established in Bungoma County to see whether there is any correlation in the matters established.

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LIST OF APPENDICES

APPENDIX I: RESEARCH QUESTIONNAIRE; MATTERS TO NOTE

- 1. The Information given on this questionnaire will be held in strict confidence and will be used only for the purpose of the study.
- 2. If any of the questions may not be appropriate to your circumstance, you are under no obligation to answer.

Please answer the following questions:

Tick [√] where appropriate

SECTION I: BACKGROUND INFORMATION

1. May you please state your gender?

Male []
..... []
Female..... []
..... []

2. What is your age bracket?

Below 18yrs []
..... []
18-25years..... []
..... []
26-35 years..... []
..... []
36-45years..... []
..... []
46-55years..... []
..... []
Above 55yrs []
..... []

3. State your education level?

- Primary.....
..... []
- Secondary.....
..... []
- Tertiary
..... []
- University.....
..... []

4. Are you in any form of employment?

- Yes
..... []
- No
..... []

5. If your answer in (4) above is yes, what is your occupation?

- Teacher.....
..... []
- Civic Administrator
..... []
- Manager
..... []
- Religious leader
..... []
- Politician
..... []
- Farmer
..... []
- Any other.....

6. What is your marital status?

Married []

..... []

Single []

..... []

Divorced []

..... []

Others []

..... []

please specify.....

7. For how long have you lived in the county?

Less than a year..... []

2-5 years..... []

..... []

6-10 years..... []

..... []

Above 10 years []

SECTION II: CLIMATE CHANGE EFFECTS AND VULNERABILITIES

8. What are the common forms of adverse climatic conditions affecting your area?

Diseases associated with increasing temperatures and vector-borne and water-borne diseases []

(a) Worsening drought conditions and desertification []

(b) Excessive rainfall []

(c) Soil erosion []

Reduced populations of animal species due to warmer temperatures []

Increased populations of animal species due to warmer temperatures []

Increase in new types of insects and lengthened life spans of endemic insects []

(d) Food insecurity []

(e) Massive floods []

(f) Extreme and unprecedented cold spells
..... []

(g) Others [Specify]

9. What is the frequency of the occurrence of these situations in the county?

Every year
..... []

After 5 years
..... []

Never
.....
..... []

Once in a 10 years
..... []

Once in a 20 years
..... []

10. (a). Which category of people in this county is most affected by the adverse climatic situations as mentioned above?

Children
..... []

Women
..... []

Men
..... []

The aged
..... []

Others
..... []

please specify.....

(b) Briefly state how women are affected by the effects of the conditions mentioned in 8 above.....

.....

APPENDIX 2: INFORMED CONSENT

(The following statement must be read to every respondent)

CONSENT FORM

Hello Sir/Madam,

My name is Cornelius Wekesa Lupao. I am a graduate student of Environmental Policy at the University of Nairobi doing a research to determine the efficacy of Kenya's critical sectoral environmental policies in meeting women's climate change mitigation and adaptation needs: Bungoma County, Kenya. In order to meet this objective, it is important to obtain information from the residents such as you.

This information is being collected for academic purposes only, and there are no personal benefits or risks to your participation. It is possible that some of the questions asked, are of a sensitive nature, but please note that your name will not be recorded in the questionnaire, and any details related to your privacy will be kept confidential. The interview will take approximately 30 minutes, but with your cooperation it can be done quicker. For more information about this study, please contact the researcher on....., or email....

May I have your permission to undertake this interview?

Yes (Proceed with interview)

No (Thank the person and look for next respondent)