

National Environmental Management Authority (NEMA) and the Korea Environmental Industry and Technology Institute (KEITI)



National Environment
Management Authority



Gender Analysis for Enhancing the Resilience of Communities and Ecosystems in the Athi River Catchment Area



Fourteen Falls, Kiambu County

Tunay Africa, 2018

Acknowledgement

As a productive resource, water intersects with multiple other resources such as land and labour to determine the impact of development initiatives. Access to adequate and safe water mediates attainment of food security and health indices for households. Women's instrumental role in procurement of water and its use across various domestic and commercial platforms renders a gender sensitive approach imperative. We therefore unreservedly congratulate NEMA and KEITI for committing to undertake a gender analysis of the Athi River Catchment Area to enhance the resilience of communities and the ecosystem.

Leaders and policy makers in Nyandarua, Kiambu, Machakos and Nairobi counties participated in stakeholder forums and created ample opportunities for the research team to interact with community members which lead to generation of authentic data for the gender analysis. We recognize this exemplary contribution to the gender analysis as we express special commendation to the leaders and policy makers the professional and impressive dedication to the exercise.

Information sharing is a crucial ingredient of development as it shapes and directs policy formulation and service delivery. This exercise is thus pricelessly indebted to the women and men who volunteered information either as community members or experts in response to the gender analysis exercise. We are confident that this report attests to the reality embodied in the voices of all those who shared their views and affirms the validity of their aspirations.

Planning and executing the gender analysis exercise that spanned across four counties was a daunting task that called for exceptional people skills, imagination, dedication and resilience. Staff and relevant stakeholders of NEMA and KEITI respectively demonstrated these qualities that immensely inspired the TUNAY Africa team to deliver on the assignment. We profoundly appreciate the professional guidance provided and believe that this report resonates with their expectations.

It is incumbent upon all duty bearers interacting with this report to facilitate its transition from data to pragmatic actions and tangible results in the lives of women and men in communities who narrated their experiences and spell out their dreams. We believe that the recommendations proposed and endorsed by stakeholders will alleviate the challenges faced by women and men in the four counties in accessing water and being protected against the vagaries of climate change. It is time to acknowledge that the proof of the pudding is in the eating, and a journey of a thousand miles starts with one step!

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Acronyms and Abbreviations

NEMA	National Environment Management Authority
KEITI	Korea Environmental Industry and Technology Institute
GCF	Global Climate Fund
WRA	Water Resource Authority
WRUAs	Water Resource Users Associations
GAP	Gender Action Plan
FGD	Focus Group Discussion
PRA	Participatory Rural Appraisal
KII	Key Informant Interview
IR	Inception Report
CG	County Government
ACA	Athi Catchment Area
TCA	Tana Catchment Area
ASAL	Arid and semi-arid land
ARCA	Athi River Catchment Area
LVNCA	Lake Victoria Norths Catchment Area
LVSCA	Lake Victoria South Catchment Area
RVCA	Rift Valley Catchment Area
ENNCA	Ewaso Nyiro North Catchment Area
KNBS	Kenya National Bureau of Statistics

Executive Summary

This report presents findings of a rapid gender analysis study commissioned by the National Environmental Management Authority (NEMA) in Kenya through partnership and technical assistance from the Korea Environmental Industry and Technology Institute (KEITI). The gender analysis was predicated on enhancing the resilience of communities and ecosystems in the Athi River Catchment Area focusing on Nyandarua, Kiambu, Machakos and Nairobi counties. Specifically, the gender analysis sought to identify and propose remedies to development gaps that manifest gender based inequalities and forestall possible outcomes of the project that could exacerbate existing, or generate new forms of disparities in the way the project impacts on men, women and other vulnerable populations within the catchment areas.

The gender analysis was cross-sectional, using qualitative methods. Emphasis was placed on making the process participatory through focus group discussions, key informant interviews, observation and workshops in Nyandarua, Kiambu, Machakos and Nairobi counties. The study was framed around access to resources; knowledge, beliefs and perceptions; practices and participation; balance of power and decision making; legal rights and status; and time and space as domains that manifest gendered disparities. Study respondents included community participants, service delivery officers and policy makers in the water and environment management sectors, and gender mainstreaming oversight institutions. Qualitative data was majorly collected through extensive desk reviews. The main findings of the study are also coined around various elements of gender equality and equity that include: Access to resources, Level of knowledge acquisition and skills, Cultural beliefs and perceptions, Participation and decision making, Legal rights and status, and Time availability and space concerning location of water points.

The constraints encountered in undertaking the study were lack of data on gender issues at the county level attributed to the formative nature of devolved units in the country. National data was thus used as proxy data to inform the situation in counties. Most counties do not have dedicated gender officers which contributed to inadequate capacity to understand and articulate development issues through gender lens. The main limitation of the study is the contextual nature of qualitative data which may not be generalized across other different development settings.

This report is organized in six main areas as follows:

Chapter One: Introduction – This section contextualises development progress in Kenya and goes further to highlight the interface between water and gender issues.

Chapter Two: Gender Analysis – This section of the report briefly articulates the programming purpose of undertaking the gender analysis.

Chapter Three: Methodology – This part of the report summarises the research process followed in undertaking the gender analysis.

Chapter Four: Findings – This section of the reports articulates and analyses feedback received through various methods of undertaking the gender analysis, including literature reviews.

Chapter Five: Summary and Recommendations – This part of the report condenses the findings and outlines measures in response to the same.

Annex – This section of the report presents an action plan based on the findings and recommendations.

1.0 Introduction

1.1 Country Context

Kenya underwent re-basing in September 2014 that conferred on the country the lower middle income status with the fourth largest economy in sub-Saharan Africa after Nigeria, South Africa and Angola. Despite women's population standing slightly higher at 19,417,639 above men that was 19,192,458 out of the total 38,610,097 as per the 2009 Kenyan census, which is projected to reach 67.84 million people by 2030, they still remain the most vulnerable, including being victims of injustices. This demographic gallop has exerted pressure on the country's resources for sustenance, highlighting the critical and precarious interplay between environmental concerns and community needs.

According to the Kenya National Bureau of Statistics (KNBS, 2019) census results, there is an increment in population level. Men's number is 23,548,056 while women 24,014,716, indicating 50.5% increase of women, equivalent to 466,660 more numbers gap above men. Intersects were factored in the Government-led survey and recorded as 1,524. The total National population as at current is 47,564,296. Household size has reduced from 4.2m in 2009 to 3.9 in 2019. It is a confirmation that women are more than men as per the trend. Unfortunately, the worry is that women still remain the most vulnerable, subordinated and discriminated against within socioeconomic and political set-ups.

Further analysis on cross-sectional surveys indicate that 72% of household related tasks are done by women and girls, justifying the power and roles relation gaps that still exist between men and women. Nairobi and Kiambu counties are also listed by the KNBS 2009 as the top most populated devolved units. Though Household headship in the four counties- Nairobi, Machakos, Kiambu and Nyandarua presents that males surpass at 67.6% against females 32.4%, women still form the bigger lot regarding water collection and use, and demonstration of consciousness towards its proper conservation and management. The Constitution of Kenya 2010 through the Bill of Rights and Affirmative Action, as well as mandates of the National Gender and Equality Commission is accorded preference as an instrument towards addressing and redressing the gender gaps. The CIDPs for the respective counties on water resource and services management will form part of guiding avenues on water intervention- access to, and control by women and men, similarly girls and boys.

Territorial area for Kenya is 582,646 km², divided into water area of 11,230 km² and land area of 571,416 km². The major part of the inland water surface area is covered by a portion of Lake Victoria and Lake Turkana. Of the land area, approximately 490,000 km² (more than 80% of the land area) is classified as arid and semi-arid land (ASAL). The remaining area of about 81,000 km² is classified as non-arid and profitably usable lands, sustaining a substantial portion of Kenyan economy and human population.

The main economic blue print and road map of the Kenyan State is the Kenya Vision 2030 (2008 – 2030) which aims to transform Kenya into a newly industrialized, “middle-income country providing a high quality of life to all its citizens by the year 2030”. The Vision 2030 is founded on the triad of economic, social and political pillars. The economic pillar is designed to catalyze a GDP growth rate of 10% per annum as from 2012 while the social pillar has the architecture of promoting justice, equity, societal cohesion and observance of prudent environmental conservation practices. The political pillar seeks to secure the country’s democratic traditions and human rights of all and sundry. The Kenya Vision 2030 has entered its Third Medium Term Phase (2018-2022) which has prioritized the “Big Four Agenda” that outlines agriculture, universal health coverage, manufacturing and housing as the main development milestones over the next five years. The 2010 Constitution is the foundation of legal, institutional and governance reforms in the country, including the advent of devolved units (counties).¹

1.2 Water Resources in Kenya

Kenya is divided into six water catchment areas, namely Lake Victoria Norths Catchment Area (LVNCA), Lake Victoria South Catchment Area (LVSCA), Rift Valley Catchment Area (RVCA), Athi Catchment Area (ACA), Tana Catchment Area (TCA) and Ewaso Nyiro North Catchment Area (ENNCA). According to the Kenya Water Master Plan, the amount of water available in each of the catchment areas vis-à-vis the demand for the same resource between 2010 and 2030 is as shown in Table 1. The water deficit in the ACA (58,639 km²) is glaring due to large water use as demonstrated by high water demand/water resource ratio of more than 40%², partly driven by the comparatively high population density of the area.³ The Kenya Hydro-Economic Analysis⁴ concurs that the Athi catchment, as of 2010 water use is already exceeding environmentally sustainable limits by a substantial margin. Catchment degradation, which increases hydrological variability (i.e. increases the risk of droughts and floods) is the challenge most widely faced, and one that increases risks for all water users, including farmers, energy producers, industry, and pastoral groups.⁵

Table 1: Water Available vs Demand for Water (Unit: MCM/year)

	2010	2030	2050
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¹ Kenya is divided into 47 counties according to the 2010 Constitution. The gender analysis will cover Kiambu, Nyandarua, Nairobi and Machakos counties.

² Ministry of Environment, Water and Natural Resources. (2013). The Project on the Development of the National Water Master Plan 2030.

³ Population density is 167 persons/ km².

⁴ 2030 Water Resources Group. (2015). Water Resources in Kenya: Closing the Gap.

⁵ Ibid., pg.5

Catchment Area	Water Resources (a)	Water Demand (b)	(a)/(b)	Water Resources (c)	Water Demand (d)	(c)/(d)	Water Resources (e)	Water Demand (f)	(e)/(f)
LVNCA	4,742	228	5%	5,077	1,337	26%	5,595	1,573	28%
LVSCA	4,976	385	8%	5,937	2,953	50%	7,195	3,251	45%
RVCA	2,559	357	14%	3,147	1,494	47%	3,903	1,689	43%
ACA	1,503	1,145	76%	1,634	4,586	281%	2,043	5,202	255%
TCA	6,533	891	14%	7,828	8,241	105%	7,891	8,476	107%
ENNCA	2,251	212	9%	3,011	2,857	95%	1,810	2,950	163%
Total	22,564	3,218	14%	26,634	21,468	81%	28,437	23,141	81%

Source: Ministry of Environment, Water and Natural Resources, 2013

1.3 Gender and Inequality Highlights for Kenya

Kenya has made significant progress in promoting and sustaining equality as a human rights and development imperative through legal instruments, policy frameworks and institutional structures and processes. The Constitution of Kenya (2010)⁶ recognizes the primacy of addressing inequality and discrimination as prerequisites for nurturing a progressive and stable society. The Bill of Rights in the Constitution and affirmative action provisions are enacted to remedy gender inequalities, among other forms of deprivation experienced by women, children and marginalized men. Equitable development in the country is the basis of devolved government where resources and opportunities are contextualized within counties as stipulated in the Constitution. Devolved government mechanisms are therefore expected to engage with and remedy barriers that generate inequality, including those that are gender based. The mandate of institutions like the National Gender and Equality Commission (NGEC)⁷ is to ensure national and county development processes are responsive to alleviation of inequality. Yet, despite the robust normative frameworks inequality between men and women and boys and girls persists across all facets of development in the country (Table 2).

⁶ Republic of Kenya. National Council for Law Reporting (NCLR). Constitution of Kenya 2010. Nairobi: NCLR, 2010.

⁷ Republic of Kenya. National Council for Law Reporting (NCLR). National Gender and Equality Commission Act 2011. Nairobi: NCLR, 2011.

Table 2: Kenya Ten Point Fact Sheet

Subject	Performance	Source
Population	Male 19,192,458; Female 19,417,639	KNBS, 2016
Development Index	44%	NGEC, 2016
Health Index	67%	NGEC, 2016
Education Index	61%	NGEC, 2016
Social Justice and Civic Participation Index	71%	NGEC, 2016
Labour Index	64%	NGEC, 2016
Gender Equality Index	38%	NGEC, 2016
Link between Equality and Inclusion Index	59%	NGEC, 2016
HIV Prevalence	5.6%	NACC, 2016
Sexual Violence	Male, 3.8%; Female, 13.3%	KDHS, 2014

1.4 Gender and Water Resource Intersection

Water is a critical factor of production that affects access to livelihoods for both men and women. Access to water underlies women's and men's participation in reproductive (water for domestic use) and productive work, including irrigation, fisheries, livestock and industrial use. UNICEF has reported that despite 66% of the urban population in Kenya has access to drinking water that is free from contamination in 2015 compared to 70% in 2000. This can be a severe constraint to women and girls who are majority of those involved in collection of water for domestic use. A meta-analysis of household surveys across 45 developing countries found that 72% of daily household water-related tasks were done by women and girls. Improved water provision and a more equal distribution of unpaid work between women and men would mean women have more opportunity to devote time to other aspects of life, such as livelihoods and education.⁸ Extensive and balanced involvement of women, men, transgender, and intersex people in the use, enjoyment and valuation of ecosystem services is necessary to create just, legitimate and effective policies and institutional arrangements. Interventions for water environmental services.⁹ Feminist political ecology (FPE), a growing field of political ecology treats gender as a critical variable in shaping resource access and control, interacting with class, caste, race, culture, and ethnicity to shape processes of ecological change (Cole, 2017).

1.5 Mainstreaming Gender in Global Climate Fund Programmes

The GCF's commitment to gender equality centers on gender-responsive country programmes and initiatives that benefit everyone, women and men. This requires gender analysis to understand the social, economic and political factors underlying climate change-exacerbated gender inequalities, and the potential contributions of women and men to mitigating and adapting to climate change, and building climate resilience. It further entails adopting methods and tools to promote gender equality and reduce gender disparities in climate funding by mainstreaming gender in the project cycle. Finally, it means measuring the outcomes and impacts of project activities on women's and men's resilience to climate change through gender-responsive monitoring and evaluation (M&E). Gender mainstreaming should shape the entire project cycle, from project identification to M&E.

⁸ Australian Water Partnership. (2016). Gender & SDG 6: The Critical Connection.

⁹ Ibid., pg 3.

2.0 Baseline survey on building resilience in the ACA

2.1 Baseline had four steps

2.1.1 Step 1: Inception

At this phase, preliminary consultations were conducted with NEMA, KEITI staff and other stakeholders. The purpose of inception phase was to discuss the proposed protocol, proposed methodology for undertaking the study-including data collection tools, work schedules as well as proposed support (to the research team). Following these initial consultation meetings the consultants submitted the proposed methodology as informed by the inception meeting, data collection tools, processes and analytical tools as well as a comprehensive list of key stakeholders and informants to be met during the course of the baseline survey.

2.1.2 Step 2: Desk study

Key project documents reviewed as part of the evaluation were:

The Constitution of Kenya 2010, the Beijing Platform of Action 1995, CARE International. Women's Empowerment SII Framework at

<http://pqdl.care.org/sii/Pages/Women%27s%20Empowerment%20SII%20Framework.aspx> and other documents that are used in connection with the strategic focus areas of NEMA.

Step 3: Field work

The gender analysis was cross-sectional, using mostly qualitative methods. Emphasis was placed on making the process participatory through focus group discussions, key informant interviews, observation and workshops in the four counties. The consultants used purposive sampling method. This sampling methodology was used in order to have a statistically acceptable and defensible distribution of respondents as a representation of the entire focus population within the project areas.

2.1.3.1 Focus group discussions

Focus group discussions (FGD) were used to obtain views of groups of stakeholders. In all the target areas visited, FGDs was conducted with a *minimum* of 8 participants. The participants were purposively selected to get the views of water sector stakeholders and the community (men, women and community leaders) in the target areas.

2.1.3.2 Key informant interviews

Detailed interviews using semi-structured checklists were conducted with key informants. The key informants included the following:

- Chief water and irrigation Officer (Machakos)
- Director of Gender and Culture (Kiambu)
- Deputy Director water Resources (Kiambu)
- Deputy Director Environment (Nyandarua)
- Gender Officer (Nyandarua)

2.1.3 Step 4: Data analysis

Qualitative data was analysed it involved coding into various categories in line with the focus area of enhancing the resilience of communities and ecosystems in the Athi river catchment area project

2.2. The Athi Catchment Area

ACA is located in the southern part of the country as shown in Figure 1.3.1 and borders on the Tana Catchment Area in the north, the Indian Ocean in the east, Tanzania in the south and the Rift Valley Catchment Area in the west. The Aberdare Range, one of the Five Water Towers, lies in the northern edge of the area. Total area of ACA is 58,639 km², corresponding to 10.2% of the country's total land area. Based on the Census 2009, population of the area in 2010 is estimated at 9.79 million, or 25.4% of the total population of Kenya. Population density is 167 persons/ km².

The topography of ACA varies, from the highland in the Aberdare Range at around 2,600 m amsl to the coastal area at sea level. ACA is divided into three zones, with the upper zone at 2600-1500 m amsl, middle zone at 1,500-500 m amsl, and coastal zone at 500-0 m amsl.

The Athi River flows from the southeast of Nairobi north-eastward in the upstream reaches and then turns to the southeast in the north of Ol Doinyo Sapuk National Park and flows along the catchment area boundary with Tana Catchment Area and pours into the Indian Ocean in the north of Malindi. The drainage area of the Athi River is 37,750 km², or 64.4% of the Athi Catchment Area. The Lumi River, Lake Jipe, and Lake Chala flow into Tanzania and the Uмба River flows from Tanzania to Kenya. Other rivers such as the Rare, Mwachi, Pemba, and Ramisi rivers flow into the Indian Ocean and the total drainage area is 19,493 km². There are several springs in ACA such as Mzima, Kikuyu, Njoro Kbwa, Nol Turesh springs, etc.

ACA is classified as a semi-arid land except the upstream area of the Athi River which is classified as non-ASAL. The mean annual rainfall ranges between 600 mm in the central part of the area to 1,200 mm in the upstream area of the Athi River. The catchment area average mean annual rainfall is 810 mm. The renewable water resources, which is defined as precipitation minus evapotranspiration, is estimated at 4.54 BCM/year in 2010 for ACA and the per capita renewable water resources is calculated at 464 m³/year/capita.

Source: Ministry of Environment, Water and Natural Resources, 2013

2.3 Enhancing the resilience of communities and ecosystems in the Athi River Catchment Area

The National Environment Management Authority (NEMA), Kenya's nationally accredited entity to the Green Climate Fund (GCF), in collaboration with the Korea Environmental Industry and Technology Institute (KEITI), is developing a \$ 10 million project titled '*Enhancing the resilience of communities and ecosystems in the Athi River Catchment Area*' for submission to the GCF.

NEMA submitted a draft proposal of the project to the GCF Secretariat in 2016 to acquire initial feedback and received a list of additional tasks that need to be carried out further to completion of the comprehensive proposal whose objectives were to increase water security through Integrated Water Resource Management (IWRM) and to enhance the health and well-being of the vulnerable populations within the Athi River Catchment Area (ARCA).

The ARCA is classified as semi-arid land and suffers from frequent drought and flooding events exacerbated by climate change. During the long rainy seasons, extreme heavy rains give rise to bursting of the river banks especially in the upper and lower catchments. The floods experienced in March, April and May 2018 lend credence to the climatic and environmental fragilities of the catchment areas. Apart from roads becoming impassable, thousands were displaced, farmlands destroyed and several people died during the floods.¹⁰

The project is therefore aimed at addressing environmental and water related challenges of the ARCA through modernized monitoring and utilization of water, and enhancing actions for sustainable livelihoods. Specifically, the gender analysis is designed to identify and propose remedies to development gaps that manifest gender based inequalities and forestall possible outcomes of the project that could exacerbate existing, or generate new forms of disparities in the way the project impacts on men, women and other vulnerable populations within the catchment areas. The focus on gender and inclusion demonstrates compliance with national statutes¹¹ on participatory development and ensures adherence to human rights concerns in the design and delivery of initiatives. Recognition that environment and gender¹² are sacredly intertwined is the fundamental principle that underpinned the analysis whose objective was to examine gender related socio economic dynamics and prepare a Gender Action Plan.

¹⁰ Kenya Red Cross Reports

¹¹ The Constitution of Kenya 2010

¹² The Beijing Platform of Action 1995

3.0 Methodology

3.1 Gender Analysis Approach, Framework and Domains

The analysis adopted a gender and development approach whose main focus is the unequal relations of power between men and women that prevent equitable development and women's full participation. Gender and development strategies and projects seek to empower disadvantaged women and men to achieve more equitable relationships by addressing their practical needs and strategic interests. The analysis invoked the Women's Empowerment Framework¹³ whose components are agency, structures and relations. This particular framework was useful in elevating the analysis to respond to the global mantra¹⁴ of promoting gender equality and empowering women. The gender analysis domains that guided the study were **access to resources; knowledge, beliefs and perceptions; practices and participation; balance of power and decision making; legal rights and status; and time and space.**

3.2 Study Design

The gender analysis was cross-sectional, using mostly qualitative methods. Emphasis was placed on making the process participatory through focus group discussions, key informant interviews, observation and workshops in Nyandarua, Kiambu, Machakos and Nairobi counties. Respondents included community participants, service delivery officers and policy makers in the water and environment management sectors, and gender mainstreaming oversight institutions. Qualitative data was majorly collected through extensive desk reviews.

¹³ CARE International. Women's Empowerment SII Framework at <http://pqdl.care.org/sii/Pages/Women%27s%20Empowerment%20SII%20Framework.aspx>

¹⁴ Inference to Sustainable Development Goal Number 5 at

3.3 Key Research Questions

The analysis responded to the following key research questions that were investigated through literature reviews and participatory methodologies Table 3.

Table 3: Research Questions

Broad Gender Analysis Questions	Specific Gender Analysis Questions
What is the context?	✓ What demographic data disaggregated by sex and income, including the percentage of women-headed households, are available?
	✓ What are the main sources of livelihoods and income for women and men?
	✓ What are the needs and priorities in the specific sector(s) to be addressed by the planned intervention? Are men's and women's needs and priorities different?
	✓ What impacts are men and women experiencing due to specific climate risks?
	✓ What is the legal status of women?
	✓ What are common beliefs, values, stereotypes related to gender?
Who has what?	✓ What are the levels of income and wages for women and men?
	✓ What are the levels of educational attainment for girls and boys?
	✓ What is the land tenure and resource use situation? Who controls access to or owns the land? Do women have rights to land, and other productive resources and assets?
	✓ What are the main areas of household spending?
	✓ Do men and women have bank accounts? Have they received loans?
	✓ Do men and women have mobile phones, access to radio, newspapers, TV?
	✓ Do women and men have access to extension services, training programmes, etc.?
Who does what?	✓ What is the division of labour between men and women, young and old, including in the specific sector(s) of intervention?
	✓ How do men and women participate in the formal and informal economy?
	✓ Who manages the household and takes care of children and/or the elderly?
	✓ How much time is spent on domestic and care work tasks?
	✓ What crops do men and women cultivate?
Who decides?	✓ Who controls/manages/makes decisions about household resources, assets and finances? Do women have a share in household decision-making?
	✓ How are men/women involved in community decision-making? In the broader political sphere?
	✓ Do men/women belong to cooperatives or other sorts of economic, political or social organizations?
Who benefits	✓ Will the services/products of the proposed interventions be accessible to and benefit men and women?
	✓ Will the proposed interventions increase the incomes of men/women?
	✓ Will the proposed interventions cause an increase/decrease in women's (and men's) workloads?
	✓ Are there provisions to support women's productive and reproductive tasks, including unpaid domestic and care work?

3.4 Organization of Gender Analysis and Quality Assurance

Workshops in Nyandarua, Kiambu, Machakos and Nairobi counties were used as entry points for data collection and identification of sites for project interventions. This was followed by community meetings with men, women, leaders and key people deemed to be having specific expertise. The data collection was undertaken by gender and community development specialist assisted by research assistants drawn from similar fields. The senior researchers and research assistants underwent comprehensive training on the gender analysis broadly and specifically on the research tools that entailed comprehensive peer review. The qualitative data obtained was transcribed and subjected to qualitative analysis strategies and techniques. The data was largely analysed using a comprehensive thematic matrix that facilitated identification of common patterns and trends arising from the narratives. Content analysis of the data was undertaken in order for inferences, judgments and conclusions to be as accurate as possible.

3.5 Compliance with Research Ethics

Participation in the gender analysis was voluntary and based on informed consent. It entailed providing study participants with information on the assessment and its approach, their role in the gender analysis, benefits of their participation (both directly and indirectly) and finally obtaining consent from each respondent willing to participate in the assessment. The participant's right to anonymity and confidentiality was given due attention. The interaction between the research team and the participants as well as among the study participants themselves was based on mutual respect and trust.

3.6 Research Constraints and Limitation

The main research constraints of the study were lack of data on gender issues at the county level attributed to the formative nature of devolved units in the country. National data was thus used as proxy data to inform the situation in counties. Most counties do not have dedicated gender officers which contributed to inadequate capacity to understand and articulate development issues through gender lens. The main limitation of the study is the contextual nature of qualitative data which may not be generalized across other different development settings.

3.7 Structure of the Gender Analysis Report

This report is organized in six main areas as follows

Chapter One: Introduction – This section contextualises development progress in Kenya and goes further to highlight the interface between water and gender issues.

Chapter Two: Gender Analysis – This section of the report briefly articulates the programming purpose of undertaking the gender analysis.

Chapter Three: Methodology – This part of the report summarises the research process followed in undertaking the gender analysis.

Chapter Four: Findings – This section of the reports articulates and analyses feedback received through various methods of undertaking the gender analysis, including literature reviews.

Chapter Five: Summary and Recommendations – This part of the report condenses the findings and outlines measures in response to the same.

Annex – This section of the report presents an action plan based on the findings and recommendations.

4.0 Findings

4.1 Kenya's Gender Profile

4.1.1 Population

Kenya sustained tremendous population growth in the last five decades after independence. During the first post-independence census in 1969 the country had a population of 10.9 million people compared to 38.6 million people enumerated during the 2009 Population and Housing Census, representing a 35% increase from the 1999 census figures. The 2009 census revealed marginal although demographically significant differences between males (19,192,458) and females (19,417,639). A youth bulge is another feature of the Kenyan population which promises demographic dividends in 2030. Most Kenyans (68%) live in rural areas as confirmed by the 2009 censuses.

Table 4: Rural and Urban Population Sizes

Residence	Male	Female	Total
Rural	12,913,647	13,209,075	26,122,722
Urban	6,278,811	6,208,564	12,487,375
Total	19,192,458	19,417,639	38,610,097

Source: Population and Housing Census 2009

4.1.2 Health

Maternal mortality ratio in Kenya is estimated at 362 maternal deaths per 100,000 live births (KDHS) whereas the infant mortality rate is 39 deaths per 1,000 live births, and under-5 mortality is 60/1,000 for boys and 52/1000 for girls.¹⁵ The latest Kenya AIDS Indicator Survey (KAIS) data on HIV prevalence in Kenya indicated that women and girls still bear the disease burden.¹⁶ Accordingly, prevalence among females aged 15 to 64 years is 6.9% which is higher than the national average of 5.6% whereas prevalence among males within the same age category is 4.4%.¹⁷ The KAIS report revealed that 21% of new HIV infections in Kenya occur among girls and young women aged 15-24 years.¹⁸

The prevalence of gender-based violence (GBV) in Kenya has been documented during stability and humanitarian emergencies. The National Crime Research Centre (NCRC) undertook a study on GBV across 13 counties in 2014 and established rape as being a prevalent violation in both rural and urban settings.¹⁹ The Commission of Inquiry into Post-Election Violence (CIPEV) reported numerous cases of gender based violence during the PEV period in 2007-08.²⁰ Female genital mutilation / cutting (FGM/C) is declining slowly over time.

¹⁵ Republic of Kenya. Kenya National Bureau of Statistics (KNBS). Kenya Demographic and Health Survey 2014: Key Indicators. Nairobi: KNBS, April 2014.

¹⁶ National AIDS and STI Control Programme (NASCOP), Kenya. Kenya AIDS Indicator Survey 2012: Final Report. Nairobi, NASCOP. June 2014.

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ Republic of Kenya. National Crime Research Centre (NCRC). Gender Based Violence in Kenya. Nairobi: NCRC, 2014.

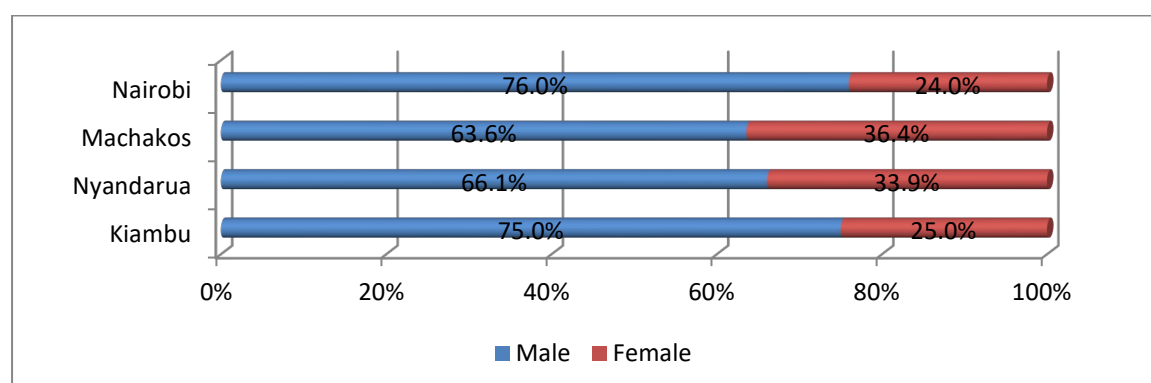
²⁰ Commission of Inquiry into Post Election Violence in Kenya (2008). Commission of Inquiry of Inquiry into Post Election Violence Report available at <http://kenyastockholm.files.wordpress.com/2008/10/the-waki-report.pdf>

The 1998 KDHS reported 38 % of women in Kenya having been circumcised, which declined to 32 % in 2003, 27 % in 2008-09, and 21 % in 2014.²¹ This can be attributed to innovative and robust awareness creation programmes and strategies that target structural factors such as the alternative rites of passage initiatives and transformative dialogue with community gate keepers. Enactment and gradual strengthening in the enforcement of the Prohibition against Female Genital Mutilation Act (2011)²² have also triggered the impetus against the practice.

4.1.4 Household Headship

Most households in Kenya are male-headed (67.6% male and 32.4% female) with an average size of four members.²³ Women constitute lower proportions of household headship in both in both rural and urban areas at 35.9% and 27.8%, respectively.²⁴ Majority of household heads (52.4%) fall within the 25-44 age bracket. The highest proportion of 14.7% of household heads was in the 30-34 years age group. Nationally, households headed by persons aged 65 years and above accounted for 11.6% of households.²⁵ Household headship in Kiambu, Nyandarua, Nairobi and Machakos counties is shown in Figure 1 which reveals a patriarchal pattern that is highest in the more cosmopolitan counties of Nairobi and Kiambu.

Figure 1: Household Headship



Nairobi leads in the male household headship and contrary bottoms in female side. It is followed by Kiambu, Nyandarua then Machakos. However, Machakos was found to be the county with the highest number of female headed households, followed by Nyandarua, Kiambu and Nairobi consecutively. The women are burdened with triple roles as they multitask on both domestic, communal and productive roles in order to get an income for sustaining their families. Some of the female household heads have difficulties in creating ample time away

²¹ Republic of Kenya. Kenya National Bureau of Statistics (KNBS). Kenya Demographic and Health Survey 2014: Key Indicators. Nairobi: KNBS, April 2014.

²² Republic of Kenya. National Council for Law Reporting (NCLR). Prohibition Against Female Genital Mutilation Act 2011. Nairobi: NCLR, 2011.

²³ Ibid.

²⁴ Ibid.

²⁵ Ibid.

from home duties to participate in forums regarding water resources management including right to access and usage.

Source: Kenya National Bureau of Statistics 2018

4.1.6 National Priorities

Kenya's development blue print is Vision 2030 which is premised on transformation of the country into a prosperous middle income nation. The Third Phase of the national vision is contextualized within sustainable development goals, zeroing in on universal health coverage, access to affordable and decent housing, growth in manufacturing and expansion in agriculture for subsistence and commercial income as the main priorities dubbed the "Big 4 Agenda."

4.2 Access to Resources

4.2.1 Educational Attainment for Men and Women

Access to both basic and tertiary education in Kenya has grown exponentially in the last 15 years since declaration of free primary education (FPE) in 2003 and free day secondary education (FDSE) in subsequent years. Policy reforms have also contributed to expansion in access to tertiary and university education in Kenya especially after promulgation of a new constitution in 2010 that re-emphasized the primacy of education as a human right.²⁶

Nationally, the gross attendance ratio (GAR)²⁷ for pre-primary school is 94.4% (95.4% for males and 93.5% for females) while for primary school it rises to 107.2% (109.0% for males and 105.4% for females).²⁸ The same trend of higher school attendance for boys than girls is maintained at secondary school level with a GAR of 66.2% (67.2% for males and 65.2% for females).²⁹

Table 5: Gross Attendance Ratio (%)

County	Pre-Primary			Primary			Secondary		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Nyandarua	110.2	81.4	95.4	107.8	112.6	110.1	81.7	81.1	81.4
Kiambu	106.2	74.8	92.9	105.4	113.5	109.2	76.2	74.5	75.3
Nairobi	74.5	86.4	80.8	100.5	102.2	101.3	81.3	94.0	88.4
Machakos	67.0	76.4	71.0	127.4	116.0	121.1	74.3	88.0	81.1

Source: Kenya National Bureau of Statistics 2018

²⁶ The Universities Act (2012), Technical and Vocational Training Act (2013), the Basic Education Act (2013) and the National Education Sector Plan (2014) are some of the policy milestones in the education sector that have triggered exponential growth in access despite existing and credible reservations about quality.

²⁷ Gross Attendance Ratio (GAR) is the total number of persons attending school regardless of their age, expressed as a percentage of the official school age population for a specific level of education.

²⁸ Kenya National Bureau of Statistics (KNBS). Basic Report Based on 2015/16 Kenya Integrated Household Budget Survey. Nairobi: KNBS, 2018.

²⁹ Ibid.

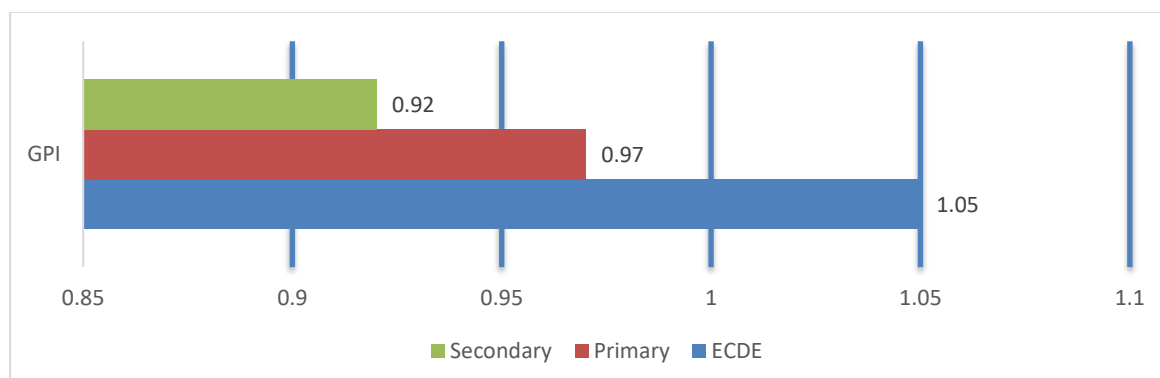
Nyandarua (95.4%) and Kiambu (92.9%) counties have the highest aggregate GAR for the pre-primary level although they also manifest the most glaring differences between boys and girls (Table 6). Machakos County reported the lowest GAR at pre-primary for both boys (67.0%) and girls (76.4%) but drastically improves to post the highest aggregate GAR at primary (121.1%). Nairobi County had a consistently higher GAR for girls at pre-primary (86.4%), primary (102.2%) and secondary (94.0%) than for boys. Overall, female pupils have the highest GAR at primary across all the four counties which is critical for significant transition to secondary.

Table 6: Net Attendance Ratio (%)

County	Pre-Primary			Primary			Secondary		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Nyandarua	73.9	67.6	70.6	88.4	91.3	89.8	46.6	52.0	49.1
Kiambu	79.2	63.5	72.5	88.6	94.4	91.3	62.5	58.7	60.5
Nairobi	68.6	78.8	74.0	90.1	91.1	90.6	62.4	67.0	65.0
Machakos	58.6	64.9	61.3	95.3	95.3	95.3	41.3	58.2	49.6

Source: Kenya National Bureau of Statistics 2018

The Net Attendance Ratio³⁰ (NAR) shows better access to education by girls than boys across pre-primary, primary and secondary levels. The NAR for girls at primary school was consistently higher than for boys in all counties except for Machakos County where they were at par in primary school (95.3% each) and Kiambu County where boys had a higher NAR at secondary school (62.5%). Nairobi County had the highest aggregate NAR for pre-primary school (74.0%) and secondary school (65.0%) compared to the other three counties while Machakos County had the highest NAR for primary school (95.3%).

Figure 2: Gender Parity Index (GPI) in Kenya

Source: Ministry of Education, Science and Technology, 2014

The national Gender Parity Index (GPI) for pre-primary schools (1.05), primary (0.97) and secondary (0.92) is skewed in favour of boys.³¹ Structural factors such as child marriage, female genital mutilation, household poverty and discrimination against girls and women expose them to low participation in education. Disability and geographical drivers of inequality in access and participation are legitimate dimensions of delivering on the education commitment in Kenya.

³⁰ Net Attendance Ratio (NAR) is defined as the total number of persons in the official school age group attending a specific level to the total population in that age group.

³¹ Republic of Kenya. Ministry of Education, Science and Technology (MoEST). Basic Education Statistical Booklet. Nairobi: UNICEF, 2014.

Table 7: Tertiary and University Education

County	Mid-Level Colleges		University	
	Male	Female	Male	Female
Machakos	3.1%	4.4%	5.6%	1.8%
Nyandarua	4.1%	4.0%	1.2%	0.8%
Kiambu	7.2%	9.8%	6.3%	5.4%
Nairobi	14.9%	13.5%	10.8%	8.3%

Source: Kenya National Bureau of Statistics 2018

Almost equal number of males (5.9%) and females (5.6%) attend mid-level colleges in Kenya but the gap widens at university level where there are more male students (3.7%) than females (2.6%).³² The number of men attending university education in Machakos County is three times (5.6%) higher than that of women (1.8%) although there are more women (4.4%) than men (3.1%) in mid-level colleges. Nyandarua County showed slight differences between men and women attending mid-level colleges (4.1% men and 4.0% women and university (1.2% men and 0.8% women). Kiambu County had the second highest proportions of women and men attending tertiary and university education as shown in Table 8. Nationally, the proportion of literate population is 84.8 per cent with a higher proportion in urban areas (93.2%) compared to their rural counterparts (78.8%). More men (89.0%) than women (80.2%) in Kenya are considered literate.³³ Overall, the national education inequality index is 61%.³⁴

4.2.2 Main Sources of Livelihoods and Income for Women and Men

Key Findings

- ✓ Women recognize water as the main source of livelihood and income.
- ✓ Men recognize land as the main source of livelihood and income.

The main productive resources and social amenities that anchor livelihoods in Nyandarua, Kiambu and Machakos counties water, hospitals, schools, roads and buildings, according to women. Accordingly water is important for both domestic consumption and agricultural activities that rely on irrigation. On their part, men in the three counties recognized land as a critical source of livelihood followed by water and schools. This position was similarly expressed by leaders who ranked land as the foremost source of livelihood and income followed by water. It is therefore water that cuts across all cadres of respondents as an important source of livelihood although more preferred by women just as men would lean more towards land (Table 9).

³² Kenya National Bureau of Statistics (KNBS). Basic Report Based on 2015/16 Kenya Integrated Household Budget Survey. Nairobi: KNBS, 2018.

³³ Kenya National Bureau of Statistics (KNBS). Basic Report Based on 2015/16 Kenya Integrated Household Budget Survey. Nairobi: KNBS, 2018.

³⁴ National Gender and Equality Commission (NGEC). Status of Equality and Inclusion in Kenya. Nairobi: NGEC, 2016.

Table 8: Sources of Livelihoods and Income

County	Respondent	Identification and Ranking Sources of Livelihood and Income				
		1	2	3	4	5
Nyandarua	Women	Water	Roads	Buildings	Crops	Skills
	Men	Land	Water	AGR	Forests	Infrastructure
	Leaders	N/A	N/A	N/A	N/A	N/A
Kiambu	Women	Hospital	Schools	Water	Infrastructure	Land
	Men	Land	Water	Infrastructure	Hospital	Education
	Leaders	Water	Land	Schools	Hospital	Energy
Machakos	Women	Water	Health	Education	Roads	Land
	Men	Land	Schools	Hospital	Water	Road
	Leaders	Water	Land	People	Hospitals	Schools

Key informant interview sessions generated a wide range of livelihood and income sources associated with women in Nyandarua County. These included subsistence farming, group savings and loans associations (chamas), dairy and poultry keeping, running grocery businesses, retail shops, and provision of mobile money services (Mpesa). Women also work in the hotel industry, banks and micro-finance institutions. Soap making, poultry keeping, horticulture, table banking and merry-go-rounds, working as labourers and crushing ballast for sale were cited as sources of income for women in Machakos County. They also worked for the county government, banks, SACCOs and MFIs. Women in Kiambu participate in formal employment, small and micro-enterprises, agricultural activities (green houses, dairy farming, pig keeping, crop farming (maize, beans, sweet potatoes, and arrowroots), and poultry keeping, according to key informants. Various livelihood and income generation activities that men in Nyandarua, Kiambu and Machakos engage in are presented in Table 9.

Table 9: Livelihood and Income Activities for Men

County	Livelihood and Income Activities
Nyandarua	<ul style="list-style-type: none"> ✓ Dairy keeping ✓ Crop farming (peas, Irish potatoes, carrots and maize) ✓ Men's saving groups (buy and sell property) ✓ Boda boda, retail shops (electronic equipment), Mpesa shops. ✓ Work for county government, banks, SACCOs and micro-finance institutions.
Machakos	<ul style="list-style-type: none"> ✓ Sand harvesting and general quarry business ✓ Boda boda ✓ Mpesa outlets and retail shops (electronics) ✓ County government employment ✓ Agro-forest nurseries ✓ Sell of coffee (coffee is a man's crop) ✓ Horticulture
Kiambu	<ul style="list-style-type: none"> ✓ Real estate business ✓ Dairy farming ✓ Informal employment commonly referred to as casual jobs ✓ Cash crop farming (tea, coffee, pineapple, French beans, avocados, macadamia, bananas) ✓ Boda boda and Mpesa and retail shops (electronics) ✓ Work for county government, banks, SACCOs and micro-finance institutions

4.2.3 Land as a Productive Resource

Land as a productive resource was consistently highly ranked by men and community leaders in all the three counties. The men explained the primacy of land as residing in its high value when sold and as a factor of production. Women in Kiambu reported that land is valuable because of farming but still ranked it as the last item among their sources of income and livelihood. They observed that both men and women have access to land but control (title deed and selling family land) was solely by men. Contrary views were stated by men in the county who asserted that women had access to land, and both men and women enjoyed equal levels of control and benefit. Low ranking of land as a source of livelihood by women in Machakos was attributed to the small sizes of the parcels that are owned which they have to be shared with their sons. They reported that women and men had access to land but only men controlled and benefitted from it. Their male counterparts intimated that women and men had access to and benefitted from land but only men controlled it. Women in Nyandarua had access to land which they also owned although they said the parcels are small (50X100 square metres). They ranked land as the last item after livestock though both did not feature among their top 5 sources of livelihoods and income. They acknowledged benefitting from the land which they said was controlled by men who held title deeds to the land. Men in the same county agreed with their female counterparts on access and benefit. They also argued that women controlled the land on the basis of provisions in the Constitution of Kenya (2010). Constraints and coping mechanisms associated with land were reported as shown in Table 10.

Table 10: Land Related Constraints and Coping Mechanisms

County	Gender	Constraint	Coping Mechanisms
Nyandarua	Women	● Small in size due to dense population	✚ Practice mixed farming, allocating each crop a small portion.
	Men	● Women have no control over land since men are the owners of title deeds.	✚ Be loyal to men to use the land and maximize the opportunity they get to use the land.
Kiambu	Women	● Small size of land parcels	✚ Mainly grow crops for subsistence farming
	Men	● Small in size, sub-division for children ● Garbage disposal at the residential homes (sanitation)	✚ Get used to it and survive
Machakos	Women	● It is small and unproductive	✚ Accept and move on
	Men	● Rains are scarce and unreliable	✚ Planting in the long rain seasons (October).

Leaders in Kiambu intimated that women are culturally barred from owning land but as a coping initiative women are buying land for individual ownership. They alluded to provisions in the Constitution that allow women and girls to inherit land from their parents and spouses. While acknowledging that women are not allowed to own land, leaders in Machakos County reported that land buying and having to endure living with mean spouses were coping strategies used by women. They vouched for sensitization of women on matrimonial property laws and the Constitution as a way of addressing this manifestation of discrimination and inequality.

Land acquisition in Nyandarua County is largely through inheritance (succession) which disadvantages women because of its patriarchal bias for men and boys, according to community leaders. This has led to women losing control of farm produce (carrots, cabbage and potatoes) despite providing much of the farm labour. The leaders reported that women had resorted to buying their own land and drifted to roadside markets (Soko Mjinga) to eke out a living through petty trade. They expressed concern that the roadside business has led to dysfunctional families as women gain economic traction and withdraw from relationships with men who cannot provide for the family adequately. Participation in table banking activities and embracing family planning were also cited as women's coping mechanisms. The leaders underscored exposure to diseases such as HIV, malnutrition, drug abuse, and sexual violence (rape) as common repercussions of women lacking access and control over land in the county.

Public officers in Kiambu and Machakos counties pointed out that freehold is the dominant form of land tenure which provided opportunities for credit acquisition and investment if used as collateral, construction of business premises (rental houses), or leasing out. This form of land tenure guaranteed full control of one's land and forestalled conflicts inherent in communal ownership practices, according to the public officers. Some of the drawbacks that they associated with the freehold tenure had to do with men unilaterally deciding to dispose off the land without seeking consent from their spouses. Leasehold was also cited as a form of land tenure system in Machakos County. The public officers concurred that most women in the county do not own land while those who are married can only access it but not exercise any form of control. To alleviate this, the officers proposed empowerment of women through financial products to acquire and own land alongside enforcing legal frameworks that recognize women's land rights.³⁵

Freehold tenure was similarly practiced in Nyandarua, according to expert views. This form of land ownership created opportunity for women in the county to own land through purchase, decide what to plant, have control over the farm produce, and access credit from banks and SACCOs using the land as collateral. Public officers in the county observed that most women do not own land but a trend was emerging whereby women are increasingly buying land and having title deeds in their name. Generally, female landholders in the county have less land than male landholders. Even when women own land, their husbands are still perceived as de facto owners by virtue of being household heads.

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4.2.3.1 Ownership and Control of Other Productive Resources and Assets

Water is a crucial resource for development across all counties encompassed in the gender analysis. Women respondents in Nyandarua indicated that they had access, controlled and benefitted from water since they are the ones who fetch and decide on its use. They stated that men did not access, control or benefit from water. Similarly, women in the county said they accessed, controlled and benefitted from crops unlike their male counterparts who did not have access to and control of crops but benefitted. Notably livestock was accessed and controlled by men without the involvement of women. The men controlled livestock since they owned the land and could decide when to dispose of livestock and how proceeds would be expended. On the contrary, men in the county asserted that both men and women accessed, controlled and benefitted from water. They agreed with the women on control of livestock as a socially sanctioned preserve of men but expressed divergent sentiments on access and benefit which they associated with both men and women. The men further asserted that they accessed and controlled machinery within the homestead but both women and men benefitted from their use.

Female community respondents in Kiambu County explained that water, schools, hospitals and infrastructure as sources of livelihood are accessed, controlled and benefit men and women equally. The women stated that water is a basic need for all and schools enrolled boys and girls without discrimination as a public policy. They further underscored that the poor state of roads especially during the rainy season and shortage of drugs in public hospitals affected both men and women. Male community respondents in the same county stated that women accessed and benefitted from water but it was the men who controlled it. They cited services such as road infrastructure, schools and security (police) as being equally accessed, controlled and beneficial to men and women. Healthcare was entirely a responsibility of women, according to male respondents.

Female community respondents in Machakos County presented the following views (Table 13) on access and control of resources. They also indicated who benefits when resources are appropriated.

Table 11: Access to Resources by Men and Women in Machakos County

Resource	Access to		Control of		Benefit	
	Men	Women	Men	Women	Men	Women
Land	✓	✓	✓	X	✓	x
Water	x	✓	X	✓	X	✓
Livestock	✓	✓	✓	X	✓	x
Crops	x	✓	✓	X	✓	x
Roads	✓	✓	✓	✓	X	✓

On their part, male community respondents in the same county reported that women accessed and controlled water as resource but both men and women benefitted. They further indicated that men and women accessed and benefitted from public amenities such as schools, hospitals, electricity and infrastructure (roads) although they were controlled by men.

The leading sources of drinking water for residents of Nairobi County are water being piped into plot / yard (33.1%), into dwelling (32.2%), and into public tap/ stand tap (25.9%). The largest proportion of households in Nairobi County (53.3%) consumes between 1001-2000 litres of water followed by 23.1% of households who consume between 0-1000 litres followed by 15.8% of households who consume between 2001-3000 litres. Majority of households in Nairobi County (50.9%) take less than 30 minutes to access the source of drinking water while 46.5% take negligible time (zero) to fetch water because the source is located within premises.

Constraints and coping strategies associated with access to water in Machakos, Kiambu and Nyandarua counties are presented in Table 12.

Table 12: Access to Water Constraints and Coping Strategies

County	Sex of Respondents	Constraint	Coping Strategy
Machakos	Women	<ul style="list-style-type: none"> Distance to water source Contaminated water High cost at KShs. per 20 litres 	<ul style="list-style-type: none"> Ration use in the house hold. Fetch from wells
	Men	<ul style="list-style-type: none"> Water scarcity 	<ul style="list-style-type: none"> Water management strategies such as roof harvesting. Boreholes also provide water which is sold at 5/= per 20 litre Jerican
	Leaders (male and female)	<ul style="list-style-type: none"> Long distance to water source Insecurity due to long distance 	<ul style="list-style-type: none"> Dig wells. Buy water tanks (some)
Kiambu	Women	<ul style="list-style-type: none"> Floods in the region when it rains heavily, leading to shortage of water due to blocked pipes 	<ul style="list-style-type: none"> Store water in tanks
	Men	<ul style="list-style-type: none"> Water on the roads when it rains 	<ul style="list-style-type: none"> Get used to it.
	Leaders	<ul style="list-style-type: none"> Long distances Water shortage 	<ul style="list-style-type: none"> Rationing and buying water
Nyandarua	Women	<ul style="list-style-type: none"> Dirty / contaminated water Lack of tap water 	<ul style="list-style-type: none"> Use rain water for drinking Buy drinking water from shops Use water from wells and boreholes
	Men	<ul style="list-style-type: none"> Accessing water points which are very far from residential areas. 	<ul style="list-style-type: none"> Transport water using donkeys that are not common.
	Leaders	<ul style="list-style-type: none"> Poor quality water and low quantity Infiltration and contamination of wells / boreholes Flooding occurs Lack of water for irrigation 	<ul style="list-style-type: none"> Water harvesting Installed water tanks Drilling bore holes by Government. Stopped burying to go to cemetery Dependence on rain fed agriculture.

4.2.4 Crops Grown by Women and Men

Women in Kiambu County listed maize, beans, potatoes and kales as food crops that are widely grown mostly by women since men played a nominal role in farming. They stated that men only participate in farming as hired labour and therefore there is no food crop that is associated with men.

For instance all activities associated with maize production (land preparation, purchase of inputs, selection of seeds, planting, weeding, insecticide control, harvesting and storage) are done by women except marketing where men come in as middle men (Table 13). The women also receive and bank proceeds from the sell of maize.

Table 13: Participation in Maize Farming by Men and Women in Kiambu

Stage	Only Men	Only Women	Men and Women	Only Girls	Only Boys	Men and Boys	Boys and Girls	Girls and Women	Hired labour	N/A
Land preparation		√					√			
Purchase of input		√								
Selection of seeds		√								
Planting		√								
Weeding		√								
Insecticide control		√								
Harvesting		√								
Storage		√								
Marketing			√							
Receiving money		√								
Banking money		√								

While agreeing that maize, beans, kales and potatoes are the dominant food crops, men in Kiambu County stated that potatoes were considered as a woman's crop while men were associated with maize farming.

There was however neither restriction nor social stigma associated with women growing maize or men growing potatoes. The men said they participated in land preparation and purchase of inputs while women handled weeding and storage activities. They reported that selection of seeds, planting, insecticide control and harvesting of maize is jointly done by men and women but marketing, receiving and banking payment from the sale of maize is the responsibility of men.

Maize, peas and beans define food crop farming in Machakos County as intimated by women community respondents. They said that all these crops are considered as a woman's crop because women are the only once involved in their production. The women stated that men only get involved during harvesting so that they can sell the produce and misappropriate income. Social norms that would determine crops for men and those that are associated with men are therefore none-existent. Men's participation in maize farming was said to be at the point of marketing, expending money (they The women expressed to violence should they the sale of farm produce. sell a little maize in the keep the money in house. **"We sell a few which we put it in our our way to the streams when the man is not around. Also, when going to the posho mill you carry more maize than is needed so that you can sell the extra,"** the women concurred with each other.

"Once the man receives money and you ask about it, you end up sleeping out, or you are sent back to your parents due to the kind of beating you receive. They brag around the market place that they are great farmers," said a female community respondent in Machakos County.

receiving and don't bank proceeds). fear of being subjected ask about income from To avoid this, women absence if the man and discreet places in the **kilos like 5-20 kgs water containers on**

Men in Machakos County listed cassava, arrow roots, sorghum, maize, beans, wheat and vegetables as crops that are widely grown. They said that women grow vegetables whereas men grow cassava. The men explained that women are not allowed to grow cassava lest the produce become bitter or is poor. They explained that women who grow crops perceived to be men's crops would be doing so with the consent and guidance of their spouses where as a man who grows a crop considered a women's crop is viewed as weak and controlled by the wife. The men asserted that both men and women would take part in land preparation and harvesting of maize. The tasks related to maize farming that are performed by men only included purchase of input, insecticide control, storage, and marketing, receiving and banking money, according to the male community respondents. They acknowledged that women had the sole responsibility of selecting of seed, planting and weeding maize.

Men in Nyandarua listed potatoes, beans, sukuma wiki, cabbages, tomatoes, apples, pyrethrum, maize, carrots and peas while women listed potatoes, cabbages, carrots, peas (Minji) and kales as food crops grown in the county. The men said peas and beans are considered as a woman's crop while cabbages and potatoes (grown for commercial purposes) are viewed as a man's crop. On their part, women in the county stated that peas and beans are grown by women because of small parcels of land while men grow potatoes, cabbage and carrots because of the high market prices associated with these crops. Both men and women in the county agreed that there is no restriction on crops to be grown by a particular sex. The main determining factor would be the size of the parcel of land that one has.

Table 14: Participation in Potato Farming by Men and Women in Nyandarua County

Stage	Only Men	Only Women	Men and Women	Only Girls	Only Boys	Men and Boys	Boys and Girls	Girls and Women	Hired labour	N/A
Land preparation			✓							
Purchase of input			✓							
Selection of seeds			✓							
Planting			✓							
Weeding			✓							
Insecticide control	✓									
Harvesting			✓							
Storage			✓							
Marketing			✓							
Receiving money			✓							
Banking money			✓							
Any other:										

The only aspect of potato farming that is solely undertaken by men is insecticide control. All other tasks, including marketing, receiving and banking money, are jointly done by men and women, according to male respondents. Women respondents reported that purchase of inputs, marketing, receiving and banking money accruing from cabbage farming is done by men while women carry out weeding and storage. They indicated that land preparation for cabbage farming, selection of seed, planting and insecticide control are done by both men and women. The women underscored their exclusion from proceeds generated through cabbage farming. ***“If you have a good husband he will inform you about the agreed prices though he is the one who receives money from brokers. Some of us don’t have a clue about the selling prices of cabbage. We only rely on the little money that we are given for shopping,” lamented a female community respondent.***

4.2.5 Access to Extension Services and Training

Men in Machakos County reported having access to and control of extension services and training unlike their female counterparts. Women in the same county expressed contrary views, stating that they had access to and control of extension services which men lacked. They also stated that both men and women accessed and controlled training services. Men in Kiambu County and Nyandarua said that both women and men had access to and control of extension and training services but women in Kiambu contradicted this position by asserting that whereas both men and women had access to extension services and training, only women exercised control. Women in Nyandarua stated that they had access to extension services and training but only men maintained control despite having no access to the same.

4.2.6 Access to Credit

Both women and men in the three counties have access to credit although women access credit through a wider variety of platforms than men. For instance men in Nyandarua accessed credit products through banks and SACCOs while women had numerous options such as women's chamas (table banking groups), Uwezo Fund, Women Enterprise Fund, Banks, MFIs, and SACCOs. Similarly, women in Machakos could access credit through MFIs (KWFT), SACCOs, churches, women's chamas, banks, and online credit outlets such as Tala and Mshwari while the men secured such financial products through banks, chamas, SACCOs (boda boda and sand harvesting associations) and work place cooperatives. It is however noticeable that unlike men, women in Kiambu County access credit through individual lenders (Shylocks). On the other hand, men can access credit through online outlets such as Tala, Branch and Mshwari which were not reported as providing similar services to women. Both men and women in Kiambu County stated that they access credit through banks, SACCOs, and self-help groups. The Women in Nyandarua pointed out that men in the county are disinterested in credit products while their counterparts in Machakos complained of harassment by some banks when they defaulted and unwillingness to refund savings by some MFIs. This could be the reason why only 18% of households in Nyandarua sought credit (Table 16).

Nationally, the most preferred sources of credit are merchants or shops (28.2%); self-help groups/chamas (19.4%); relatives, friends and neighbours (14.0%), and SACCOs at 11.2%.³⁶ Other significant sources of credit include commercial banks (8.8%), mobile phone platform (7.6%), and micro-finance institutions at 5.3%.³⁷ Employers (1.3%), Shylocks (1.2%), NGOs (1.2%) and Government funds (1.2%) are lowly rated as sources of credit.³⁸ Male-headed households (34.6%) compared to female headed households (31.9%) are majority of those who sought credit but slightly more female headed households (90.7%) than male headed households (89.8%) received credit.

³⁶ Kenya National Bureau of Statistics (KNBS). Basic Report Based on 2015/16 Kenya Integrated Household Budget Survey. Nairobi: KNBS, 2018.

³⁷ Ibid.

³⁸ Ibid.

Table 15: Access to Credit

County	Access to Credit	
	Proportion of households that sought credit (%)	Proportion of households that sought and accessed credit (%)
Nyandarua	18.2	88.9%
Kiambu	31.5	94.4%
Nairobi	33.9	89.2%
Machakos	38.5%	96.9%

Source: Kenya National Bureau of Statistics 2018

4.2.7 Access to Information and Technology

The survey noted that there was limited access to Climate Information by residents, and more so women yet they are the major partakers in search for water. Both men and women in Kiambu, Nyandarua and Machakos counties stated that they have access to and control of mobile phones. Nairobi County has the highest proportion of residents who have access to mobile phones (85.8%), followed by Kiambu County (83.7%) and Machakos (65.1%).³⁹ Nyandarua has the least proportion of the population that has access to mobile phones (61.5%) which brings to the fore disparities in access to ICT between urban and rural counties. Overall, radio (79.1%), mobile phone (62.8%), and television (47.8%) are the most prominent ICT equipment used for populations aged 3 years and above. Internet (16.6%) and computer (9.5%) are the less patronized ICT equipment. The leading consumers of ICT equipment and services fall within the 18-35 years age group; mobile phone (90.1%), radio (83.5%), television (60.5 %), internet (36.8%) and computer (18.4%).⁴⁰ It was also established that a high proportion of the population aged 70 years and above used radio (66.2%) and mobile phone (59.2%) while their use of computer and internet was negligible.⁴¹ Table 16 presents use of ICT equipment in Kiambu, Nyandarua, Nairobi and Machakos counties.

Table 16 Access to Information and Technology

County	Use of ICT Equipment				
	Television	Radio	Mobile Phone	Computer	Internet
Machakos	33.4%	77.1%	65.1%	5.7%	14.8%
Nyandarua	26.0%	83.9%	61.5%	3.2%	11.4%
Kiambu	81.0%	91.1%	83.7%	14.4%	24.3%
Nairobi	88.0%	89.1%	85.8%	29.0%	43.8%

³⁹ Ibid.

⁴⁰ Ibid.

⁴¹ Ibid.

Source: Kenya National Bureau of Statistics 2018

Except radio where Kiambu County leads, Nairobi County is ahead of the rest in other 4 major ICT equipment used (television, 88.0%; mobile phone, 85.8%; computer, 29.0% at 43.8%). Access to and utilisation of computers across all four counts still lags behind all other ICT equipment.

4.2.8 Levels of Income and Wages for Men and Women

More men than women in Kenya have access to regular household income⁴² but women would have slightly higher access to non-regular income.⁴³ The trends manifest in both rural and urban areas. Nationally, the highest monthly regular income (KShs. 12, 284) is rental income followed by pension (KShs. 2,106), and investment income at KShs. 1,265. Non-regular income is the lowest at KShs. 486.

The average monthly rental income received by households in urban areas is three times higher (KShs. 19,976) than it is in rural areas (KShs. 6,088). Female headed households received lower amounts of regular income in all categories except for rental income in rural areas (Table 17).

Table 17: National Income Levels

Residence/ Household headship	Regular Income (in KSh)				Non- regular income (in KSh)
	Saving, interest and investment income	Pension	Rental	Other Types	
National	1,265	2,106	12,284	925	486
Male headed	1,430	2,285	13,174	993	423
Female headed	687	1,480	9,155	688	707
Rural	662	2,027	6,088	1,165	691
Male headed	766	2,140	5,532	1,405	600
Female headed	359	1,696	7,715	464	956
Urban	2,014	2,205	19,976	627	232
Male headed	2,179	2,448	21,804	527	224
Female headed	1,262	1,102	11,677	11,078	271

Source: Kenya National Bureau of Statistics 2018

A key informant in Kiambu County could not estimate income and wages earned by men and women, attributing it to potential inaccuracies while another indicated that on average both men and women earned a monthly income above \$100 from sectors such as dairy keeping, crop farming, business, formal employment, informal employment and information technology.

⁴² Household income is the aggregate earnings of all household members. It includes all forms of income arising from employment, household enterprises, agricultural produce, rent, pension and financial investment.

⁴³ Kenya National Bureau of Statistics (KNBS). Basic Report Based on 2015/16 Kenya Integrated Household Budget Survey. Nairobi: KNBS, 2018.

Business which generated over \$100 monthly for residents of Machakos County was cited by key informants as the sector that generated the highest levels of income equally for both men and women followed by informal employment (\$30), and crop farming and the dairy sector at \$10 each.

4.2.9 Main Areas of Household Spending

Female community respondents in Kiambu ranked food, education and housing as three leading areas of household expenditure in a descending order. Food was reported to be costly because it is recurrent while education was said to have remained high despite capitalization by government. They reported that the cost of housing was generally high in the area. Expenditure on healthcare was ranked as the next costly item for households due to irregular payment of NHIF charges and perennial shortages of drugs in public health facilities. Transport to and fro work was placed in the fifth position by the female respondents followed by water which they said was supplied only twice a week, forcing them to buy from vendors at Kshs.10 per 20 litre container, or Kshs. 700 per month for water pumped from boreholes. Gas, charcoal and kerosene were ranked in the 7th position as being equally expensive due to the drastic rise in the cost of fuel. The women regarded expenditure on electricity, clothing and social functions as relatively affordable, depending on one's individual prudence.

Male community members in Kiambu County similarly ranked food as the leading component of household expenditure followed by housing and education. They attributed the high cost of food to its recurrent nature while rent was said to be generally expensive. The men ranked expenditure on transport in the fourth position while water was considered as the fifth most expensive item despite stating that rarely do they experience water related challenges. They ranked electricity as the 6th most expensive item due to the cost of tokens. The men pointed out that clothing was a pressing cost since it is mandatory while health care (which they ranked in position eight) would be a heavy drain on household resources when illness occurs. The cost of social functions was dismissed by the men as discretionary.

Table 18: Main Areas of Household Spending

Household Expenditure Item	Ranking			
	Women	Why?	Men	Why?
Food	1	It's a daily purchase.	1	It is a basic need which is a recurrent expenditure.
Education	2	Our children have to get education.	2	Paying of schools fees for good institution is expensive.
Healthcare	4	Buy drugs or private hospital.	3	Health care is expensive because we purchase drugs.
Housing	8	For those renting it's expensive.	9	Most people have their own houses.
Transport	5	When going to other places especially Machakos hospital.	6	Transport to and from work though it is not much.
Water	3	Buying in most cases.	4	Buying is around 5/= per 20 liter Jerican and it's also scarce.
Fuel	6	To light our houses.	7	Gas, charcoal, kerosene has become expensive.
Electricity			5	Tokens get depleted very quickly.
Clothing	7	We need to look attractive.	8	This is not recurrent so not very expensive.
Social functions (visitors, funerals, church activities, etc.)	9	Not compulsory.	9	Not expensive because these are done by many people.

Food and education were reported by both men and women in Machakos as being the leading components of household expenditure followed by water for women and healthcare for men Table 18. Expenditure on housing and social functions is rated as manageable in the county because people reside in their own houses while social functions are collectively addressed by the community.

Women in Nyandarua County identified healthcare as the most costly aspect of household spending because of purchasing drugs from private chemists which is expensive. They ranked spending on education as the second most expensive because of fees and having to spend on construction of buildings. The women pointed out that food would be the third most expensive item which they attributed to cold weather that spoiled farm produce, forcing them to procure from retail shops at exorbitant prices.

The women explained that the high cost of electricity (4th position) was baffling since they only used it in the evening when they returned from farms. They explained that the cost of transport rises significantly (5th position) during the rainy season when roads become impassable. Those who live in rental houses reported that this would be the 6th component when they rank household expenditure because of the high cost of rent. The women attributed the high cost of fuel (7th position) to frequent price increases while social responsibilities were said to be costly (8th position) due to preparatory processes. They cited the cold weather in the county as the reason why the cost of clothing is high since they have to purchase warm clothes. Water was ranked last (10th position) as a household expenditure item but they lamented that it was mostly contaminated by sewage infiltration. Men in the same county ranked education as the most pressing aspect of household expenditure followed by food, water and healthcare. Clothing, fuel and transport were ranked next in a descending order that concluded with social functions, housing and electricity as the least costly items.

4.2.10 Needs and Priorities

Male and female community respondents in Nyandarua, Kiambu and Machakos counties listed their development needs and priorities as indicated in Table 19.

Table 19: Needs and Priorities

County	Sex	Pairwise Ranking of Needs and Priorities				
		1	2	3	4	5
Nyandarua	Women	Clean water & hospital	Education and roads	Police station	Electricity	Markets
	Men	Water	Skills	Schools	Infrastructure	Employment / Capital
Kiambu	Women	Hospital	Education	Water	Roads	Electricity
	Men	Roads	Sewerage / Garbage	Health	Education	Water
Machakos	Women	Water	Roads	Employment	Education	Healthcare
	Men	Land	Schools	Hospital	Water	Roads

Leaders in Machakos County identified education, water, income generation, roads and maternity units as women's priority needs in a descending hierarchy while capacity building and access to capital were prioritized for men. On their part, leaders in Kiambu stated the foremost needs of women as water, hospitals and schools while men would need schools, industries and an affirmative action fund. Clean water for domestic consumption was equally ranked by leaders in Nyandarua as the highest priority for the community followed by roads and improved drainage /sewerage system. The leaders ranked water for irrigation and access to technical training as the fourth and fifth priorities respectively.

Machakos stakeholders sequentially identified water, roads, employment, education and healthcare, mainly maternity units as women's priorities; while men stressed on land, schools, hospital, water and roads, including capacity building and access to capital for productive businesses. On the other hand, women in Kiambu reiterated emphasis on water, hospitals, schools and roads; whereas men gave more value to roads, sewerage system, health, education and water. Nyandarua marked a unifying interest on safe accessible water by both women and men. But hospitals, education, roads, police station and electricity are within women's priorities; while men also focus on skills, schools and infrastructure.

The society has socialized women, more so those from Kiambu and Nyandarua to invest more of their time in reproductive roles, ranging from all domestic chores, communal work and unpaid agricultural Labour. In Nyandarua however, household farm repairs and works are done by both women and men. Cross-cuttingly, control over water resources is dominantly a men's preserve. The cost of water too varies from county to county with Machakos experiencing a slight average deviation from the rest. Women remain the key collectors of water for regular domestic use.

4.3. Practices and Participation

4.3.1 Division of Labour between Men and Women

Women in Nyandarua County reported that household tasks such as fetching water, cooking, routine shopping, and cleaning fall within their purview of domestic duties. They are also responsible for taking care of livestock as productive work. They indicated that working on the household farm and repair works around the compound are jointly done by men and women. Men in the same county acknowledged that women are solely responsible for cooking and cleaning while men undertake repair works around the compound and provide security. According to the male participants, both men and women are involved in routine shopping but fetching water for the household, working on the household farm and taking care of livestock is mostly done by men with the help of women.

Women in Machakos and Kiambu counties asserted that they mind all reproductive and productive work within the household that includes cleaning, fetching water, cooking, routine shopping, taking care of livestock, working on the farm, and repair works around the compound. Those in Machakos County also intimated responsibility for provision of fees, security for the family and fulfilment of conjugal rights.

In both counties, women with resources hire labour for taking care of livestock.

Women in Machakos County argued that they should be compensated for running the family which is supposed to be done by men. They attributed men's nominal participation in securing the well-being of the family to alcoholism which they said should be curbed by the government raising the cost of alcoholic and lower the cost of fuel so that men can find alcohol unaffordable and elect to stay at home. The women admitted willingness to engage in transactional sex despite the risk of HIV acquisition to cushion their households against extreme indigence. They advised that the government should improve access to affirmative action funds by young women so that they can venture into business and provide for their families. They explained that marriage was only important because it bestowed parental identity on the offspring and earned societal respect for the woman otherwise they would not hesitate to withdraw from relationships that are resource deprived. Men in Machakos County largely concurred with their female counterparts on the gender division of labour as shown in Table 3.

Table 20: Gender Division of Labour

Task	Woman	Man	Woman and Man	Mostly woman, with help of man	Mostly man, with help of woman	Hired labour (House girl / House boy)	Others (Male child, female child)
i. Fetching water for the household?	√						

ii. Cleaning work for the household?	√						
iii. Cooking for the household members?	√						
iv. Routine shopping for the household?	√						
v. Working on the household farm?			√				
vi. Takes care of livestock?			√			√	
vii. Repair works around the homestead?			√				

The only tasks that are solely undertaken by men in Kiambu County, according to male community respondents are repair works around the homestead and counselling young men. They confirmed that women in the community are responsible for cleaning, cooking, fetching water and taking care of livestock. The men said routine shopping is done by both men and women but working on the household farm is the responsibility of hired labour.

4.3.2 Household Care Work

Table 21: Household Care Work

Household Care Task	Nyandarua		Kiambu		Machakos	
	Man	Woman	Man	Woman	Man	Woman
i. Taking care of child aged 0-5 years?	X	√	x	√	x	√
ii. Taking children to school in the morning?	X	√	x	√	x	√
iii. Picking child from school in the afternoon?	x	√	x	√	x	√
iv. Caring for elderly family members?	x	√	x	√	x	√
v. Taking care of the disabled in the family	x	√	-	-	-	-

Female community respondents in Nyandarua, Kiambu and Machakos counties asserted that they were responsible for all the care work in their households which included care of children aged 0-5 years of age, taking and picking children from school and caring for elderly members of society. Women in Nyandarua County also indicated that they are responsible for the well-being of PWDs in the society. Men in Kiambu were affirmative about the care roles played by women (Table 21) but also reported that although taking care of children aged 0-5 years was

mostly done by women hired labour (house girl / house boy) would also be used to provide support. On their part men in Machakos County intimated that taking children to school in the morning is done both men and women, and hired labour. Similar was submitted by men in Nyandarua County who admitted that it is mostly women who took and picked children from school but both the man and woman took care of sick elderly members of family.

4.3.3 Participation in Formal and Informal Economy

The analysis of wage employment by industry and sex is presented in Table 22. The only sectors where employment of females was above that of males in 2015 and 2016 was in human health and social work activities, and activities of households as employers; undifferentiated goods - and services-producing activities of households for own use. Agriculture, fishing and forestry slightly above 30% of female labour in 2015 (33.9%) and 2016 (33.1%). Women's representation in the manufacturing industry remained dismal in 2015 (16.7%) and 2016 (16.1%) just the way they marginally participated in water supply; sewerage, waste management and remediation activities in 2015 (20.6%) and 2016 (22.0%). The education reported narrow margins of disparity in numbers of male and female employees in 2015 and 2016 at 47% females and 53% males for both years. Casual employment registered a 7.9 per cent growth with the proportion of casuals to total employees rising from 21.8 per cent in 2015 to 22.8 per cent in 2016.⁴⁴

Table 22: Wage Employment by Industry and Sex, 2015 and 2016 ('000)

Industry	2015		2016	
	Male	Female	Male	Female
Agriculture, forestry and fishing	222.6	114.4	225.1	111.6
Mining and quarrying	12.2	2.2	12.7	2.5
Manufacturing	246.1	49.4	252.1	48.7
Electricity, gas, steam and air conditioning supply	12.6	4.3	12.8	4.5
Water supply; sewerage, waste management and remediation activities	9.2	2.4	9.9	2.8
Construction	103.6	44.4	114.9	48.1
Wholesale and retail trade; repair of motor vehicles and motorcycles	179.3	52.7	185.7	54.2
Transportation and storage	62.5	20.1	64.8	20.8
Accommodation and food service activities	53.7	22.4	54.6	22.8
Information and communication	69.9	35.7	72.9	37.7
Financial and insurance activities	46.3	27.0	47.5	28.2
Real estate activities	3.1	0.9	3.1	1.0
Professional, scientific and technical activities	49.7	18.9	51.4	19.3
Administrative and support service activities	4.7	0.5	4.9	0.5
Public administration and defence; compulsory social security	142.5	79.5	148.3	83.0
Education	267.9	239.5	275.6	249.0
Human health and social work activities	59.9	64.1	61.3	66.3
Arts, entertainment and recreation	4.9	2.0	4.8	2.2
Other service activities	21.3	10.4	22.9	10.3

⁴⁴ Kenya National Bureau of Statistics. Economic Survey Report 2017. Nairobi: (KNBS), 2017

Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	48.4	65.7	48.6	65.8
Activities of extraterritorial organizations and bodies	0.8	0.3	0.9	0.3
TOTAL	1,621.2	856.8	1,674.8	879.6
Total of which casual employees	375.3	164.9	406.3	176.5

Source: Kenya National Bureau of Statistics, 2017

4.3.4 Climate Risks and Impact

Nationally, 61.9% of households reported experiencing a shock of some kind.⁴⁵ The proportion of households that reported at least one shock was 68.7 per cent in the rural areas compared to 53.4 per cent in urban areas. A higher proportion of households that experienced shocks were in Kitui (96.0%), Migori (92.0%) and Baringo (91.0%).⁴⁶ Among counties included in the gender analysis, Machakos County recorded the highest proportion of households that had experienced at least one shock (70.5%) followed by Nairobi County (58.6%) and Nyandarua County (45.3%). Kiambu County (16.8%) is apparently the least prone to shocks. The specific types of shocks and their different levels of magnitude in each of the counties are shown in Table 23.

Kiambu (22.7%) and Nairobi (10.9%) counties present the highest proportion of households that are likely to experience robbery / burglary and assault cases as a result of shocks. Machakos (2.2%) and Nyandarua (2.8%) would experience lower levels of similar violence in the wake of shocks.⁴⁷

Table 23: Proportion of households by the first severe shock and County

County	Droughts or Floods	Crop disease or crop pests	Livestock died	Large rise in agricultural input prices	Severe water shortage	Household business failure, non-agricultural	Loss of salaried employment or non-payment of salary	Large fall in sale prices for crops	Large rise in price of food
Machakos	11.5	0.2	5.1	0.2	12.2	4.3	12.4	0.6	8.9
Nyandarua	2.5	15.6	12.6	2.3	0.3	4.5	1.9	1.9	15.0
Kiambu	0.0	0.8	6.5	1.3	0.0	1.6	7.9	2.5	14.6
Nairobi	2.5	1.8	3.2	0.7	4.2	7.3	9.5	1.0	29.9

Leaders in Machakos County identified prolonged dry spells that affect farming activities and flooding that leads to destruction of houses and displacement of families as some of the climate risks impact experienced in the County.

⁴⁵ A shock is an event that may trigger a decline in the well-being of an individual, a community, a region, or even a nation. It is worth noting that the same shock could affect different households differently.

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They underscored that floods destroyed roads, making them impassable. Disease outbreaks due to lack of clean drinking water and emergence of pests that destroy crops during the dry season were also cited by the leaders as adverse manifestations of climatic changes.

The Agriculture Officer interviewed in the County stated that water shortages occasioned by drought forced women to walk long distances in search of water which consumed a lot of their productive time. The officer also indicated that the shrinking forest cover had constrained access to wood fuel which forced women to opt for the more expensive cooking gas. The high cost of farm inputs due to emergence of pests caused by harsh climatic conditions, and inadequate water for irrigation affected men, according to the agriculture officer since they have to divert money meant for family subsistence to purchase pesticide and address crop diseases associated with aridity.

The impact of climate risks on communities in Machakos County were further explained by the Chief Officer Water and Irrigation as leading to decline in the productivity of crops, migration of male labor and decreased household food supply with little or no surplus produce for commercial use. As an equally significant climate risk in the area that affected both men and women, the Chief Officer submitted that floods interfered with water pathways and have adverse effects like sweeping animals and children away.

Generally, floods would lead to loss of human life, damage to property, destruction of crops, loss of livestock, and deterioration of health conditions owing to waterborne diseases.

The Officer also observed that floods cause decreased household food supply and reduced margins of profitability accruing from commercial farming.

Leaders in Kiambu County associated soil erosion as a result dust bowls attendant to drought with vulnerability to disease especially water borne ailments among children and due to desperation for water. A gender expert in the county intimated that drought in the area affected both men and women due to reduced food production and supply in the household, compelling household members to seek work as hired labour that constrained family relationships. The expert also observed that the area experienced floods which precipitated low household food production and intake, disease outbreaks, and children dropping out of school due to lack of fees. Heavy floods would also sweep away animals and affect household livelihood. A water, sanitation and hygiene (WSH) expert in Kiambu County agreed that drought and floods are the major climate related risks in the county whose impact included a decline in crop and animal productivity due to aridity and erosion. Loss of human life, damage to property, destruction of crops, loss of livestock, and deterioration of health conditions owing to waterborne diseases were also cited by the WASH Officer as consequences of floods in the area. Leaders in Nyandarua County identified climate risks and impacts shown in Table 24.

Table 24: Climate risks and their impact

Sex	Specific Climate Risks	Impact
Women	<ul style="list-style-type: none"> ❖ Drought ❖ Floods 	<ul style="list-style-type: none"> ❖ The most immediate consequence of drought is a fall in crop production, due to inadequate and poorly distributed rainfall. ❖ Covering long distances to fetch water and look for food ❖ Low rainfall causes poor pasture growth and may also lead to a decline in fodder supplies from crop residues. ❖ Plants and animals depend on water, so when drought occurs, their food supply can shrink and their habitat can be damaged. ❖ Floods damage standing agricultural crops and in some instances also carry away the top soil making the land barren. ❖ Floods lead to loss of human life, damage to property, destruction of crops, loss of livestock, and deterioration of health conditions owing to waterborne diseases. ❖ Diseases outbreaks due to drainage challenges associated with flooding.
Men	<ul style="list-style-type: none"> ❖ Drought ❖ Floods 	<ul style="list-style-type: none"> ❖ Plants and animals depend on water, so when drought occurs, their food supply can shrink and their habitat can be damaged. ❖ Drought and famine leads to Male labor migration and may become permanent in some instances. ❖ Drought contributes to decreased household food supply and little or no crops surplus for sale ❖ Floods lead to Male labor migration and may become permanent in some instances. ❖ Floods contributes to decreased household food supply and little or no crops surplus for sale

Expert views in Nyandarua County asserted that floods and drought occurred in the area, leading to low productivity that affects women's and men's capacity to provide for their families, loss of property and increased vulnerability to animal and human diseases.

The expert pointed out that women are compelled to espouse negative coping mechanisms like sex work while men drift away from homes in search of employment opportunities. As significant 30.5% of households would do nothing when floods or drought are experienced due to limited capacity.⁴⁸

4.4 Balance of Power and Decision Making

4.4.1 Decisions on Household Resources, Assets and Finances

The participation of women in Nyandarua County in making decisions related to household resources, assets and finances is dismal, as reported by female community respondents (Table 25). Apparently, the only decisions autonomously made by women are those that relate to the number of children and seeking medical care while decisions to do with management of credit, expenditure of money acquired through credit and institutions that children should attend are jointly decided by men and women. The women said that they had the latitude to decide on the number of children to bear depending on the income of the family and attributed their inordinate role in healthcare to the broad spectrum of childcare responsibilities. They observed that in most cases it is women who attend school meetings. On the contrary, male community participants submitted that men and women play an equal role in making all decisions (Table 25) except deciding on working away from home which is the prerogative of men.

Table 25: Decision Making

Decision	Only men	Only women	Both the same	Women, with the help of men	Men, with the help of women
Who saves money /bank	✓				
Who keeps money	✓				
Who receives credit / loans	✓				
Who manages credit / loans			✓		
What to spend on			✓		
What to rear / crop to grow	✓				
What to sell and when to do it	✓				
Who participates in extension services?	✓				
Who joins membership and participates in producer organizations?	✓				
Who works outside the community	✓				
How many children to have?		✓			
Where the children attend school			✓		
Who participates in community work	✓				
Who participates in courses and workshops / training activities	✓				
Look for medical help		✓			

According to female community respondents, the visible role of women in decision making in Kiambu County was because men have abdicated their responsibilities.

The women pointed out that the only decision solely made by men had to do with working outside the home while women decided on who receives credit / loans, who manages credit / loans, what to spend on, what to rear / crop to grow, what to sell and when to do it, how many children to have, and who participates in community work.

They said that decision jointly made by men and women included who saves money /bank, who keeps money, who participates in extension services, who joins membership and participates in producer organizations, where the children attend school, who participates in courses and workshops / training activities, and who looks for medical help.

Men in the same county asserted that they unilaterally made decisions to do with what to sell and when to do it, who participates in extension services, who joins membership and participates in producer organizations, who participates in community work, and who participates in courses and workshops / training activities. They reported that women had absolute autonomy to decide on who keeps money, what to spend on, how many children to have, where the children attend school, and seeking medical care. Decisions that the men said are jointly made by both men and women included who saves money /bank, who receives credit / loans, who manages credit / loans, what to rear / crop to grow and who works outside the community. The men said that they recognized women as custodians of family money. However they stated that women are discreet when they acquire credit products. ***“When it comes to loans in most cases you won’t know if she took one unless you learn from a third party,”*** a male respondent said during a focus group discussion. The men showed disdain for community work, saying it is for lazy people who loiter around with nothing to do in the community except passing time.

Patriarchal dominance in decision-making in Machakos count was underscore by male community participants indicated that they made virtually all decisions (Table 25) except decisions involving what to rear / crop to grow, how many children to have, and who participates in community work.

Similarly women in the county stated that they were responsible for most of the decisions made in the household except what to sell and when to do it, and where the children attend school. They acknowledged that decisions involving saving / banking money are jointly made by men and women as equals. The women explained that should they cannot afford to contribute towards schools fees needs due their limited resources.

4.4.2 Participation in Community Decision-Making

Most decisions at the community level in Nyandarua County are apparently made by men as reported by community leaders. These include decisions concerning roads and construction of schools. Women attend public participation meetings but it is men who exercise de facto authority when deciding on key actions to be implemented. Broader political participation in the county is also dominated by men and male youth. Women’s role is restricted to voting since they cannot join politics without the consent of the spouse.

The participation of women and men in decision-making in Kiambu County was affirmed by leaders at the community level who said that although men make most of the decisions the involvement of women is deliberately sought and meaningfully harnessed.

The leaders further stated that the broader political platform manifests the heavy involvement of men but women remain influential and are significantly engaged due to their numerical strength as a voting bloc.

Men in Machakos County contribute to community development projects and participate in social forums to discuss development matters while women are involved in women committees in markets and development projects, according to community leaders. Both men and women participate in broader political activities. The level of men’s and women’s involvement in broader political leadership at the county and national levels is presented in Table 26.

Table 26: Participation in Community Decision-Making

Position	Elected		Nominated		Total	% women Elected + Nominated
	Male	Female	Male	Female		
President	1	0	-	-	1	0%
Deputy President	1	0	-	-	1	0%
Senator	44	3	2	18	67	31%
MNA	267	23	7	5	302	9%
WMNA	0	47	-	-	47	100%
Governor	44	3	-	-	47	6%
Deputy Governor	40	7	-	-	47	15%
MCA	1334	96	97	650	2177	34%
Total	1731	179	106	673	2689	32%

All governors and senators for Kiambu, Nairobi, Machakos and Nyandarua counties are male. Machakos County has 34% female Members of County Assembly (MCAs), while Nyandarua (13), Kiambu (30) and Nairobi County (41) has 33% each. The comparatively better representation of women at the County Assembly level and Senate is attributed to the provision in the Constitution that not more than two-thirds of the members of elective public bodies shall be of the same gender (Article 81) and that Parliament shall enact legislation to promote the representation in Parliament of (a) women; (b) persons with disabilities; (c) youth; (d) ethnic and other minorities; and (e) marginalized communities (Article 100).⁴⁹

4.4.2.1 Institutional Membership

Women in Nyandarua County stated that unlike men who only belonged to political formations and social groupings, women are members of cooperatives, economic empowerment entities such as chamas, political parties and church based groups. They gave examples of cooperatives such as the Moki Dairy Cooperative and the Kinangop Dairy Cooperative. The women reported that men are reluctant to establish or join chamas (table banking groups) and even those that are church based have very few men who are members. On the contrary, men in the county asserted that both men and women belonged to cooperatives, economic empowerment entities, political formations, and social groupings.

In Kiambu County, female community respondents said both men and women belonged to cooperatives, economic empowerment entities, political formations, and social groupings except chamas that only women established and supported. A divergent view by men indicated that membership of cooperatives and political parties was a preserve of men while both men and women participated in economic empowerment initiatives such as chamas and social groupings.

Cooperative societies are not an aspect of social organization in Machakos County according to female respondents who also indicated that they belonged to chamas, political parties and church based groups. The women expressed concern that most men don't permit their women to join chamas but there are also women who fear interaction with others through such gatherings.

⁴⁹

4.5 Legal Rights and Status

4.5.1 Access to Legal Documents

All women in Nyandarua County have identification cards (IDs) while majority have voter's cards which illustrates their role in civic processes in the county. Some have marriage certificates but few have birth certificates, school/college certificates, title deed and hospital / NHIF card PIN number. None has a passport letter of employment, and milk supply number. They said they don't know how a passport looks like and could not get letters of employment since they were self-employed.

Only women-headed households would be expected to have title deeds to land but only men are expected to access milk supply numbers. A similar picture of women exclusion from accessing legal documents emerged in Machakos County where women said that all of them have voter's cards and IDs, few have birth, school and marriage certificates but none has a passport, title deed, Hospital / NHIF card, and PIN number. They said that title deeds belong to men while they use the husband's NHIF card. ***"My father took mine to the bar in exchange for alcohol. Going for another one is very expensive,"*** one female FGD participant explained the reason why she doesn't have a school certificate. Access to legal documents by women in Kiambu County is comparatively better as shown in Table 27.

Table 27: Legal Documents

Document	All have	Majority have	Some have	Few have	None has	N/A	Comment
Birth certificate		√					
School / college certificate		√					
ID Card		√					
Passport			√				
Marriage certificate			√				
Title Deed			√				
Voter's card		√					
Hospital / NHIF card		√					They have card but they dont contribute
Employment letter				√			Most are self employed
Milk supply number		√					
PIN number		√					

4.6 Knowledge, Beliefs and Perceptions

4.6.1 Traditional Knowledge of Men and Women

Leaders in Machakos and Kiambu County associated women with management of household, organizing social activities, farming and religious matters. In Nyandarua County women are associated with Harvesting of potatoes, Sukuma, transporting and selling cabbages and milking.

However, men in Kiambu County are associated with property inheritance and cultural issues. In Machakos County its construction projects and transport industry example bodaboda. Men in Nyandarua County are associated with Grazing animals, Brokerage of food crops, Packaging vegetables [cabbages, potatoes], Harvesting carrots and cabbages, Transporting milk, counting crops, receiving payment, milking and selling of products.

4.6.2 Common Beliefs and Perceptions

Some of the myths according to female community respondents in Kiambu County about women are that what a man can do a woman can while in Machakos women one must get married even if it's for the sake of the children to inherit a name. In Kiambu County the myths about their men is that they are best with home repairs.

In Kiambu County it is believed that women who are self-accomplished are too arrogant. However, the Kiambu female respondents believe that their men are better leaders than women. Values of a woman according to Kiambu female respondents are a real woman takes care of her husband and children while in Machakos a woman builds her home. Men in Kiambu valued to be providers while in Machakos County they are the heads in their homes.

Some of the stereotypes according to female respondents in Kiambu County are that women are like children while in Machakos County they said that a woman's job is reproductive work. Some of the stereotypes associated with men in Kiambu County are that men eat a lot while in Machakos County men say that family planning destroys their bodies and kills their sexual desires.

According to male community respondents in Machakos County some of the myths surrounding women are Women are not to eat the tail of a sheep it makes them unfaithful in their marriages while their counterparts in Nyandarua county claim that Women keep on saying they will go back to their maternal home and they will rarely go. This happens due to domestic quarrels. Men from Nyandarua on the other hand say that Even if women say what, you don't agree immediately, you will take time to think and agree later.

Male community respondents in Machakos County believe that their women are short tempered hence cannot manage people and Politics is not safe for women while in Nyandarua What women say men don't believe immediately, it will take several days for them to believe, don't just believe on mere facial expressions. Men from Machakos County believe that Men are good leaders.

Some of the values highlighted on women by male respondents from Machakos are home keeper while in Nyandarua Being generous, Faithfulness, Honesty, Ambitious and hardworking. Men in Nyandarua were said to have this values generosity, faithfulness, honesty, ambitious and hardworking compared to their counterparts in Machakos who are providers.

Stereotypes associated with women in Machakos County were a woman's place is home while in Nyandarua County they have a mark around their legs due to constant wearing of boots.

Men in Machakos County are attested to being better decision makers than their Nyandarua men who cannot sire children.

4.7 Time and Space (Gender Daily Activity)

This baseline study analysed the major household chores that most women do and the amount of time allocated to each activity. The Female FGD discussants indicated that, apart from doing the household unpaid work, they must supplement the little income available by getting casual jobs such as washing other people's clothes or other manual jobs. With this acute time poverty, women have little time for these economic activities and therefore perpetuating their paucity state. Culture is a key definer of social roles between women and men in Africa. In most cases, it defines roles that brings inequality posing inherent gender dimensions leaving women with time poverty and therefore limited access to economic rights. The allocation of time between women and men in the household and in the economy is a major gender issue in the evolving discourse on time poverty. The baseline analysed the allocation of roles between women and men through a gender daily activity clock exercise and presented in Table 28.

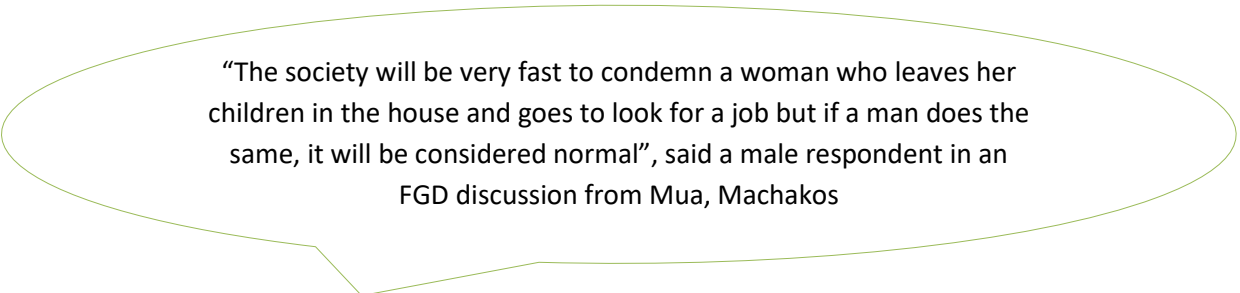
Table 25: Gender Daily Activity Clock

TIME	Activity by gender	
	MEN	WOMEN
4:00am	Sleeping	Awake
5:00am	Sleeping	Preparing breakfast
6:00am	Taking shower	Escorting kids to school
7:00am	Leaving for work	Start house chores
8:00am	Already at work	Go look for casual labor
9:00am	At work	Go look for casual labor
10:00am	At work	Go look for casual labor
11:00am	At work	Start washing peoples clothes
12:00pm	At work	Washing peoples dishes and houses
1:00pm	At work	Back at home for lunch preparation
3:00pm	At work	Go pick up kids from school
4:00pm	At work	Wash kids uniform and shower them
5:00pm	At work	Go fetch food for supper
6:00pm	Back from work	Help kids with homework
7:00pm	Watching news	Preparing supper
8:00pm	Having supper	Having supper as
9:00pm	Relaxing in bed	Washing clothes and ironing their morning clothes
10:00pm	Already in bed	Polishing their shoes
11:00pm	Wondering why the wife is not coming to bed for sex.	Take a shower
12:00am	Sleeping	Sleeping, Breasting feed, Changing diapers

The study established that in the project focus areas, the patriarchal systems prevailed where men are considered to be superior to women in the society and this aspect defines the gender roles. The allocator of roles is the man who is seen as the head of household therefore controlling women's time and labor. From the gender daily activity clock exercise undertaken with men and women during the survey, it was clear that women and girls are allocated critically important and time-consuming responsibilities, which overburden them with work in the reproduction, economic, household, and community spheres. The functions of reproducing and household chores are considered low-status activities, unremunerated and unrecognized in the national accounting system. This phenomenon affects the status of women in the society where they are seen as only dependent on men.

The women indicated that, apart from doing the household unpaid work, they must supplement the little income available by getting casual jobs such as washing other people's clothes or other manual jobs. With this acute time poverty, women have little time for these economic activities and therefore perpetuating their paucity state.

The discussion indicated that, by the time women are retiring to bed at night, they are usually tired and exhausted.



“The society will be very fast to condemn a woman who leaves her children in the house and goes to look for a job but if a man does the same, it will be considered normal”, said a male respondent in an FGD discussion from Mua, Machakos

Women who spend all their time performing these tasks are often considered as “not working.” This is a key impediment to their economic security because they are overburdened with activities which have less economic/monetary returns while their male counterparts are working and getting income for their roles.

This has restricted women from having equal economic opportunities with men. Women’s economic empowerment and the realization of women’s rights to and at work are essential for the achievement of the Beijing Declaration and Platform for Action and the 2030 Agenda for Sustainable Development (United Nations, Economic and Social Council, 2016). This can allow them to pursue education and careers.

Women dedicated most of their time on reproductive activities at home while men barely put in sufficient hours on economic activities. This was quite evident in Machakos County. Additionally, the study ascertained that women in Kiambu County were industrious than men. This was demonstrated by the number of hours spent on income generating ventures as well as domestic chores. The same pattern was reflected in Nyandarua County.

The participants cited many reasons that had precipitated the discrepancies in time spent by women and men. The following are reasons that were linked to this occurrence:

Age-old customs: Retrogressive customs laced with patriarchal patronage that burdens women with domestic chores. This denies women opportunity to successfully engage in commerce and change their economic disposition. Men are expected to be the providers and consequently take up activities that either generate or are perceived to generate income for the households.

Drug –abuse: While men are supposed to assume the position of the sole provider unfortunately most of them have succumbed to rigors of drug abuse especially alcohol. This is more pronounced in Kiambu County; this has forced women in Kiambu to assume dual roles of being providers through trade and performance of domestic chores.

Women are work-horses: Participants especially women were of the view that traditionally women are work-horses and were naturally inclined to outperform men in working at home and in business. This assertion was supported by the fact that men had more hours to rest and partake in leisure activities and idle.

Duty Allocation: Both male and female FGD participants proposed that men and women are built for different duties. For instance, men are built for heavy lifting while women are specialists in performing light duties.

5.0 CHAPTER FIVE

5.1 Introduction

This chapter presents a summary of the findings of study, discussions, conclusions and recommendations.

5.2 Summary of findings

Through the gender analysis carried out in the four counties on building resilience of communities in the Athi river catchment area it was noted that women and girls are majorly responsible for finding water resource that their families need to survive - for drinking, cooking, sanitation, and hygiene and by extension they are also responsible for watering the livestock. They walk long distances to collect water, they also brave long queues in water collection points and in drought seasons they are forced to pay exorbitant amounts of money to secure water which is often very time consuming and arduous.

5.3 Discussion of Findings

The discussions of the findings in this study are based on the outputs from the analyses of the data obtained from the study in the four counties as follows:

5.4 Nyandarua County

5.4.1 Water Access and Sources

Most of the households depend on water from shallow wells, roof catchments and rivers. The average distance to the nearest water point is 1.5km. Some of the households have access to piped water while a few households have access to portable water.

5.4.2 Water Resources and quality

The county has inadequate water resources and the situation has been aggravated by the degradation of water catchments leading to reduced ground water recharge. As a result, boreholes have medium to low yields. Main source of water for domestic use is dams, roof catchment and shallow wells. Most of the water used is untreated which poses great health risk to the population. Aberdare forest, providing water resource with high quality, has been destroyed by illegal harvest and deforestation activities. Consequently, the quality and quantity of water from this forest has also deteriorated.

5.4.3 Climate risks

The county has witnessed a change in climate over the years. Cases of crop failure e.g. Irish potatoes have been common due to extremely low temperatures at night leading to frost bite.

Livestock farming has also been affected leading to reduced productivity especially for dairy and beef products.

The county over time has experienced climate risks due to increase in unregulated quarrying activities (especially in Olkalou, Kipipiri and Kinangop) and sand harvesting in Miharati; silting of dams and rivers and deforestation of the catchment areas.

Recommendations for Nyandarua County

NEMA in collaboration with other stakeholders to enhance mechanisms for:

- Enforcing the laws and regulations regarding encroachment of river banks, forests, wetlands and other riparian reserves by encouraging both women and men's constructive participation and opinions in decision making.
- Repossessing illegally acquired forests, riverbanks and wetlands where they have been grabbed to attain a friendly and clean environment with maximum vegetation and catchment capacity for people's use, especially women.
- Encourage active participation of men and women in tree planting in the project area to boost their ownership spirit and sustained community driven zeal for environmental conservation and management.

5.5 Machakos County

5.5.1 Water Sources and Distances

The overall average distance to the nearest water source is 6 kilometers. Climate change factor has played a major role in increasing the average distance to the nearest water source especially in rural areas. The prolonged dry season for instance, has led to drying up of rivers, springs, boreholes, wells and dams subsequently increasing the average distance to the nearest water source.

5.5.2 Water Scarcity

Water scarcity affects women and girls both in the rural and urban areas of the county since they are charged with the responsibility of ensuring the household needs for water are met. In the process, they are denied the opportunity to engage in other economic activities and schooling. Most of the existing water facilities are old and dilapidated and require rehabilitation and augmentation in order to meet the present and future demands of the fast growing population of Machakos.

The adequacy, equity and reliability of government rural water supply projects in the County have deteriorated due to; inadequate budgetary provision, facilities have not been upgraded to cope with increasing demand, and technical performance has declined with increasing age of equipment and inadequate maintenance.

5.5.3 Sand Harvesting

Rampant, Uncontrolled and unsustainable sand harvesting has led to substantial decrease in water holding capacity of rivers. This has caused drying of rivers resulting to water scarcity for both domestic and commercial use. Sand harvesting has led to severe environment degradation leading to change in the regime of some of the rivers and loss of retention capacities of some of the seasonal rivers. A good example of affected water mass is River Thwake. Mwanja and Mania river which are the major sources of water for Machakos have also been affected.

5.5.4 Climate Change

Negative impacts are prolonged periods of drought, erratic rainfalls and rise in average temperatures which have led to low agricultural production.

Most of the County residents use unsustainable cooking methods such as firewood and charcoal as the major source of fuel. This has resulted to deforestation in most areas leading to rampant and expansive soil erosion.

Recommendation for Machakos County

- Proper Licenses for Sand harvesting governed by the Sand harvesting guidelines to address environmental concerns including those that attach on women and men's livelihoods in order to avoid haphazard scooping that would lead to distraction of the environment.
- Involve women and men through support initiatives that will increase water supply by inculcating effective harvesting and storage methods. For example, promoting rain water harvesting to guarantee an improved water source for a majority of the households.
- Support the adaptation strategies including livestock and crop zoning, and introduction of drought resistant crops and livestock breeds benched on gender sensitivity and responsiveness approach.

5.6 Kiambu County

5.6.1 Water sources and access

The average distance to the nearest water source averages between 0.5 -1km. There is major degradation of forests and Rivers. Kinale and Kieni forests have faced major deforestation due to population demand for shelter and fuel and encroachment for farming demand. In addition rivers like Athi River have experienced much pollution through dumping of waste which comprises of effluents, agricultural chemicals and industrial waste.

The major contributors to environmental degradation are; increased population leading to massive deforestation and encroachment of water catchment areas. In addition, industries have emissions that have led to lot of air and water pollution especially in Thika. Farming has also led to pollution due to the release of various agrochemicals in the water sources.

5.6.2 Climate risks impact

The County are manifested through changes in rainfall patterns, distribution and amounts. The county experiences less drought and flooding effects in comparison to other counties. In drought periods, the water levels within the rivers and wetlands are reduced resulting in ripple effects of reduced water flows hence less water supply within the county for industrial, household and agriculture. This affects women and girls because they are charged with the responsibility of collecting water. From the FGD discussions the county has several water collection points that are on average about 0.5-1km from the dwellings. They brave the long queues and pay an average amount of between Kes 5-20 for a 20litre jerrican depending with the water need at that particular season.

Kiambu County is currently experiencing fast population growth with major land use changes being conversion of land from agriculture to urban centers and settlement. This has put a strain to the county water resources, e.g. riparian and wetland encroachment through construction and farming activities. There is increased environmental degradation as a result of the soil erosion, deforestation, and changes of wetlands into other landforms, through encroachment.

5.6.3 Challenges on Water Resources

Some water resources are highly polluted, making them unsafe to use. This is due to pollution of water sources from effluent waste, disposal of waste water from treatment plants, raw effluent discharges in urban and semi urban settlements, and agro-chemical in the agricultural areas. There is high depletion of vegetal cover due to deforestation within the water resources, including wetlands within the county. This is attributed to population pressure and increased demand for both environmental and forest resources especially for timber. Depleted vegetation cover therefore exposes water resources to high evapotranspiration rates, more runoff and less/low recharge of ground water aquifers.

There is high rate of depletion of ground water resources due to over extraction, low recharge and environmental degradation. Majority of the water resources have challenges of encroachment of riparian zones and wetlands. Some of the riparian lands are under farming of agricultural crops, loosening the soils and clearing the vegetation, hence soils erosion and increased levels of evapotranspiration.

Recommendation for Kiambu County

- Regulate water vendors to ensure quality and guard against exploitation of consumers while giving gender sensitive focus on women's concerns and challenges.
- Invest in sustainable access to clean and safe water through effective and gender-inclusive approaches in management of the water resources.
- Enforcement of the laws and regulations barring encroachment, and pursuant to the protection of wetlands, forests and riparian reserves to stop and reduce cases of water pollution to reduce vulnerability rate, especially among women who interact the most with water.
- Encouraging women's participation in conservation efforts and management of available water resources.
- Improve compliance on licensing of water harvesting and use considering the water needs of women.
- Awareness and capacity building of the community and stakeholders on the most appropriate techniques of water harvesting and storage to address women's concerns and needs including other specific gender issues.
- Upscaling the representation and participation of women in project planning and representation.
- Empowerment on the constitutional rights of both women and men, that any person is entitled to land ownership and utilization against retrogressive cultural beliefs and perceptions.

5.7 Nairobi County

5.7.1 Water sources and access

The main sources of water for the residents in Nairobi County are from Sasumua Dam in Nyandarua, Kikuyu Springs, Ruiru Dam, Thika Dam and Ngethu water works. Although Nairobi River is permanent, its water is unsafe for human consumption. There are residents that use borehole water, water kiosks especially those in slums, wells and roof catchments. Over 80 per cent of the residents have access to piped water. On average, 52.5 per cent and 24.7 per cent of the population takes 0 and 1-4 minutes respectively to fetch water. Only 0.9 per cent of the population takes 30-59 minutes to nearest water point. (Nairobi County Integrated Development Plan, 2018). Consequently, this is a serious setback to residents, especially women who interact more with, and use water the most for domestic and other purposes. Women have to move distances during scarcity times, at times in risky conditions thus escalating their vulnerability to insecurity.

Women's access safety in access to water services is basically limited as attributed to security fears owing to the fact that slums are densely populated with poor construction planning. Some path ways or routes to water points are narrow and act as hot spot joints for criminal activities. Time when water becomes available stands as the primary determinant to women and children's safety. Such conditions are indeed part of the contributing drivers to sexual gender based violence, for example; defilement, rape, sodomy, gang rape, attempted rape and other kinds of indecent acts, mostly against women and girls. HIV, some chronic diseases with inclusion of sexually transmitted infections are resultant health effects of the vices.

5.7.2 Water Resources

Nairobi County has no main water tower; most of the supply is from the Tana Basin and is pumped to the City from distances of around 50 Km. This bulk water-supply is not reliable during periods of drought, and is also endangered by siltation of the reservoir due to deforestation in the catchment areas. The supply problem is further aggravated by the poor state of the distribution system, which results in about 50 per cent losses due to leakage, illegal connection and inefficient and wasteful use of water by some consumers. (Nairobi County Integrated Development Plan, 2018)

5.7.3 Water and Sanitation

Nairobi County has no major water tower and relies on other neighboring counties within Tana Basin for its water supply which is around 50 Km from the city. This bulk water-supply is not reliable during periods of drought, and is also endangered by siltation of the reservoir due to deforestation in the catchment areas. The supply problem is further aggravated by the poor state of the distribution system, which results in about 38 per cent losses due to leakage, illegal connection and inefficient and wasteful use of water by some consumers. (Nairobi County Integrated Development Plan, 2018)

5.7.4 Water management

The responsibility for water supply and sewerage in Nairobi is shared between an asset holding company, Athi Water Services Board (AWSB), and an operating company, the Nairobi City Water and Sewer Company. Also some of water is managed by CBOs and NGOs. Water and sewer services in Nairobi city are provided by the Nairobi City Water & Sewerage Company Ltd. Service standards are set and monitored by a national water regulatory agency called the Water Services Regulatory Board (WASREB). There is poor quality and inadequate

water supply in Nairobi. Only 40% of those with home connections receive water continuously. (Nairobi County Integrated Development Plan, 2018)

Recommendation for Nairobi County

5.8 Conclusion

Protection of Athi river catchment area project is an important establishment in conservation of water resources and ecosystems management. Sustainable and well-managed water supplies are therefore essential to achieving access to water for all, and for ensuring the maintenance of water in the interests of ecological balance and the needs of future generations.

5.9 Recommendations

- Invest in sustainable access to adequate and clean water for domestic use and commercial purposes through gender sensitive approaches.
- Invest in modern agri-business technologies that recognize and develop further the unique individual and corporate resources of men and women.
- Ensure expansion of water supply sources to keep pace with ever growing population needs of women and men with similar consideration of girls and boys.
- Embrace gender affirmative representation while strengthening water governance sector to ensure reduction of water losses by use of metered zoning system under monitored mandate of the Nairobi City County Water Company Services and other accredited agencies. .
- Strengthen Water policies and focus on the management of water and not just the provision of water
- Strengthen the agency of women and human rights consciousness of men to remedy gender and social norms and practices.
- Embrace risk informed livelihood projects that appreciate the unique vulnerabilities and coping capacities of men and women.
- Research and surveillance to monitor and document the differential impact of climatic risks on men and women.

6.0 Glossary of terms

Gender: refers to the roles, behaviors, activities, and attributes that a given society at a given time considers appropriate for men and women. In addition to the social attributes and opportunities associated with being male and female and the relationships between women and men and girls and boys, gender also refers to the relations between women and those between men. These attributes, opportunities and relationships are socially constructed and are learned through socialization processes. They are context/ time-specific and changeable. Gender determines what is expected, allowed and valued in a woman or a man in a given context.

Gender analysis: is a critical examination of how differences in gender roles, activities, needs, opportunities and rights/entitlements affect men, women, girls and boys in certain situation or contexts. Gender analysis examines the relationships between females and males and their access to and control of resources and the constraints they face relative to each other. A gender analysis should be integrated into all sector assessments or situational analyses to ensure that gender-based injustices and inequalities are not exacerbated by interventions, and that where possible, greater equality and justice in gender relations are promoted.

Gender Equality: This refers to the equal rights, responsibilities and opportunities of women and men and girls and boys. Equality does not mean that women and men will become the same but that women's and men's rights, responsibilities and opportunities will not depend on whether they are born male or female. Gender equality implies that the interests, needs and priorities of both women and men are taken into consideration, recognizing the diversity of different groups of women and men.

Gender mainstreaming refers to a strategy for implementing greater equality for women and girls in relation to men and boys.

Mainstreaming a gender perspective is the process of assessing the implications for women and men of any planned action, including legislation, policies or programs, in all areas and at all levels. It is a way to make women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programs in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality.

Gender roles: These often determine the traditional responsibilities and tasks assigned to men, women, boys and girls (see gender division of labor). Gender-specific roles are often conditioned by household structure, access to resources, specific impacts of the global economy, occurrence of conflict or disaster, and other locally relevant factors such

as ecological conditions. Like gender itself, gender roles can evolve over time, in particular through the empowerment of women and transformation of masculinities.

Gender-responsive budgeting or GRB: is a method of determining the extent to which government expenditure has detracted from or come nearer to the goal of gender equality. A gender-responsive budget is not a separate budget for women, but rather a tool that analyzes budget allocations, public spending and taxation from a gender perspective and can be subsequently used to advocate for reallocation of budget line items to better respond to women's priorities as well as men's, making them, as the name suggests, gender-responsive.

Gender disaggregated data: refers to any data on individuals broken down by sex. Gender statistics rely on these sex-disaggregated data and reflect the realities of the lives of women and men and policy issues relating to gender. Data collected and tabulated separately for women and men. They

allow for the measurement of differences between women and men on various social and economic dimensions and are one of the requirements in obtaining gender statistics.

Gender action plan: A Gender Action Plan (GAP) is a key gender mainstreaming tool and mechanism for ensuring gender-inclusive design and implementation of projects. Gender Action Plan (GAP) forms the basis for operationalizing the results and recommendations of the gender analysis. It contains specific gender elements to be considered in the project design and during the implementation of project measures and activities. Moreover, it helps to monitor implementation of these measures and activities. The existing institutional capacities on Gender of the executing entities will oversee the implementation of the gender action plan during the project cycle. NEMA has an existing gender policy that will further inform the implementation of the gender action plan.

Source: (<https://trainingcentre.unwomen.org/mod/glossary/view.php?id=36>)

ANNEXURE I GENDER ACTION PLAN FOR ENHANCING THE RESILIENCE OF COMMUNITIES AND ECOSYSTEMS IN THE ATHI RIVER CATCHMENT AREA

Output	Gender responsive actions	Performance indicator	Time frame (Financial Year)					Responsible
Component 1: Enhanced capacity of Government institutions to manage water resources			1	2	3	4	5	
1.1 Establishment of National Information Center for Integrated Water Resource Management	Constitute a gender inclusive committee to gather and disseminate relevant, accurate and timely climate information from local water catchment communities and county governments.	51% of women and 49% men involved in information gathering, design stages and communication strategies of the project development.						NEMA, KMD WRA
	Target men and women in the development of Early Warning systems that determine climate-driven vulnerabilities and effective adaptation options	51% of women and 49% men imparted with climate information on early warning systems and other risk reduction measures through strengthened engendered participation in setup of the systems.						NEMA, KMD
	Develop an integrated database for weather and water resources-related information by ensuring that men and women receive seasonal forecast in a timely manner.	51% of women and 49 men receive real time seasonal weather forecast information for collective and gender-specific adaptive mechanisms.						NEMA, KMD WRA
1.2 Establishment of modernized hydro-meteorological observation, monitoring, and testing systems and related networks	Coordinate with gender focal points of relevant ministries and institutions during the Installation and rehabilitation of surface hydro-meteorological monitoring and network systems.	50% of gender focal points engaged during the rehabilitation and installation of surface hydro-meteorological monitoring and network systems showing disaggregated information on the projected percentage level of women						NEMA, KMD WRA.

		and men's access to and utilization of the network systems.						
1.3 Training and capacity building programs	Enhance an understanding on the link between gender and efficient water management for water sector professionals. Promote gender balanced staffing during the technical training on operation of monitoring and information systems	51% of female and 49% male government staffs trained on water sector and resources management through efficient operation of monitoring and information systems.						NEMA, WRUAs, CECs, County Adaptation Committees, CBOs.
Component 2. improving and rehabilitating prioritized water infrastructure								
2.1 Develop and upgrade water sources and infrastructure for domestic and commercial use	Ensure constructive participation and consideration of women's employment needs in the rehabilitation and construction of water storage and supply infrastructure in the community.	Improved level of access by women to employment opportunities created by the project through rehabilitation and construction of water storage and supply infrastructure.						NEMA, National & County Govt
	Engage in consultative discussions with men and women on the rehabilitation process at every stage, with specific interventional considerations to issues affecting women as the more vulnerable gender, e.g. access to water points should be reviewed prior to rehabilitation/new construction of water points.	At least 51% of women benefiting from improved access to safe and reliable water for domestic and commercial use with reduction in distances covered to water collection points towards enabling reduced water charges.						NEMA, National & County Govt

	Ensure women have equal and equitable access to employment opportunities generated by new civil works during the rehabilitation of water conservation structures.	Increased number of women employed within the new civil works for improved livelihoods.						NEMA, National & County Govt
2.1 Support conservation of water catchment areas	Ensure public awareness and inclusive participation of men and women in the water catchment protection and management processes.	Improved awareness level and participation of women and men in the conservation of water catchment areas. Increased number of tree nurseries established and number of trees planted by women						NEMA, National & County Govt WRUAs CECs
Component 3. Strengthen institutional and regulatory framework.								
3.1 compliance of water regulations within the project area	Ensure that policies, institutions, coordination mechanisms and regulatory frameworks are gender sensitive and responsive through inclusive and active participation of women. Review and consider existing legal and regulatory frameworks in the water sector on their gender-sensitive and responsiveness on water management status to instigate policy geared enforcements and repealing.	More gender-friendly policies, institutions, coordination mechanisms and regulatory frameworks put in place and effectively implemented to enhance climate resilience capacity of the locals, more affirmatively for women. Improved compliance and adjustment level by existing water quality regulations, policies and laws to the gender responsive needs of women and men.						NEMA, National & County Govt

3.2 Development of County Environment Action Plans (CEAPs) for water catchment conservation as an adaptive action	Ensure maximum participation of women in the development of County Environment Action Plans (CEAPs) for water catchment conservation.	At least 51% of women involved in all the entire development process of CEAPs					NEMA, County Govt.
3.3 Development, review and implementation of sub-catchment management plan	Ensure maximum engagement and active participation of men and women in the development, review and implementation of sub-catchment management plans (SCMPs)	At least 51% of women and 49% men involved in the development, review and implementation of sub-catchment management plans.					NEMA, County Govt.

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