DISTRICT CLIMATE CHANGE ACTION PLAN (DCCAP)

2023 - 2030

BUIKWE DISTRICT

Acknowledgement

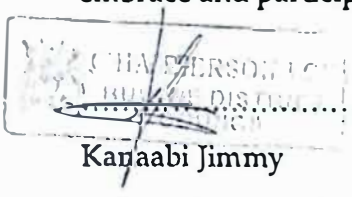
Following the approval of the National Climate Change Act 2021 and the submission of Uganda's Updated Nationally Determined Contribution (NDC) in September 2022 to the United Nations Framework Convention on Climate Change (UNFCCC), and bearing in mind that climate change adaptation is the district's number one priority and is area-specific, the district, with financial support from the Iceland Embassy in Kampala in September 2022 embarked on the formulation process of her Climate Change Action Plan, here referred to as the District Climate Change Action Plan (DCCAP). The Action Plan took a whole-of-society approach, involving both government and Non-Government Organisations in its entire formulation processes.

The choices presented in this DCCAP were informed by detailed scientific and social studies that involved communities and used blended data sets from local, national, and global sources and were validated to inform actions for, adaptation, mitigation and capacity building.

On behalf of the district technical segment, I wish to take this opportunity to thank the Embassy for the technical and financial support, the district political leadership, and the local communities for their collaboration during data and information gathering that informed adaptation, mitigation, capacity building, and gender and climate change actions.

I wish to express my gratitude to the district technical teams for the guidance, validation, and quality assurance, the Civil Society Organizations (NGOs) and Private Sector that participated in the process of the DCCAP formulation, the national level agencies for the provision of data, such as the Uganda National Meteorological Authority (UNMA), the National Forestry Authority (NFA), the National Environment Management Authority (NEMA), the Uganda Bureau of Statistics (UBOS), and the National Water and Sewerage Cooperation, and to the Town Councils And Municipalities.

Finally, I congratulate the task team for having accomplished the assignment through collaboration, and I invite all partners and stakeholders to enthusiastically embrace and participate in the implementation of this DCCAP.



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Kamaabi Jimmy

Chief Administrative Officer Buikwe District

Foreword

In fulfilment of the National Climate Change Act 2021, Part II, Section 8, which demands all government agencies and local governments to develop climate change action plans, I hereby communicate and forward to the Minister responsible for climate change the Buikwe District Climate Change Action Plan (DCCAP) 2023-2030. The plan contains the district's priority actions for adaptation and mitigation, as well as capacity needs for strengthening institutional and human capacities and knowledge for addressing climate change causes, risks, and impact minimization in the district.

The plan is well aligned with the updated Nationally Determined Contribution (NDC) by action and time-frame, and it involved a number of key stakeholders during its formulation.

With financial resources available, the district intends to reduce climate risks and build resilience in crop agriculture, entomology, livestock, fisheries, health, forestry, wetlands, biodiversity and ecosystems, trade and commerce, education, community development, and disaster risk reduction and management; and reducing emissions and improving carbon storage and sinks in the sectors of agriculture, forestry, wetlands, energy for cooking, and industry.

The financial resources to implement this plan are therefore envisaged to come from the central government's support, local government revenues, development partners, the private sector, national and local non-governmental organizations, and faith-based institutions. I call upon partners for both financial and technical support towards the realization of this plan.

Finally, I take this opportunity to thank the Iceland government for the generous financial support towards the formulation of this plan. The plan's focus is to promote climate change adaptation and resilience, enhance local mitigation efforts, and strengthen the management of climate change through institutional and human technical capacities at all levels.

On behalf of people of Buikwe District Local Government.

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Mulondo Robert
Buikwe District CAO

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Acronyms

AFOLU	Agriculture, Forestry, and Other Land Us
BAU	Business As Usual
CDRS	Climate and Disaster Risk Screening
CH4	Methane
CNA	Capacity Needs Assessment
CO2	Carbon dioxide
CRVA	Climate Risk and Vulnerability Assessment
DCCAP	District Climate Change Action Plan
DDP	District Development Plan
DJF	December, January, February
DP	Development Partners
ENR	Environment and Natural Resources
eq	Equivalent
FY	Financial Year
Gg	Giga gramme
GHG	Greenhouse Gas
GIS	Geographical Information Systems
Ha	Hectare
HRV	Hazard Risk and Vulnerability
JJA	June, July, August
MAM	March, April, May
MCA	Multi Criteria Analysis
MRV	Measuring Reporting and Verification
NDC	Nationally Determined Contribution
NGO	Non-Government Organization
N2O	Nitrous Oxide
PWDs	Persons With Disabilities

RCP	Representative Concentration Pathway
SON	September, October, November
TC	Town Council
UBOS	Uganda Bureau of Statistics
UNDRR	United Nation Disaster Risk Reduction
UNFCCC	United Nations Framework Convention on Climate Change
UNRA	Uganda National Roads Authority

Definition of Key Terms

Climate Hazard: A physical process or event (hydro-meteorological or oceanographic variables or phenomena) that can harm human health, livelihoods, or natural resources (OPM, 2019; World Bank, 2020).

Climate risk refers to the potential for adverse consequences for human or ecological systems that can arise from the impacts of climate change, as well as the human response to climate change (IPCC, 2020).

Climate impacts refers to effects on lives, livelihoods, health, ecosystems, economies, societies, cultures, services, and infrastructure due to the interaction of climate change or hazardous climate events occurring within a specific time period with the vulnerability of an exposed society or system (Oppenheimer et al, 2014).

Resilience: The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management (UNDRR, 2014).

Climate change adaptation: The process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities (IPCC, 2012).

Climate change mitigation: Measures/actions to limit climate change by reducing emissions of greenhouse gases or removing those gases from the atmosphere.

Greenhouse gases (also known as GHGs) are gases in the earth's atmosphere that trap heat. The primary greenhouse gases in Earth's atmosphere are water vapor, carbon dioxide, methane, nitrous oxide, and ozone.

Executive Summary

This District Climate Change Action Plan (DCCAP) was formulated with generous financial and technical assistance by the Embassy of Iceland in Kampala in fulfilment of Part II of the National Climate Change Act 2021 (Climate Change Response Measures), Section 8, which requires all agencies and local governments in Uganda to develop Climate Change Action Plan within one year after the development of the National Climate Change Action Plan (now the Updated NDC 2021–2030).

Five detailed analytical assessments conducted as part of the DCCAP formulation process informed the DCCAP choices for adaptation, mitigation, and cross-cutting issues. These include district climate analysis (observed and projected temperatures and rainfall); climate risk and vulnerability assessment, which informed risks, vulnerabilities, and the choice of adaptation in the DCCAP; mitigation assessment, which highlighted emissions inventories and informed the choice of mitigation actions and measures in the DCCAP; capacity needs assessment; and gender and climate change assessment, which informed part of the delivery mechanisms. All options were validated during key stakeholder consultations.

The DCCAP has four components, centered on three pillars: adaptation, mitigation, and delivery mechanisms.

Component 1 highlights a brief introduction and background on information on geography (location and size, topography, and soils) and highlights of the district profile with key sectoral statistics and information on forestry, wetlands, water resources, demography, education, health, energy, transport, and the poverty index, and highlights the purpose, vision *(A sustainable, transformative climate resilient and low carbon Plan for Buikwe District),* and the goal *(Enhanced district climate change management for inclusive socio-economic development)*

Component 2 on adaptation covers specific areas, such as district climate analysis from 1990 to 2050 (observed and projected). The analysis concluded that the district temperature observed is 22.6 °C and is projected to increase to 23.8 °C for RCP4.5 and 24 °C for RCP8.5, a difference of approximately 0.8°C–1.5°C for RCP4.5 and 1.1 °C–1.8 °C for RCP8.5. The northern and north-eastern parts of the district are expected to have slightly higher temperatures. The observed annual mean rainfall for the district for the climate period 1991–2020 is 1530.3 mm, and the projected mean annual rainfall under RCP4.5 is 1,186.3 mm and 1,081.0 mm for RCP8.5. In the climate period 2021-2050, rainfall amounts are expected to decrease by 22.5% under RCP4.5 and 29.4% under RCP8.5.

The district experiences four major climate hazards: floods, droughts, strong winds, and hailstorms. (Buikwe District CRVA_2023), flash floods are primarily caused by heavy rainfall; drought is caused by a temperature rise associated with longer days of less than 1 mm of rainfall; and hailstorms are caused by weather extremes and strong winds felt primarily along the lake and river shoreline during the rainy season. Overall, drought is the most common climate change hazard, affecting most sectors and accounting for several risks and vulnerabilities, primarily in agriculture (crops, livestock, and fisheries) and the environment. Floods usually affect road infrastructure, health, and education, and strong winds commonly affect fishing communities. Hailstorms, though less common, are increasing in frequency and intensity over time, causing crop damage and livestock deaths.

The DCCAP presents 12 priority adaptation sectors: crop agriculture, entomology, livestock, fisheries, environment, and natural resources (forestry, wetlands, biodiversity, and ecosystems); water; health; works and transport; energy; trade, industry, and commerce; education; and disaster risk reduction and management. It also possesses 85 strategic adaptation and resilience actions and 113 indicators to be implemented by the district by 2030.

Component 3 on mitigation provides estimates of greenhouse gas (GHG) emissions in the Agriculture, Forestry, and Other Land Use (AFOLU) and waste sectors. Carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O) are the three primary GHGs. The district's GHG emission trends for both the AFOLU and waste sectors have risen over time, from 563 Gg CO2 eq in 2015 to 570 Gg CO2 eq in 2021.

The AFOLU sector accounts for the bulk of the emissions, of about 97% of the total emissions in 2015, and wastes only 3%. By 2021, the AFOLU sector accounted for 95% of emissions while waste accounted for 5% of the total emissions, an indication of an increase in emissions in the waste sector and a slight reduction in AFOLU sector emissions by percentage.

District emissions in the two sectors under BAU are projected to rise to 582.4 Gg CO2 eq in 2030 from 570.7 Gg CO eq in 2021. Emissions from the waste sector are estimated to rise from 29.44 Gg CO2 eq in 2021 to 45.51 Gg CO2 eq in 2030. AFOLU emissions are predicted to reduce from 541.22 Gg CO2 eq of 2021 to 536.92 Gg CO2 eq in 2030, but only if the current conservation and tree planting efforts are maintained (Buikwe District Mitigation Assessment Report 2023). This plan comprises four mitigation sectors (AFOLU, waste, energy, and IPPU), 13 strategic mitigation actions, and 31 mitigation measures across all mitigation sectors, including GHG and non-GHG measures.

Component 4 on Delivery Mechanisms. The policy and legal framework to guide the implementation of climate initiatives at the district level is insufficient, with limited institutional capabilities to support the coordination and management of climate actions, monitoring, reporting, and assessing climate hazards, risks, actions, and mitigation measures (Buikwe CNA Reports 2023).

The district gender and climate change analysis report 2023 revealed disparities in climate change causes and impacts by different gender categories (men, women, persons with disabilities (PWD), youth, the elderly, and children), and the conclusion indicated that though all gender categories are affected by climate change, men and youth activities contribute more to climate change causes while women, children, PWD, and the elderly are impacted more by climate change.

Actions to strengthen climate change policy, the legal and institutional framework at the district level, as well as individual and community knowledge and capacity to respond to climate change, including gender-specific affirmative climate change actions, are crucial.

To implement this DCCAP, the district requires an estimated sum of Uganda shillings 106.4 billion (equivalent to $ 28.7 million) for the period 2023–2030, with adaptation taking 89%, mitigation at 6%, and delivery mechanisms at 5%. The District Environment and Natural Resources Committee and the District Natural Resources Department have the responsibility of spearheading the coordination and implementation of climate change actions as laid out in this DCCAP and as provided for under the National Climate Change Act of 2021.

COMPONENT 1: INTRODUCTION

This component provides information regarding the assignment background and introduction, a summary of the district profile in terms of geography, climate, social, and economic trends, the purpose of the District Climate Action Plan (DCCAP), the legal and policy framework, a description of how the DCCAP's goals and pillars are interconnected, as well as the methodology and approaches that were used in the formulation of the DCCAP.

1.1 Introduction and Background

The Embassy of Iceland in Kampala has provided financial and technical assistance to the government of Uganda, specifically Buikwe District Local Government, in developing her District Climate Change Action Plan (DCCAP) as a means of meeting the district's obligation under Section II, Paragraph 8 of the National Climate Change Act 2021.

1.2 District Profile

Location and size

Buikwe District is located in central Uganda, bordering the districts of Jinja to the East, Kayunga to the North along the Sezibwa River, Mukono to the West, and Buvuma in Lake Victoria.

The District has a total area of about 1209 (Ref DDP III) Square Kilometres consisting of one (1) county (Buikwe), four (4) rural sub-counties (Buikwe, Najja, Ngogwe, and Ssi-Bukunja), three (3) town councils (Buikwe, Kiyindi, and Nkokonjeru), and two (2) municipalities (Njeru and Lugazi). There are 67 parishes and 478 (Ref DDP III) village councils under these lower local governments.

Topography

The northern part of the district is flat, but the southern region consists of sloping land with many undulations; 75% of the land is less than 60° in slope, and most parts of the district lie on high plateaus (1000–1300 m) above sea level, except areas along the River Sezibwa, which are below 760 m. The Southern Buikwe plateau (1220–2440 m) is drained by the rivers Sezibwa and Musamya. (DDPIII 2020/21 – 2024/25).

Soils

The district is comprised of two types of soils: ferralitic soils and ferrisols, which are distributed across several sub-counties. Buganda catena is commonly found in Najjembe, Kawolo, and Lugazi; Kyebe catena in Ngogwe, Nyenga, Njeru, and Buikwe;

Kifu series in Buikwe, Nyenga, Najjembe, Wakisi, and Kawolo; and Sango series in Buikwe, Najja, Ssi, and Nkokonjeru. (Buikwe Third DDPIII 2020/21 – 2024/25)

Forest

The district has both privately owned forests on private land and government-controlled forests in central forest reserves. Savannah mosaic forest cover dominates, with patches of dense forest in the south and scattered trees in shrubs and grasslands in the north. The total forest cover for the district is 18,347 ha. Of these, natural forests cover 1,980 ha, plantations 12,110 ha, central forest reserves 3,209 ha, local forest reserves 0 ha, and private forest reserves 1,048 ha. However, forestry resources have been deteriorating in quality and quantity due to increased unsustainable human activities. There is massive deforestation, particularly on privately owned land where most of the district's forestry resources are found (District Development Plan II: FYs 2015/2016 - 2019/2020).

Wetlands

The wetland vegetation in Buikwe district is comprised of typha, miscanthus, hyparrhenia species, some cyperaceous and creepers, mostly convolvulaceae. Swamp forest tree species such as pseudospondiasmicrocarpa, mitrogyra species, tarbementana, ficusspp, brideliamicrautha and phoenix reclinata shrub vegetation include some edible plants such as psidium guava and afromoniumaugustifolium. These several species are utilised by the local communities for human and livestock food, fuel, building materials, medicines, and raw materials, especially for crafts (Buikwe District Economic Profile; DDPIII 2020/21 – 2024/25).

The district is also endowed with natural water bodies, e.g., Lake Victoria, the River Nile, and wetlands, for fisheries production and irrigation purposes.

Statistical trends have shown a 13% increment in wetland coverage from 2,095.02 ha in 2015 to 2,358.18 ha in 2020, although more management is needed due to the increasing demand for land for agriculture and industrial expansion in the district (Spatial district land use cover statistics).

Water

The access rates in Buikwe vary from 62 % in Nyenga Sub-County to 95 % in Buikwe Sub-County. Buikwe has 1,561 domestic water points which serve a total of 316,432 people – 259,465 in rural areas. 85 water points have been non-functional for over 5 years and are considered abandoned. Buikwe has 12 piped schemes. (Water Supply Atlas 2022).

Total Access to safe water stood at 63 % with Rural Access at 76 % and Urban Access 36 %. Buikwe, Buikwe TC, Ngogwe and Nkokonjeru TC all stood at 95 %, Najjembe 84 %, Ssi Bukunja 81 %, Najja 79 %, Wakisi 70 %, Kawolo and Nyenga at 62% while Lugazi and Njeru TCs are served under National Water & Sewerage Corporation (NWSC) (Water Supply Atlas 2022).

The functionality of Point Water Sources is generally higher in all sub counties of Rural and urban all at 95% as of November 2022(Water Supply Atlas 2022). Majority of the population in the district is served by protected springs at 56%, deep boreholes at 20%, shallow wells at 19%, public taps at 5% and rainwater harvesting tanks serving the least.

Demography

In 2014, the district's total population was 422,771 people, with a population growth rate of 2.1, as compared to the 2002 and 1991 national population censuses, which had 312,818 and 231,488 persons, respectively. (UBOS Population and Housing Census, 2014)

The 2020 UBOS Statistical Abstract estimated the district's total population at 467,900 people. Of these, 231,300 are male and 236,600 females, with a population growth rate of 2.33%, which is 0.7% less than the national average of 3.03%.

The 2022 UBOS Statistical Population Abstract estimated the district population at 491,400 people, of which, 366,900 persons were estimated to live in urban areas and 124,500 were estimated to live in rural areas.

Education

The District's population structure is comprised of a younger population: 56.8% of the 148,698 people are below the age of 17 years. 27,503 aged 6-12 years attend primary school. 8,273 students aged between 13–18 years attend secondary school. (Buikwe DDP III, 2022). The education sector is supported by development partners, including Caritas Lugazi, Educate Uganda, HIA, Master Card Foundation, International Needs Network, ISER, Iceland Embassy, USHA, and World Vision-Buikwe Cluster. Most of the actors deal directly with schools through infrastructural development, improving school hygiene and sanitation, skills training, and the provision of textbooks. In addition, the district has private actors who supplement student enrollment and retention in schools.

The quality of education remains poor, as evidenced by low literacy rates, particularly in the sub-counties with landing sites at Najja, Nyenga, Wakisi, and Ngogwe; Kiyindi TC.

Strong winds and flash floods usually experienced on the onset of heavy rains result in destruction of school infrastructure, blowing off roofs, and destruction of roads, making it difficult for some pupils to turn up to school for classes. Prolonged droughts cause school dropouts and absenteeism in most sub-counties, owing to competing needs of going to school or children first having to walk longer distances to fetch water for home use, resulting in class delays and absenteeism. Also, during drought periods, some homes do not have enough food to feed their families, leading to absenteeism on some days when children are hungry.

Health

The district health sector is endowed with a well-streamlined supply chain for the public and private sector health facilities, with a total number of 65 health facilities categories as follows: 5 hospitals (1 public, 3 Private Not-For-Profits (PNFP), and 1 Private For-Profit (PFP) hospitals), 14 Health Centres III (10 public, 4 PNFP), and 46 Health Centres II (17 public, 6 PNFP, and 23 PFP). This has eased access to health services in many sub-counties and the availability of national water is critical for human health. The development partner's support help to bridge the district's health service delivery gap.

Access to health services is, however, limited in some areas, and sanitation issues are especially prevalent at landing sites and in rural areas. For instance, Kiyindi and Senyi landing sites were described as flood-prone during every rainy season due to lake water level rise leading to poor sanitary conditions as latrines get flooded with water, resulting in poor hygiene and disease outbreaks (District HRV, 2016).

In Njeru Town Council, flash floods experienced in 2020 affected the health sector, and health centres were destroyed, including Njeru Health Centre III and Buikwe Health centre III. Drugs and several properties worth millions of shillings were destroyed as floods entered medical stores. The maternity ward, outpatient department, and laboratory were also destroyed, leaving over 30 villages in Njeru Municipality, Najjembe, Makindu, Bukunja, Buikwe T/C, and Lugazi without access to health care. (Monitor, 2020).

Energy

The energy sector in Buikwe district is dominated by biomass use. Over 70% of the household, institutional, and industrial energy demand and consumption in the district is from biomass, mainly in form of firewood and charcoal, yet it is used inefficiently. Over 96% of rural populations use firewood, while 50% of urban residents use charcoal

as their primary source of energy for cooking. The use of other improved sources of energy, such as gas, biogas, and briquettes, is still insignificant. About 30% of the households in the district depend on kerosene for lighting. Hydroelectricity usage is common in industries and mostly in domestic urban centres. Other petroleum products like kerosene, diesel, and petrol are mostly used as energy sources in the transport sector. (Buikwe DDP III, 2022).

The district is home to the Kiira power station, Owen Falls Dam, and Bujagali Power Generation, all of which contribute to the equitable distribution of electricity to urban and rural growth centres. Solar energy adoption and utilisation are especially high in the district's rural areas. Nonetheless, the high reliance on biomass for energy strains forest and shrubland resources, resulting in deforestation and the associated climate change experiences. Floods and storms have damaged transmission and distribution lines, causing blackouts in some areas and high repair costs. Prolonged droughts also have an impact on water availability and river flow, threatening potential energy generation not only in Buikwe as a district but throughout the country.

Transport

The District is Partly served by tarmac roads such as the Kampala-Jinja Highway, Njeru-Kayunga, and Kyetume-Katosi-Nyenga roads, which are all managed by the central government, specifically UNRA, and have a total length of 175.7 kilometres (km) of the classified road network, 255 km of District-managed roads, 394 km of Community Rural Access roads managed by Sub-counties, and 989.61 km of Urban roads managed by the Municipalities and Town Councils, and several private roads under the management of Plantations like SCOUL and Kasuku Tea Corporation. (Buikwe DDP III, 2022).

The District is open to 52 landing sites for water transport and fishing activities on a large shoreline on Lake Victoria. Kiyindi landing site is served by two ferries that connect the district to the Buvuma Islands. Climate change has reportedly been affecting the transportation sector, both in terms of service and infrastructure. The District has high road traffic, and with the subsequent heavy rains, the Unpaved road network is rapidly deteriorating, small Culvert bridges are damaged, and destruction of some sections occurs while windstorms frequently cause the capsizing of boats on the lake.

1.3 Purpose of the District Climate Change Action Plan

This District Climate Change Action Plan (DCCAP) identifies implementable gender-responsive adaptation and mitigation measures and strategies, awareness-raising, and

capacity-building actions across sectors and for different stakeholders to effectively strengthen district-level management of climate change risks and hazards affecting local communities' livelihoods, infrastructure, and ecosystems.

1.4 Policy and Legal Framework.

Uganda is currently implementing her third National Development Plan (NDPIII) up to 2025 to attain her overall 2040 visionary goal of "A Transformed Ugandan Society from a Peasant to a Modern and Prosperous Country." The five-year National Development Plan as well as the country's Vision 2040 already recognise that addressing the challenges of climate change is key to enhancing sustainable economic and social development. NDPIII is very focused on addressing climate change through it Program 9 on; Natural Resources, Environment, Climate Change, Lands and Water Management, which seeks to mainstream climate change across all ministries, departments, agencies, and local governments.

The National Climate Change Policy of 2015 provides an overarching objective for managing climate change in Uganda. The policy aims to ensure that all stakeholders address the impacts of climate change and their causes through appropriate measures while promoting sustainable development and a green economy. The policy especially calls for the mainstreaming of climate change concerns in the relevant sectoral, national, and local policies, plans, and budgets.

On August 14th, 2021, his excellence, the President of the Republic of Uganda, signed the National Climate Change Act of 2021. Part II of the Act on National Climate Change Response Measures provides for the formulation of the National Framework Strategy on Climate Change, the National Climate Change Action Plan, the Lead Agency Climate Change Action Plan, and the District Climate Change Action Plan (DCCAP).

Specifically, the Act requires each district in Uganda to develop a District Climate Change Action Plan (DCCAP) within one year after the development of the National Climate Change Action Plan (now the Updated Nationally Determined Contribution 2022–2030). The DCCAP must also be consistent with the Framework Strategy on Climate Change and the National Climate Change Action Plan, according to the Act.

Part II, paragraph 8 of the Act, further specifies what DCCAP should comprise, including an assessment of the current and predicted impact of climate change on the district jurisdiction, vulnerability impacts, and risks; strategies, policies, and actions for adaptation to and mitigation of climate change; identification of actions to be undertaken by the district for resilience; and strategies for district staff and other stakeholders for building capacity on climate change.

1.5 DCCAP Vision, Goal and Pillars 2023-2030

The DCCAP is structured on a vision, goal and three pillars (Adaptation, Mitigation and Delivery Mechanism);

Vision

A Sustainable, Transformative Climate Resilient and Low Carbon Plan for Buikwe District.

Goal

Enhanced District Climate Change Management for Inclusive Socio-Economic Development.

Pillars

The DCCAP identifies three (3) strategic pillars to achieve the vision and goal, and for each pillar, several actions and measures are required for implementation, as elaborated in components 2, 3, and 4 on adaptation, mitigation, and delivery mechanisms, respectively.

Illustration of the linkage between Vision, Goal and Pillars

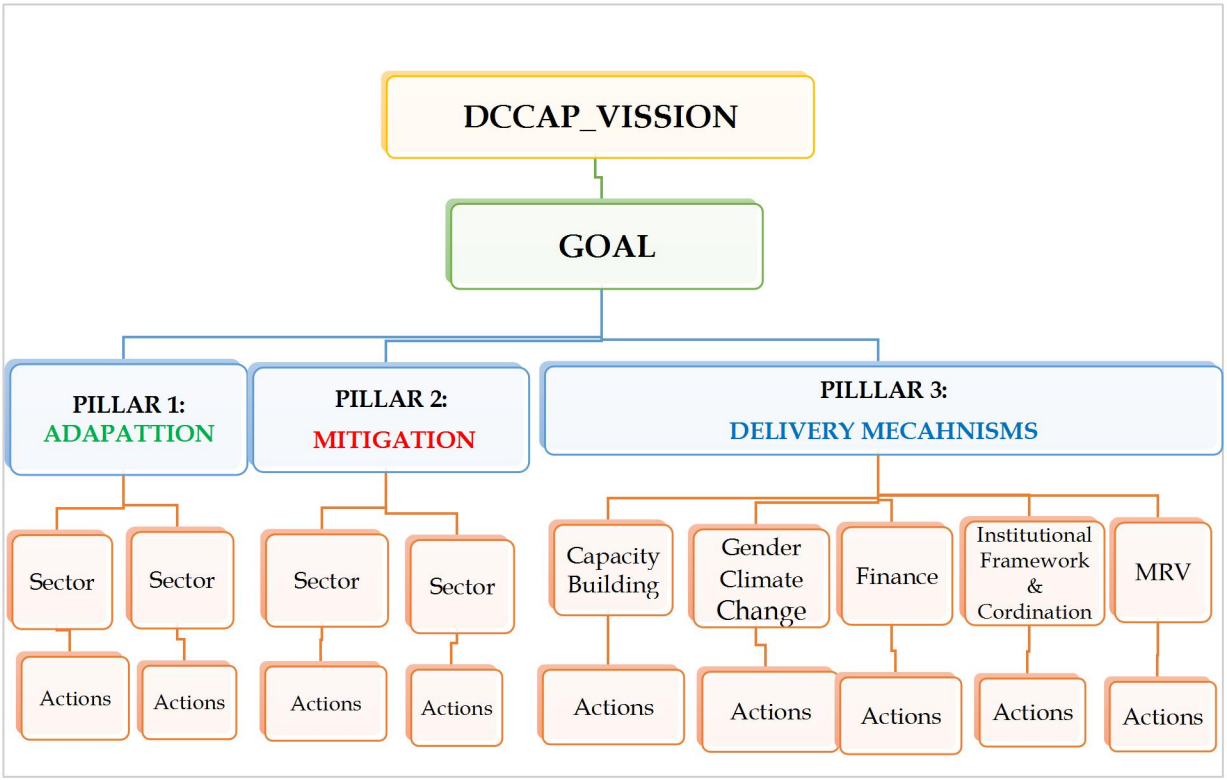

Figure 1-1: Illustration of the linkage between vision, goal and pillars

Pillar 1: Adaptation. This pillar aims to reduce the risks, impacts, and vulnerabilities of people, livelihoods, physical assets, and natural systems to the adverse effects of climate change across key vulnerable sectors, including agriculture, fisheries, water resources, health, transport, education, and natural resources, as well as on general infrastructure, among others.

Pillar 2: Mitigation. This pillar aims identifies actions and measures for reducing greenhouse gas (GHG) emissions and or increasing management and mainstainace of the available carbon sinks in the district.

Pillar 3: Delivery Mechanisms. The pillar identifies the required means of implementation of the DCCAP. Specifically, the pillar identifies the required capacity needs and gaps to be addressed for the implementation of the DCCAP at the policy, legal, institutional, and individual levels; the gendered climate change actions and strategies; the required financial resource estimates; and the institutional framework for the implementation of the DCCAP and Measuring Reporting and Verification (MRV).

1.6 Methodology and Approach

Several detailed analytical assessments were conducted to provide scientific, social, and economic evidence that guided different choices of adaptation, mitigation, capacity

building, and awareness and informed the gender-responsive climate actions and interventions presented in this DCCAP across all its components.

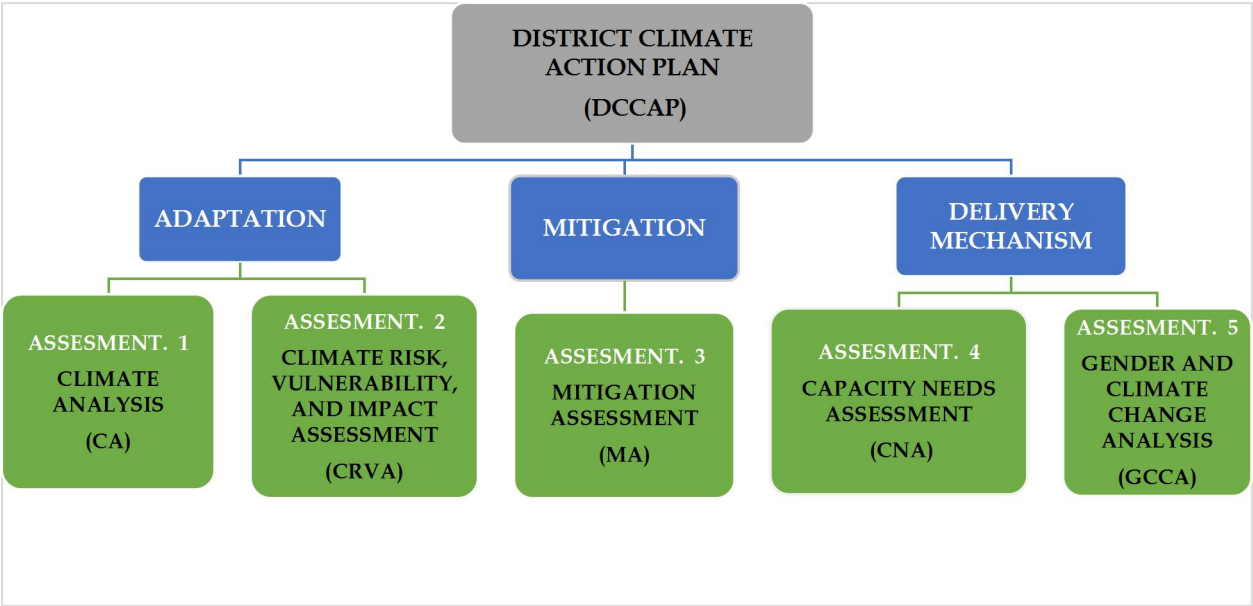

Figure 1-2: DCCAP Architecture

Assessment 1; on climate analysis focused on rainfall and temperature trends and variability (inter-annual and inter-seasonal) and produced both statistical and spatial analysis for present (1991-2020) and future (2021-2050) climates.

Assessment 2; focused on the analysis of climate hazards, risks, impacts, and vulnerability across the district and in sectors, the identification of adaptation and resilient measures and action priorities, and the estimate costing of adaptation options using a Multicriteria Analysis (MCA). Assessments 1 and 2 informed the DCCAP component of adaptation.

Assessment 3; on mitigation focused on the analysis of greenhouse gas (GHG) emissions by source and removal by sinks in three sectors: Agriculture, Forestry, and other Land Use (AFOLU), Waste, and Energy. The GHG categories covered under the mitigation assessment sectors are carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O). The assessment identified appropriate mitigation measures, strategy priorities, and estimate costs using a Multicriteria Analysis (MCA). This assessment informed the mitigation component of the DCCAP.

Assessment 4; on Capacity Needs (CNA) was conducted using a 3-dimensional approach of the enabling environment (policies, laws, and strategies), the institutional framework and tools, and individual capabilities. This assessment identified the

capacity gaps and needs in all three dimensions required to be addressed to effectively manage climate change, together with their costs.

Assessment 5; on gender and climate change analysis was generally conducted, focusing on both men and women, youth, and people with disabilities; an analysis of the root causes of gender inequality in the context of climate change at the community and institutional levels; and the design of gender-responsive strategies responding to the needs and interests of women and men to enhance the effectiveness of adaptation and mitigation. Both assessments 4 and 5 results informed the delivery mechanism component of the DCCAP.

Stakeholder Engagement. For purposes of ownership of the DCCAP, several relevant stakeholders were involved either in both data collections at the community, district, and national levels or in the consultation and validation processes of the DCCAP's detailed analytical assessments and its various formulation and validation processes. Key stakeholders involved were district technical staff, district political staff, sub-county political and technical staff, civil society organisations, the private sector, communities, and development partners, among others.

COMPONENT 2: ADAPTATION

This chapter entails a summary of the district climate analysis from 1990 to 2050, both observed and projected, and presents the significant climate hazards, risks, and vulnerabilities and their sectoral impacts, as well as priority sectoral climate change adaptation and resilient actions.

2.1 Climate Analysis for Buikwe District (1990 - 2050)

This section is informed by the District Climate Analysis Report 2023 for the climate periods 1991–2020 (observed) and 2021–2050 (projected) for both temperature and rainfall.

The observed annual mean temperature for the climatological period 1991–2020 is 22.6 °C. The northern and central parts of the district are slightly warmer, with a temperature range of between 22.5°C - 23.1°C, as opposed to the southern (Ssi-Bukunja) and central parts of Nyenga, whose temperature ranged between 22.1°C - 22.3°C. (Buikwe Climate Analysis Report 2023).

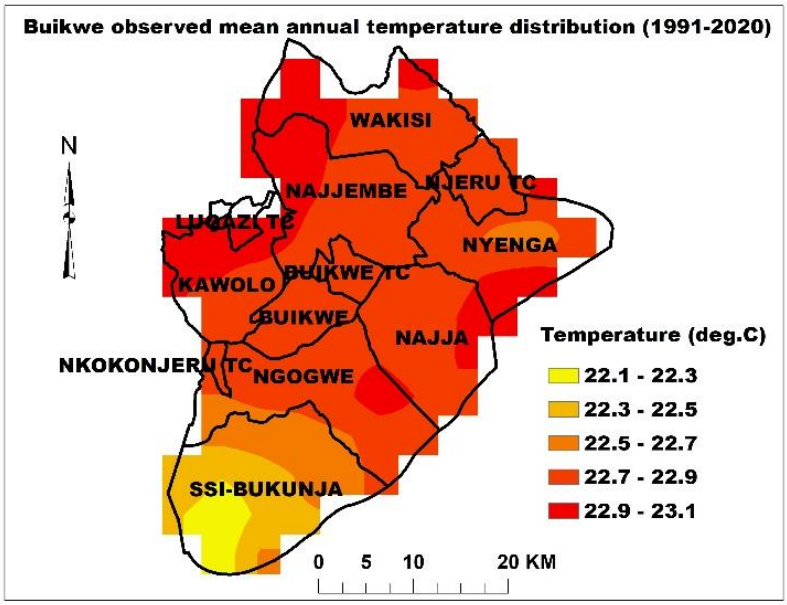

Figure 2-1: Mean Annual observed temperature (1991-2020)
Source: Buikwe climate analysis 2023 Report

Seasonal analysis of the observed temperature for MAM, JJA, SON, and DJF revealed June to August (JJA) season as cooler (21.3°C - 22.3 °C) than MAM and DJF temperature range of between 22.4°C and 23.5°C.

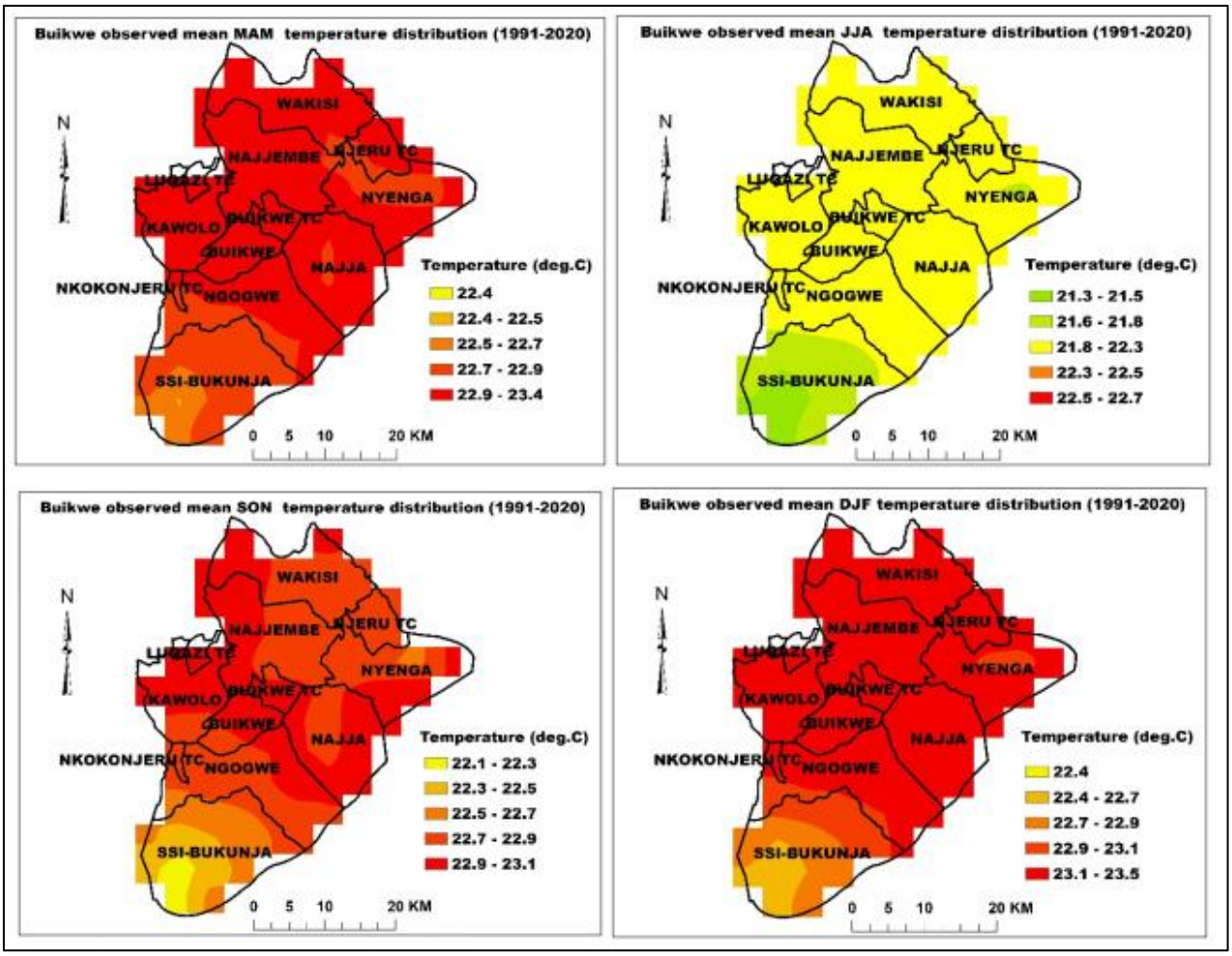

Figure 2-2: Mean temperatures seasonal analysis (1991-2020)
Source: Buikwe climate analysis 2023 Report

Temperature projections with RCP8.5 and RCP4.5 are both warmer than observed (RCP8.5 temperature projection range is 23.9 ºC - 24.2 ºC, RCP4.5 range is 23.6 ºC - 23.9 ºC, and observed range is 22.1 ºC -23.1 ºC). This signifies a projected increase in temperature of approximately 0.8 ºC -1.5 ºC for RCP4.5 and 1.1 ºC -1.8 ºC for RCP8.5 (RCP8.5 Temp > RCP4.5 Temp projected). The mean predicted annual temperatures under both scenarios is thus expected to be 23.8 ºC for RCP 4.5 and 24 ºC for RCP 8.5 relative to observed mean temperature of 22.6 ºC. The northern and north-eastern parts of the district are expected to have slightly higher temperatures between 24 ºC - 24.2 ºC (RCP 8.5) as opposed to the lower temperatures projected for the south and western parts, between 23.8 ºC - 23.9 ºC.

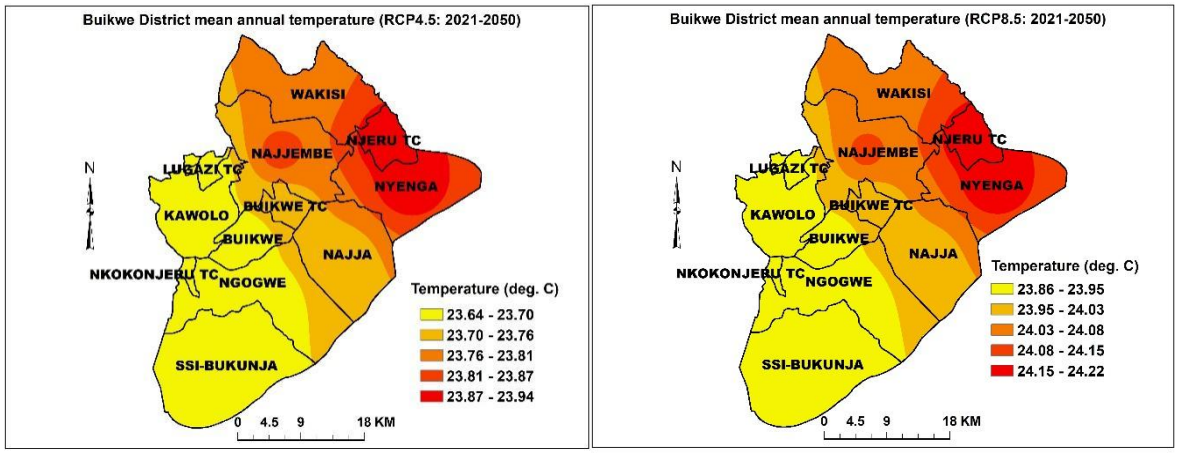

Figure 2-3: Buikwe's projected mean annual temperature for 2021–2050 (RCP4.5 and RCP8.5)
Source: Buikwe climate analysis 2023 Report

The observed annual mean rainfall for the district for the climate period 1991 to 2020 is 1530.3 mm, ranging between 1,472.5 - 1,588.4 mm. The southern and western part of the district (Ssi-Bukunja, Nkokonjeru, Kawolo, and Lugazi) receive more rainfall amounts between 1,542.1 - 1,588.4 mm as compared to the central and north-east parts of the district with rainfall amounts ranging from 1,472.5 to 1,497.5 mm (Wakisi, Njeru, Nyenga, Najja, and Buikwe).

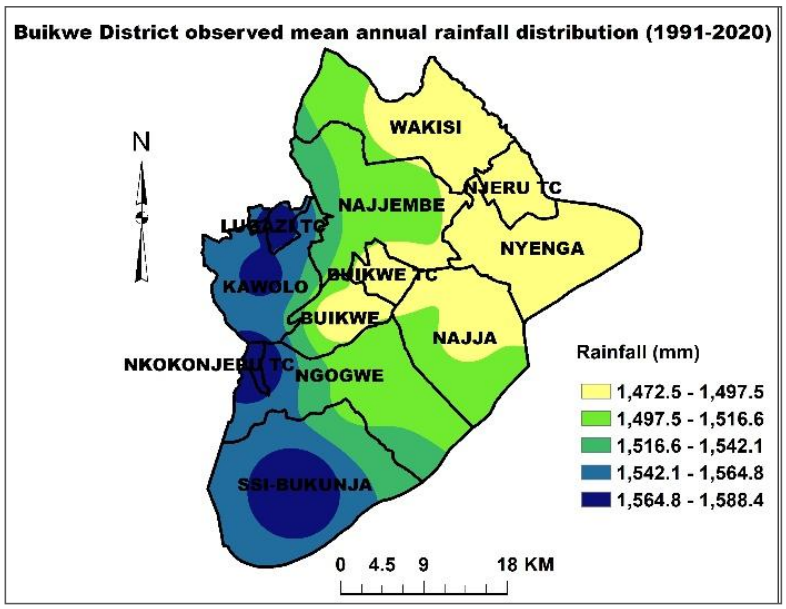

Figure 2-4: Mean Annual observed rainfall (1991-2021)
Source: Buikwe climate analysis 2023 Report

The district has two rainy seasons: March to May (MAM) and September to November (SON). MAM is wetter than SON, and SON rainfall is more variable than MAM, with November rainfall having the highest variability.

The projected mean annual rainfall under RCP 4.5 is 1,186.3 mm and 1,081.0 mm for RCP8.5. The estimated distribution range for both scenarios (RCP 4.5 and RCP 8.5) are between 1,105.8-1,253.3 mm and 1,057-1,105.5 mm respectively. Compared to the observed mean annual rainfall of 1,530.3 mm (range of 1,472.5-1,588.4 mm), the projected rainfall amounts are expected to drastically reduce by 22.5% under RCP4.5 and 29.4% with RCP8.5 in the climate period 2021 to 2050.

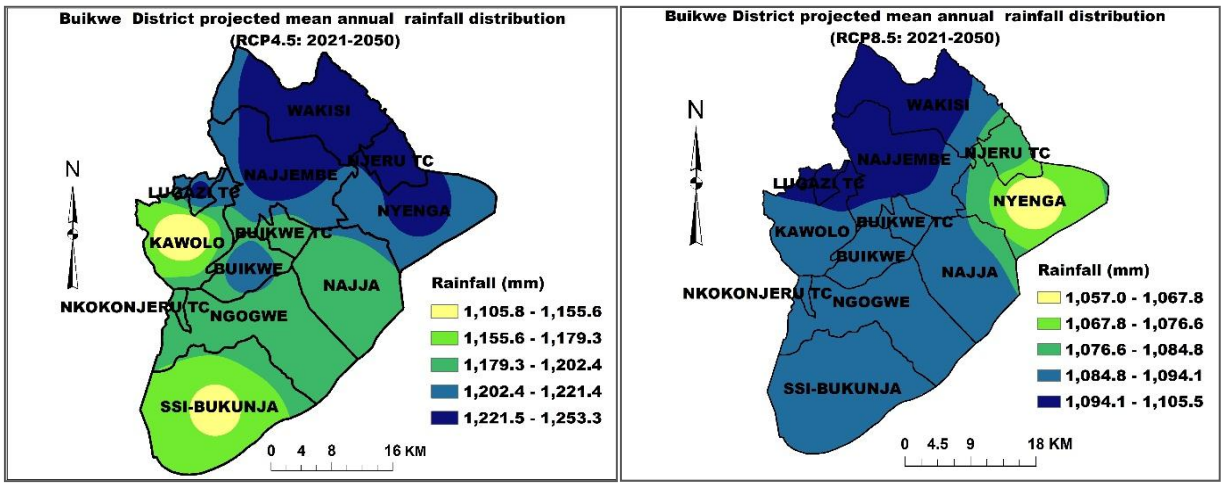

Figure 2-5: Mean Annual projected rainfallRCP4.5 and 8.5(2021-2050)
Source: Buikwe climate analysis 2023 Report

The projected seasonal rainfall analysis for MAM, JJA, SON, and DJF indicates mean annual rainfall reduction and spatial variability across seasons under two different scenarios (RCPs 4.5 and 8.5).

The projected mean annual rainfall for MAM season under RCP 4.5 is 490.5 mm and 483.3 mm with RCP 8.5. The range estimates for both scenarios projected are 418.5 - 554.6 mm (RCP4.5) and 480.8 - 485.7 mm (RCP8.5). Compared to the observed MAM mean rainfall (505.1 mm), the projection shows a 2.9% slight decrease in average annual rainfall during the MAM season with RCP 4.5 and a 4.3% decrease with RCP 8.5.

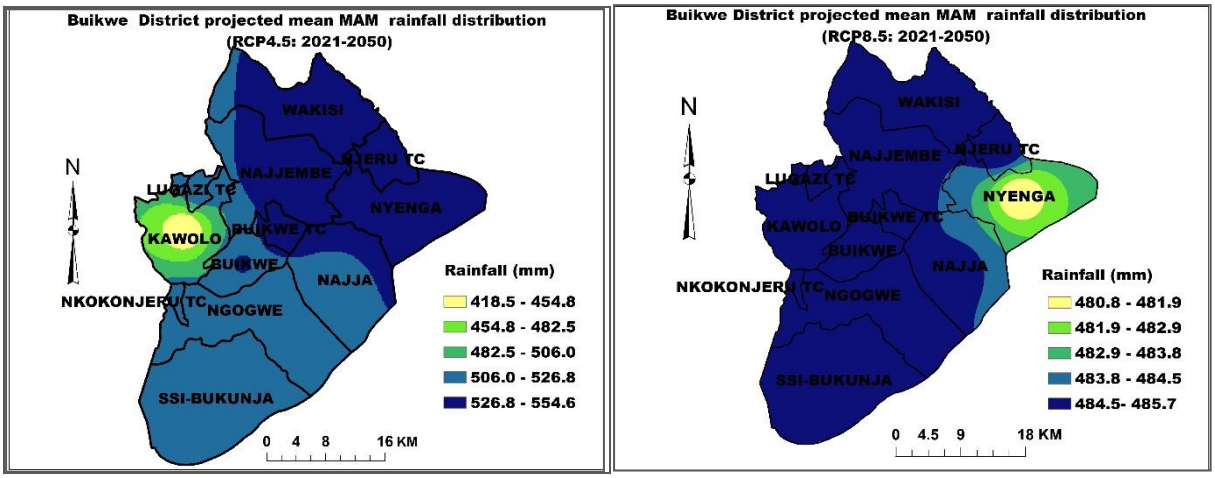

Figure 2-6: MAM rainfall distribution (projected RCP4.5 and RCP 8.5)
Source: Buikwe climate analysis 2023 Report

JJA mean annual rainfall projection under RCP 8.5 is 35.9 mm and 38.7 mm for RCP 4.5. The distribution range are 27.4 - 44.8 mm for RCP 8.5 and between 29.0 - 48.8 mm for the RCP 4.5 in (2021 to 2050). Compared to JJA observed with annual mean rainfall of 266.5 mm, which varied between 248.4 -285.2 mm in the climatological 1991 to 2020, the JJA projected under both scenarios predict drier conditions than observed due to dramatically expected decreasing rainfall amounts of approximately 85.5% with RCP 4.5 and 86.5% for RCP 8.5.

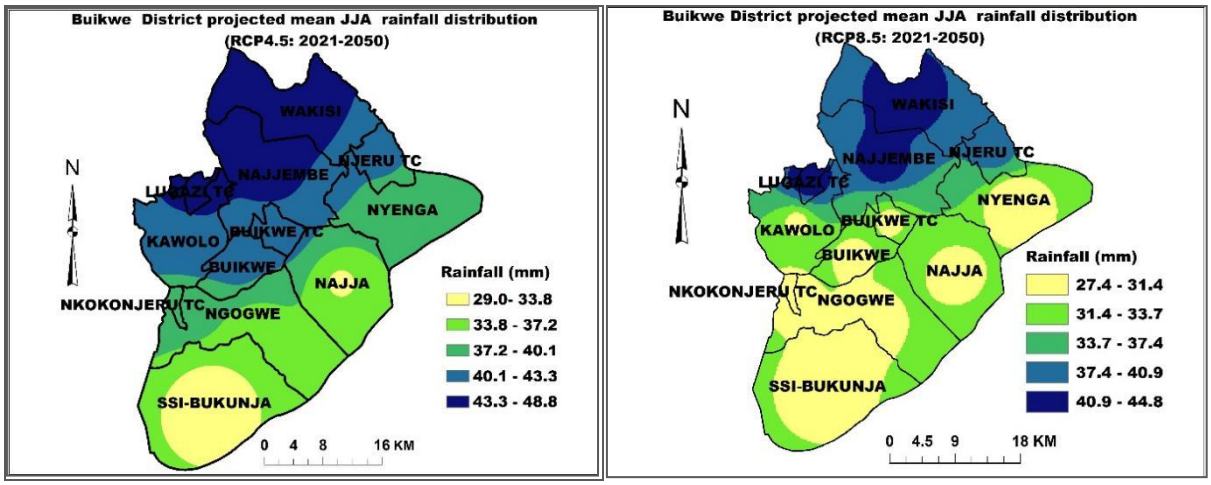

Figure 2-7: JJA rainfall distribution (projected RCP4.5 and RCP 8.5)
Source: Buikwe climate analysis 2023 Report

The average rainfall projected for SON is 511.8 mm with RCP 4.5 and 477.2 mm for RCP 8.5. These are projected to be spread in the range of 478.7 to 545 mm (RCP 4.5) and 458.4 to 495.9 mm (RCP 8.5). A decrease in the lower threshold for both scenarios (478.7 mm for RCP 4.5, 458.4 mm for RCP 8.5 relative to observed of 491.2 mm) is predicted and an increase in the upper threshold of rainfall under RCP 4.5 (545.0 mm) relative to the

observed (515.1 mm) for the climate period 1991 to 2020. The rainfall is therefore expected to reduce by 5% in the worst case scenario (RCP 8.5) and increase by 1.8% in the moderate scenario (RCP 4.5) when compared with observed mean. Unlike in the observed spatial distribution of rainfall in the SON season where more rainfall amounts are being observed in the western part of the district (500.5-515.1 mm), the projected SON show more rainfall shift and concentration in the northern parts of Buikwe, ranging between 516.9-545.0 mm for RCP4.5 and 480.7 -495.9 mm under RCP 8.5 in the northeastern Buikwe district.

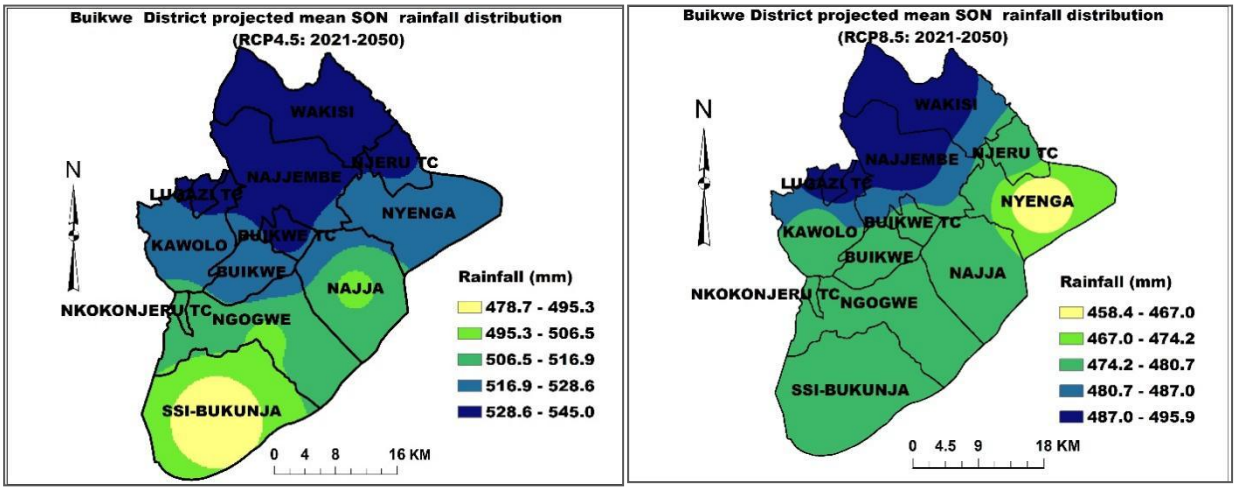

Figure 2-8: SON rainfall distribution (projected RCP4.5 and RCP 8.5)
Source: Buikwe climate analysis 2023 Report

DJF (RCP4.5 and RCP8.5) seasonal rainfall estimates predict the southern part of district to be slightly wetter than the northern in the climatological period 2021–2050. The long term mean projected for RCP 4.5 is 109.5 mm with arrange of (85.6 and 130.2 mm) and 77.0 mm for RCP 8.5 with arrange of (57.3 and 95.4 mm), a situation lower than DJF observed mean of 259.3 mm with arrange of (231.7 and 285.0 mm). In all cases (scenarios), the season's rainfall totals are expected to decrease (dryer than observed) by 57.8% for RCP 4.5 and 70.3% under RCP 8.5.

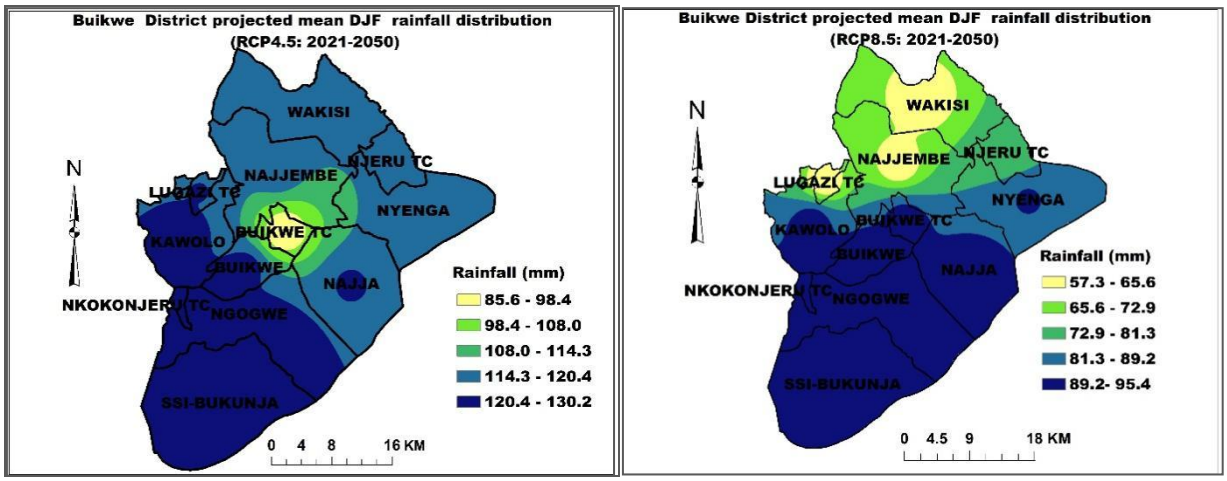

Figure 2-9: DJF rainfall distribution (projected RCP4.5 and RCP 8.5)
Source: Buikwe climate analysis 2023 Report

2.2 Climate Hazards, Risks, Vulnerability and Impacts

The highlighted climate related hazards, risk, vulnerability and impacts are both spatial and sectoral in terms of scope. These are also observed/current and projected in terms of time-frame as elaborated below;

Climate Hazards: With reference to the Climate Risk and Vulnerability Assessment Report (Buikwe District CRVA_2023), the district is experiencing four major climate hazards: floods, drought, strong winds, and hailstorms. Floods are primarily caused by heavy rainfall; drought is caused by a temperature rise associated with longer days of less than 1 mm of rainfall; and hailstorms are caused by weather extremes and strong winds felt primarily along the lake and river shoreline during the rainy season.

These climate hazards have both spatial and temporal variability and have been on the increase according to scientific observations, except for drought, which was confirmed by community experience during focused group discussion when gathering the CRVA data.

Hazard Exposure

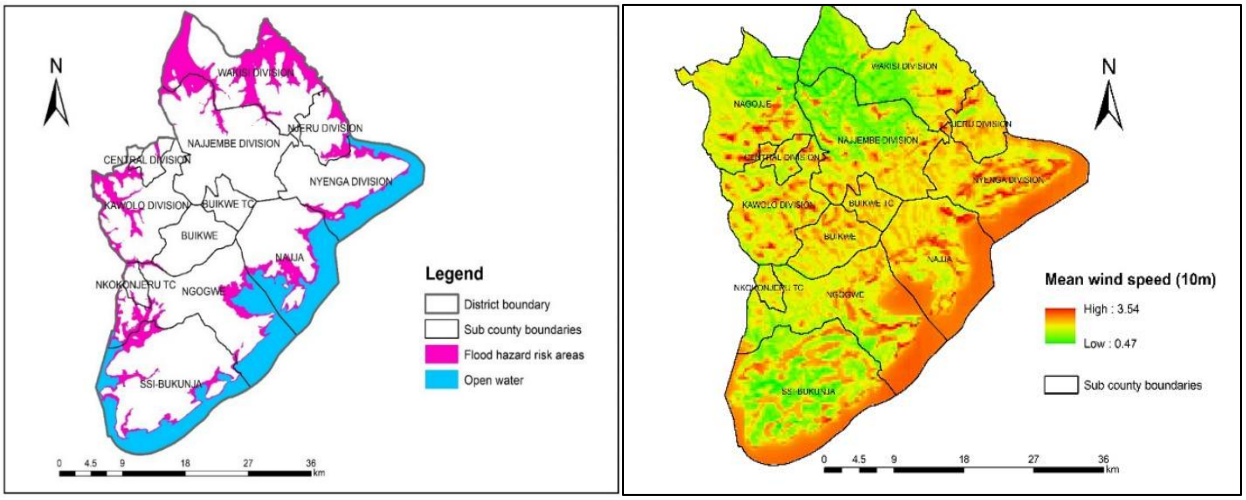

Figure 2-10: Buikwe area exposure to flash floods and Strong winds

Flash flood-prone areas and strong wind exposure sources (Buikwe District CRVA Report 2023)

Floods; in the district generally occur at the start of the rainy season, primarily along the lake and river shores and in some sections of wetlands. The incidence of flooding in the district is typically related to El Niño (a period of heavy rains above normal). (Buikwe District CRVA Report 2023).

Strong winds; the mean wind speeds are moderately low, ranging between 0.47 and 3.54 m/s; relatively high wind speeds are experienced in places of relatively low elevations along lake shores as compared in the places of high elevation (Buikwe District CRVA Report 2023).

Hailstorms; mainly occur during heavy rains. Sectors like agriculture, fisheries, health, ecosystems, and biodiversity are reported to have been majorly impacted across in most parts of the district. Hailstorms experienced last year in September and December 2021 resulted in the destruction of over 10 houses in the villages of Ssugu Kilangira, Ssugu Mutwe, Kyanja, and Matale within Kitaazi Parish (UNDRR, Buikwe District CRVA Report 2023).

Prolonged droughts: Although the droughts experienced in the district are neither too severe nor extremely severe, the moderately experienced drought conditions are reported to have been on the rise. In comparison to a climate analysis where temperatures are expected to rise, the likelihood of a severe drought occurring in the near future is higher. The currently moderate droughts, according to community-focused group discussions, even pose more serious risks and impacts to the

communities' key sectors like agriculture, fisheries, water, and ecosystems in general. (Buikwe District Climate Analysis Report 2023; and Buikwe District CRVA Report 2023).

Sectoral Risks and Vulnerability to Climate Change

Regarding the four primary climatic hazards highlighted in the Buikwe District CRVA Report, 2023 (flood, drought, strong winds, and hailstorm), different sectors are impacted by climate change hazards differently and therefore consequently have varying vulnerabilities. Below is a summary of the sectoral aggregation of risk and vulnerability ratings.

Table 2-1: Summary of climate hazards, risks and vulnerability of sectors in Buikwe district

Sr.	Sector	Climate Hazard	Exposure Rating	Risk Rating	Sensitivity Rating	Adaptive Capacity Rating	Sector Vulnerability Rating Per Hazard	Overall Sectoral Vulnerability Score (Avg)
1	Crop	Drought	3	3	3	1	3	2.5
		Flood	2	2	2	2	2	
		Strong winds	1	1	1	2	2	
		Hailstorm	2	3	3	1	3	
2	Entomology	Drought	3	2	2	2	2	0.5
		Flood	0	0	0	0	0	
		Strong winds	0	0	0	0	0	
		Hailstorm	0	0	0	0	0	
3	Livestock	Drought	2	1	1	2	2	1.0
		Flood	2	1	1	2	2	
		Strong winds	0	0	0	0	0	
		Hailstorm	0	0	0	0	0	
4	Fisheries	Drought	3	2	2	2	2	1.8
		Flood	3	2	2	2	2	
		Strong winds	3	3	3	1	3	
		Hailstorm	0	0	0	0	0	
5	Environment and Natural Resources (ENR)	Drought	3	3	3	1	3	1.0
		Flood	0	0	0	0	0	
		Strong winds	0	0	0	0	0	
		Hailstorm	1	1	1	1	1	
6	Community Development	Drought	3	3	3	1	3	0.8
		Flood	0	0	0	0	0	
		Strong winds	0	0	0	0	0	
		Hailstorm	0	0	0	0	0	

7	Water Resources	Drought	3	2	3	2	2	1.3
		Flood	2	3	3	1	3	
		Strong winds	0	0	0	0	0	
		Hailstorm	0	0	0	0	0	
8	Works and Transport	Drought	0	0	0	0	0	0.5
		Flood	2	3	3	2	2	
		Strong winds	0	0	0	0	0	
		Hailstorm	0	0	0	0	0	
9	Trade, Industry, and Commerce (T.I.C)	Drought	1	1	1	1	1	0.5
		Flood	1	1	1	1	1	
		Strong winds	0	0	0	0	0	
		Hailstorm	0	0	0	0	0	
10	Education	Drought	2	3	1	2	3	1.5
		Flood	2	2	2	2	1	
		Strong winds	3	3	3	2	2	
		Hailstorm	0	0	0	0	0	
11	Health	Drought	2	2	2	2	2	1.0
		Flood	2	2	2	2	2	
		Strong winds	0	0	0	0	0	
		Hailstorm	0	0	0	0	0	
12	Energy (Hydro & Biomass)	Drought	1	1	1	1	1	0.8
		Flood	1	1	1	1	1	
		Strong winds	1	1	1	1	1	
		Hailstorm	0	0	0	0	0	

Key

Rating	**Values**	**Color Code for Vulnerability**	**Scale for Overall score**
High	3	H	2.5 - 3.0
Moderate	2	M	1.5 - 2.4
Low	1	L	0 - 1.4
No Identified as Hazard{NIH}	0		0

Overall, drought is the most common climate change hazard, affecting the majority of sectors and accounting for several vulnerabilities, primarily in agriculture (crops, livestock, and fisheries) and in the environment, followed by floods and strong winds, which are most severe for fisheries communities and road infrastructure, health, and education, while hailstorms are the least common, but their frequency and impact intensity are increasing over time.

Drought hazards exhibited majorly high vulnerability in the crop agriculture subsector, environment, and natural resources, community development services, and education, compared to low vulnerability in trade, industry, commerce, and the energy sector. Other sectors are moderately vulnerable to drought; therefore, immediate action is required to limit the projected magnitude of drought-related vulnerability in these sectors.

Flood hazards presented high vulnerability in the water resources sector and high risk and sensitivity in engineering roads and works, with the majority of the sectors rating floods moderately in relation to sectoral vulnerability.

Strong winds impacted a larger portion of the fisheries subsector and were heavily weighted high in the vulnerability rating matrix, while the education sector's exposure, risk, and sensitivity to the hazards were also rated high.

Hailstorm hazards presents high risk and vulnerability for crop agriculture sub sector majorly.

Overall, agriculture and fisheries are the most vulnerable sectors currently; livestock, education, water resources, and health are moderately vulnerable; and the least vulnerable sectors, although with high exposure and risk now and in the future as per climate projections, are natural resources and the environment, energy, community development services, and trade, industry, and commerce.

2.3 Priority Adaptation Actions and Interventions

To improve district climate change adaptive capacity, reduce vulnerability, and improve resilience, a multi-sectoral dimension approach is crucial for the implementation of climate change adaptation actions, as one action may directly or indirectly reduce exposure and lower the risk of another sector to the adverse impact of climate variability and change. For instance, actions for environmental management contribute to agricultural production, water resource management, and improved health, among others. As a result, this DCCAP outlines sectoral adaptation actions in agriculture (crops, livestock, and fisheries), water, the environment (forests and wetlands, biodiversity and ecosystems) works and transportation (roads), health, education, energy, trade, industry, and commerce, as well as disaster risk reduction and management.

Below are sector-specific adaptation actions to be implemented by the district within a time frame (2023–2030).

Table 2-2: Adaptation interventions for Agriculture (Crop)

Sector: Agriculture Crop			
	Intervention	**Target {2023-2030}**	**Indicator {Quantitative and Qualitative}**
No.	**Objective:** *Improving the resilience of crop sector to climate change*		
1	Promote Climate-Smart Agriculture and agroecology as part of sustainable land management practises	42,315 Ha (50% of land under agriculture)	# of Ha under CSA and Agro ecology
		32,291 Hhs	# of farmers practicing CSA and Agro ecology on farm
2	Promote early maturing and drought tolerant crop varieties.	32,291 Farmers (Representing at least 70% of Farm Hh)	# of farmers supported with and growing early maturing and drought tolerant crop varieties
3	Promote and support community-level micro irrigation for drought resilience with water use efficiency.	125 Schemes every year	# of irrigation micro schemes established for drought resilience
4	Promote investments in more efficient irrigation such as solar powered irrigation	400 farmers equipped with solar powered irrigation schemes	# of farmer irrigation schemes powered by solar energy
		500 farmers	# of farmers applying on-farm water use irrigation efficiency
5	Promote and support agro forestry practices for small holder farmers with high value tree species for resilience.	34,598 farmers (75% of the farm Hh)	# of farmers practicing Agro forestry on farm
		55,010 Ha (65% of land under agriculture)	# of hectares under agroforestry practice
6	Promote on farm practices for soil and water conservation	76,167 Ha (90% of land under agriculture)	# of Ha under sustainable land mgt with soil and water conservation structures and practices
7	Enhance crop disease surveillance and extension services for flood and drought management.	400 villages (95% of the villages)	# of villages receiving extension services on crop climate disease and control advisories
8	Established farmer field schools and demonstration centres of climate change agricultural technologies	42 parishes (60% of parishes)	# of parishes with established and functional climate change FFSs
		300 Demonstrations	# of demonstration centers established

9	Promote conservation agriculture such as minimum and zero tillage practices	33,852 Ha (40% of land under agriculture)	# of Ha under conservation agricultural practices
10	Expand value addition and storage facilities for post-harvest handling and access to markets	32 storage facilities expanded	# of storage facilities expanded
		20,760 (45% of farm Hhs)	# of HH with post-harvest Storage facilities
		ND	% of crop farmers with Access to market
11	Disseminate agriculture-specific weather forecasts to farmers on a regular basis.	335 Villages (70 % of all Villages)	# of villages receiving weather forecast with advisories
12	Promote high yielding upland rice	846.3Ha of upland rice (Increase land under upland rice production from 0.5% to 1% of land under agriculture)	Number of Ha of upland rice fields planted every year

Table 2-3: Adaptation interventions for Agriculture (Entomology)

Sector: Agriculture (Entomology)			
	Intervention	**Target {2023-2030}**	**Indicator {Quantitative and Qualitative}**
No.	**Objective:** *Promoting resilience in entomology sub sector*		
1	Scale up planting of bee forage such as Calliandra spp as a hedge or woodlot	900 farmers	# of apiary farmers supplied and established Calliandra spp on farms.
2	Promote apiary as eco-friendly activities in selected forests and wetlands neighboring communities	160 apiary projects	# of community apiary projects in select wetlands and forests
3	Skilling communities on apiary siting including avoiding waterlogged areas.	200 trainings	# of community practical trainings conducted on apiary enterprise per parish
4	Conduct research on alternative sources of forage that can withstand the extreme climate change events	New research findings disseminated once per year	Research findings with multiple climate resilience bee forage sources disseminated to apiary keepers

Table 2-4: Adaptation interventions for Agriculture (Livestock)

Sector: Agriculture (Livestock)			
	Intervention	**Target {2023-2030}**	**Indicator {Quantitative and Qualitative}**
No.	**Objective:** *Resilient livestock systems*		
1	Increase community access to water for livestock production through construction of micro-scale (small-medium) livestock dams.	11 LLGS	110 facilities (10 dams per lower local government
2	Promote and support on-farm livestock water harvesting facilities.	32,123 farmers availed with water facilities	(70%)of livestock farmers with on-farm water harvesting facilities
3	Promote planting of drought tolerant high yield livestock pastures	80% of livestock farmers	28,345 livestock farmers supported with established drought tolerant fodder gardens/ farms
4	Promote pastures development (hay and silage) and fodder conservation programmes	80% farmers conserving pasture	25,456 livestock farmers growing hay and storage facilities.
5	Promote sustainable rangeland pasture management	50 % of existing range lands	200 Ha of rehabilitated rangelands
6	Support community planting of fodder trees to reduce the cut and carry pasture	70,000	# of folder tree spps supplied and planted
7	Strengthen livestock disease surveillance during flood and drought periods and train farmers in disease management control.	70% of livestock diseases controlled	A flood-drought livestock disease surveillance system
		70% of drought - flood prone areas	Issuance of seasonal drought-flood induced animal diseases advisories
		80% of livestock farmers	32,234 livestock farmers trained in livestock climate induced disease's control and management.

Table 2-5: Adaptation interventions for Agriculture (Fisheries)

Sector: Agriculture (Fisheries)			
	Intervention	**Target {2023-2030}**	**Indicator {Quantitative and Qualitative}**
No.	**Objective:** *Climate Resilient fisheries and fishing communities*		
1	Promote and support women's credit schemes in fishing communities for fishing activities.	32 Landing sites	% of women accessing grants and credit loans for fishing {from 32 gazetted and designated Fish landing sites within the district }

2	Identify potential inland aquaculture (pond) development sites and support offshore communities in fisheries enterprises.	390	Potential offshore aquaculture development sites identified in the district
		390	# of offshore aquaculture projects promoted/supported
3	Promote sustainable lake, river, and wetland cage (net-pen culture) fisheries.	75	# of cage fish firming projects in lake off shore communities
4	Promote less climate-sensitive enterprises for women in the fishing/riparian communities.	32	# of alternative women livelihood income generating activities established other than fishing
5	Construct climate-resilient market infrastructure to enhance fishing communities' working conditions and guarantee clean energy supply, water harvesting facilities, and flood resistance.	4	Fully varnished climate resilient market infrastructure at land sites
6	Promote and construct climate-resilient sanitation and hygiene facilities (latrines) in fishing communities to improve sanitation	32	# of fish landing sites and villages with resilient sanitation infrastructure (latrines)
7	Establish clean water supply and purification systems in fishing villages/Communities	32	# of fish landing sites/villages supported with clean water source(s)
8	Improve effluent monitoring along the lake, rivers, and streams.	15	Biannual water sample collection and quality testing at select points.
		30	Quarterly industrial and commercial effluent assessment report.
9	Build capacity for solid waste management in fishing communities.	960	# of fish landing sites with proper solid waste collection and disposal facilities
10	Promote upstream erosion control along rivers, lakes, and streams.	42	# of upstream community erosion control projects implemented
11	Identify, protect, and conserve fish hibernation zones (Fish breeding areas).	75	# of fish hibernation sites identified and protected
12	Map shoreline and riverbank hotspots for rehabilitation and restoration programmes	7	KM of lake shoreline and river bank rehabilitated for restoration along the lake and river
13	Disseminate weather information and life jackets for fisher-folk	2,880	% of fishing communities receiving weather information
		3500	# of protective life jackets distributed to fisher folks
14	Promote integrated fisheries resource management through zoning{ protection of fish breeding grounds along shorelines}.	ND	Km of protected and rehabilitated fish breeding zones

15	Strengthen monitoring capacity and capability to prevent overfishing and unauthorized exploitation of water bodies.	6	A reduction in illegal fishing activities on the lake and long rivers
16	Promote efficiency in fish feeding technologies	26	# of fish farming groups obtaining appropriate fish feeding technologies/equipments

Table 2-6: Adaptation interventions for Environment and Natural Resources

Sector: Environment and Natural Resources {Forestry, wetlands, biodiversity, ecosystem)			
	Intervention	**Target {2023-2030}**	**Indicator {Quantitative and Qualitative}**
No.	**Objective:** *Promoting resilience in the ENR use and resource management*		
1	Establish district forest estates on district owned land and institutions	500	Ha of district forest estates established
2	Develop Wetlands Management Action Plans, and a trans S/C Lake shore management plans, with community engagement	3	# of District Wetlands Management Action Plans developed
		1	ATrans S/C lakeshore management action plan
3	Identify and map hotspots of the degraded natural forest to allow natural regeneration and enrichment planting on private land.	200	Ha of natural forest under natural regeneration and enrichment planting
4	Promote community fruit tree growing through orchards and agroforestry practices.	ND	# of fruit tree Orchards established in farming communities.
5	Restore and or rehabilitate degraded Catchment sections of wetlands, river banks, and lakeshore	120km	Km of rehabilitated sections of river bank and lakeshore
		100	Ha of rehabilitated wetland sections
6	Promote watershed/catchment-level protection and rehabilitation, including on hills and mountains.	140 ha	Ha under watershed protection
7	Promote ecosystem-based adaptation (EbA) in communities adjacent to major natural resources	7000	# of communities trained and implementing EbA
8	Enhance management of invasive species in protected areas	20	Managed and controlled invasive spp

9	Conduct environmental screening and inspections for all development projects to address climate concerns in all sectors	500	Environmental screening reports on all development projects in the district
10	Monitor and report climate hazards, risks, and adaptation actions.	7	Annual report on climate hazard, risk, impact and actions
11	Promote District Urban Forestry and greenbelts to reduce the urban heat island effect.	500	Ha of urban forests planted and maintained
		80	Ha of green parks created and or maintained
12	Procure transport and office equipments to enhance climate coordination and monitoring for extension services.		Transport and office Equipments for monitoring, reporting and extension services on climate change actions and events
13	Establish a District Climate Change Resource Centre (DCCRC) and equip it.	1	A fully fledged DCCRC established
14	Conduct an assessment of Natural Resources Inventories	1	A five-year renewable Inventory of Natural Resources Assets {Forest and Wetlands}
15	Establish tree nurseries at district and sub county level	8	# of tree nurseries established or strengthen at S/C
16	Boundary mapping of all wetlands, and demarcation of eco fragile areas	100	# of wetland mapped and demarcated including fragile areas
		10	# of Local Forest Serves mapped and demarcated including fragile areas

Table 2-7: Adaptation interventions for Water

Sector: Water			
	Intervention	**Target {2023-2030}**	**Indicator {Quantitative and Qualitative}**
No.	**Objective:** *Increase water supply and availability for resilience building*		
1	Promote rainwater harvesting at institutional and household levels including schools, churches, mosques, health centers, district administrative units, etc	65	# of Health Centres supported with RWH facilities
		80	# of Schools supported with RWH
		14	# of Sub county, Town council, Division, and District Head Quarters supported with RWH facilities
2	Promote solar-powered water supply systems for community domestic and irrigation use	ND	# of farms using solar powered water supply systems for irrigation
		7	# of community solar powered water facilities for domestic use
		20	# of community solar powered water facilities for domestic use extended
3	Prioritise and support water access to vulnerable communities in drought-prone areas.	ND	% of drought prone sub counties covered by a clean water source per village
4	Increase access to clean water supply for domestic use in urban and rural areas	20	% of rural HHs with access to clean water supply system through extensions

Table 2-8: Adaptation interventions for Health

Sector: Health			
	Intervention	**Target {2023-2030}**	**Indicator {Quantitative and Qualitative}**
No.	**Objective:** *Promoting Resilient Health Sector*		
1	Promote public awareness programs on better hygiene.	All villages -478 villages	# of village awareness meetings conduced on climate change and health Hygiene
2	Strengthen monitoring and surveillance of human diseases related to climate extremes, such as cholera, typhoid, and malaria, and issuance of advisories	surveillance for all diseases of public health importance	Monitoring and surveillance system of human climate-induced diseases

		65 Parishes	# of District Parishes receiving information and advisories on human climate induced health diseases and actions
3	Development of Health Early Warning Systems	1	A functional Health Early Warning Systems
4	Strengthen emergency response to climate change human health-related hazards and disease.	1	District climate change Health Response emergency mechanism
5	Climate-proof health infrastructure investments against climate hazards and risks such as floods.	All new health facilities	No. of new health infrastructure screened for climate and disaster risks fitness
		65 HF	# of existing health infrastructure upgraded with climate-smart solutions
6	Develop and disseminate messages on climate change and health targeting institutions and communities.	8	# of targeted climate change and health messages developed and disseminated
7	Promote access to well-equipped health centres at parish levels in the district	5	# of new and or updated constructed health centres in vulnerable communities
8	Train /sensitization of health staff on effects of climate change on pattern	60% of all health staff trained	# of health staff trained on climate change and its effect on disease patterns

Table 2-9: Adaptation interventions for Works and Roads

Sector: Works and Roads			
	Intervention	**Target {2023-2030}**	**Indicator {Quantitative and Qualitative}**
No.	**Objective:** *promoting climate resilience in works and transport infrastructure*		
1	Rehabilitate and construct climate-resilient road infrastructure through design and standards adjustments (climate-resilient drainage systems and bridges) connecting rural areas	60	# of District road bridges and culverts designed/upgraded for resilience fit with storm water.
2	Promote and maintain green road infrastructure on all District and community-managed roads.	255	km of District-managed roads refurbished and maintained with green infrastructure

3	Rehabilitate and expand town drainage and flood management systems in district flood-prone towns.	1,696.48	# of climate resilient rehabilitated drainage channels in flood prone towns.
5	Promote climate screening of district managed road and works infrastructure projects.	ND	# of new road and works infrastructure screened for climate and disaster risks fit

Table 2-10: Adaptation interventions for Energy

Sector: Energy			
	Intervention	**Target {2023-2030}**	**Indicator {Quantitative and Qualitative}**
No.	**Objective:** *Energy Resilient Sector for social economic transformation*		
1	Promote the use of energy-efficient cookstoves at the household (using locally available materials) and institutional levels.	500	# of constructed energy-efficient biomass cook stoves for institutions
		7,000	# of HH energy-efficient biomass cookstoves installed
2	Promote and support the establishment of bioenergy plantations and woodlots at the community, household, and institutional levels.	100	Ha of bioenergy plantations
		200	Ha of woodlot plots established for HHs
		100	Ha of established institutional woodlot plots for schools etc
3	Promote use of alternative renewable energy sources such as biogas for cooking and uptake of solar powered systems for lighting	10,000	# of institutions and HHs supported with biogas energy installations
		10,000	% increase in the # of off grid solar powered lighting systems from kerosene by rural sub counties, HHs

Table 2-11: Adaptation interventions for Trade, Industry and Commerce

Sector: Trade, Industry, and Commerce			
	Intervention	**Target {2023-2030}**	**Indicator {Quantitative and Qualitative}**
No.	**Objective:** *Enhance the resilience of trade and commerce against climate change*		
1	Promote, invest and market eco-tourism activities in the district	7	No. of campaigns for eco-tourism in LLGs
2	To increase access to loans at low interest rate	175	No of SACCOs with access to low interest credit rates

Table 2-12: Adaptation interventions for Education

Sector: Education			
	Intervention	**Target {2023-2030}**	**Indicator {Quantitative and Qualitative}**
No.	**Objective:** *Improving resilience of education sector to climate change hazard*		
1	Promote climate change education awareness in schools (primary and secondary) for leaners	300	# of primary schools covered with climate change awareness program
		200	# of secondary schools covered with climate change awareness program
2	Organize and build Capacity of teachers on climate change, both secondary and primary.	50	# of capacity building workshops conducted for teachers
3	Develop and disseminate climate change materials to school going pupils.	ND	# of climate change supplementary material developed on Adaptation and Mitigation
		60%	% of schools disseminated with learners climate change supplementary material
4	Formulate and or strengthen the current environment clubs to double as climate change clubs in all schools to address climate change.	70%	% of schools (primary and secondary) featuring an integrated environment and climate change club
5	Establish Climate Smart Model Schools with energy-efficient stoves, woodlot plantations, solar lighting, water harvesting facilities, waste management and Climate Smart Agriculture demonstration learning Centers	100	# of climate change model schools established
6	Promote and support water harvesting infrastructure in schools.	200	# of schools supported with RWH infrastructure
7	Climate proof school infrastructure such as classrooms	ND	# of new Education infrastructure screened for climate and disaster risk fit
		ND	# of existing Education infrastructure upgraded for flood resilience

Table 2- 13: Adaptation interventions for Disaster Risk Reduction and Management

Sector: Disaster Risk Reduction and Management			
	Intervention	**Target {2023-2030}**	**Indicator {Quantitative and Qualitative}**
No.	**Objective:** *Enhanced resilience for climate disasters and management*		
1	Develop a district climate-resilient physical development plan.	1	District Climate Resilient Physical Development plan developed
2	Integrate climate change with disaster risk management structures at parish level	67 parishes	# of parishes with functional climate change and disaster structures created or integrated
3	Strengthen community management of natural resources	478 villages	Community awareness and involvement in Natural Resources Management

COMPONENT 3: MITIGATION

This chapter of the DCCAP is based on the findings and recommendations of Buikwe Mitigation Assessment Report 2023 and provides an overview of the district's greenhouse gas (GHG) emission sources, sinks, and trends from 2015 to 2050. The mitigation measures presented are both GHG and non-GHG measures adopted and prioritized from the assessment report. The actions for mitigation are based on estimates of greenhouse gas (GHG) emissions in the Agriculture, Forestry, and Other Land Use (AFOLU) and waste sectors. Carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O) are the primary direct greenhouse gases to be addressed through a series of actions that improve carbon sinks and or sequestration through emission-reduction policies and measures. Other mitigation actions from Energy (including transport) and Industrial Processes and Product Use (IPPU) sectors have also been considered.

3.1 GHG emissions source summary and trends up to 2050

GHG Emission Trends

The greenhouse gas emission trends for both AFOLU and waste sectors in Buikwe district have risen overtime from 563 Gg CO2 eq in 2015 to 570 Gg CO2 eq in 2021. The AFOLU sector accounted for the bulk of the Districts' GHG emissions of about 97% of the total emissions in 2015 while waste sector (solid and waste water disposal and discharge) accounted for only 3%. By 2021, the AFOLU sector accounted for 95% of emissions while waste accounted for 5% of the total emissions. (Buikwe District Mitigation Assessment Report 2023)

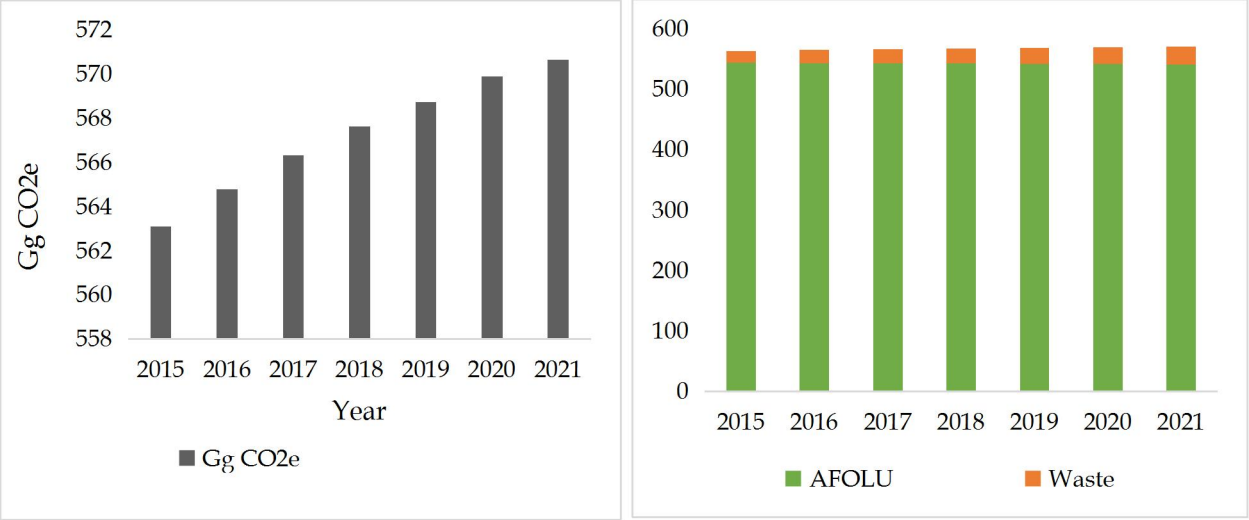

Figure 3-1: Trend of GHG emissions 2015 - 2021(a), Emission trends per sector 2015 – 2021(b)

Source: Buikwe District Mitigation Assessment Report 2023

Carbon dioxide was the most emitted GHG accounting for about 89% of the total GHG emitted in 2015, CH4 accounted for about 6% and N2O accounted for 5% of the total emissions. By 2021, CO2 accounted for 86% of the total emissions while CH4 and N2O accounted for 8% and 6% respectively. (Buikwe District Mitigation Assessment Report 2023)

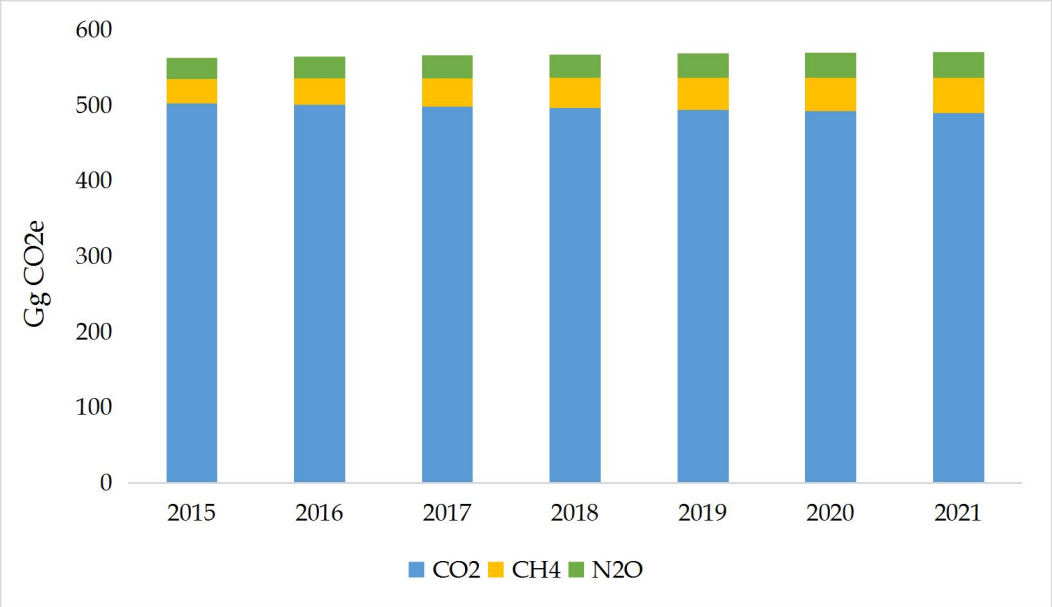

Figure 3-2: Emission trends per gas 2015 - 2021

Source: Buikwe District Mitigation Assessment Report 2023

Projected Emissions

The Business as Usual Scenario (BAU) total GHG emissions for Buikwe district are projected to grow up to 582.4 Gg CO eq in 2030 from 570.7 Gg CO eq in 2021. Waste sector emissions are expected to raise under BAU from 29.44 Gg CO2 eq in 2021 to 45.51 Gg CO2 eq in 2030. AFOLU emissions on the other hand are predicted to reduce from 541.22 Gg CO2 eq in 2021 to 536.92 Gg CO2 eq in 2030, if the conservation and tree planting efforts are maintained. (Buikwe District Mitigation Assessment Report 2023).

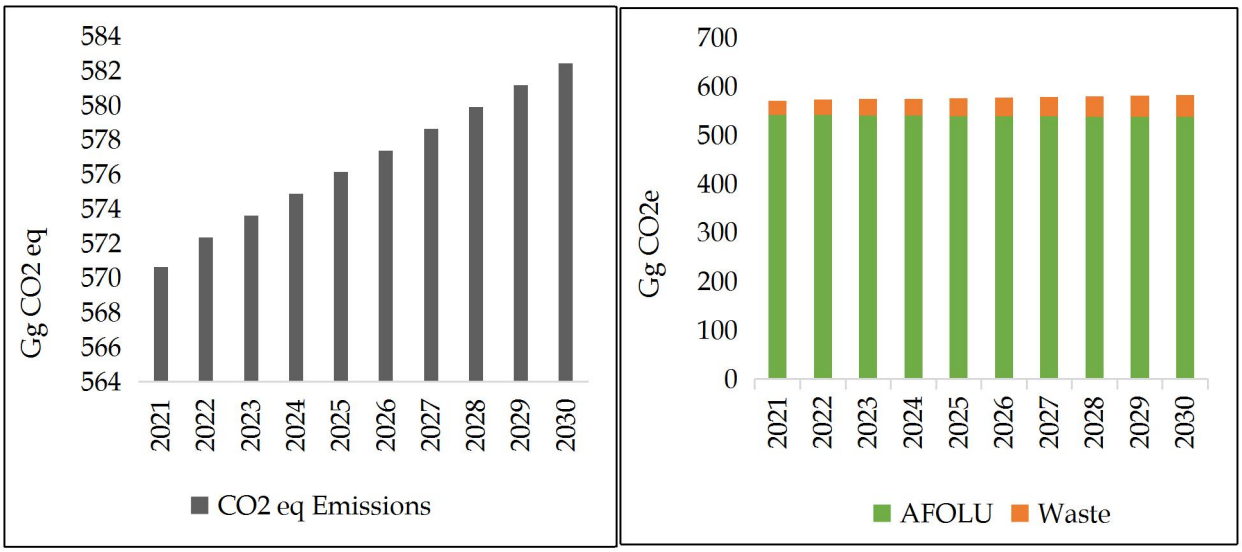

Figure 3-3: Projected trends of GHG emissions (a) 2022-2030_Projected emissions by sector(b)

Source: Buikwe District Mitigation Assessment Report 2023

Carbon dioxide emissions are expected to decrease to 471.1 Gg CO2 in 2030 while CH4 and N2O are projected to increase from 46.4 Gg CO2 eq and 34.2 Gg CO2 eq in 2021 to 68.2 Gg CO2 eq and 43.2 Gg CO2 eq in 2030 respectively under the BAU scenario.

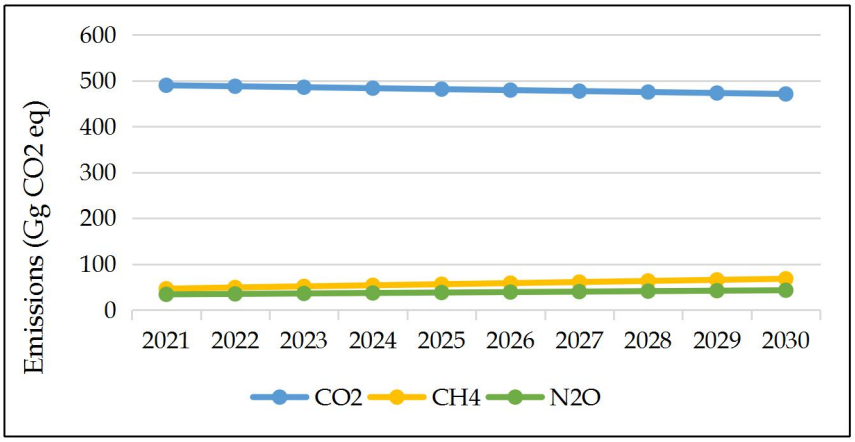

Figure 3-4: Projected emissions by GHG type (CO2 eq)

Source: Buikwe District Mitigation Assessment Report 2023

Overall, key category analyses for the waste sector and in AFOLU predict an increase in district emissions by the year 2030, from 570.7 Gg CO2 eq in 2021 to 582.4 Gg CO2 eq in 2030, with the exception of forestry under BAU. (Buikwe District Mitigation Assessment Report 2023)

GHG emissions from livestock and aggregate sources and non-CO2 emission sources on land are projected to raise from 23.1 Gg CO2 eq and 28.1 Gg CO2 eq in 2021 to 28.8 Gg CO2 eq and 37.2 Gg CO2 eq in 2030 respectively. CO2 emissions from land however are expected to reduce from 489.9 Gg in 2021 to 471.1 Gg in 2030 under BAU. The main source of the emission projected is Enteric Fermentation, Livestock manure management systems and Forestry and other land uses such as extraction of trees for fuel and timber, conversion of forests to cropland and grassland as well as wildfires. (Buikwe District Mitigation Assessment Report 2023)

The total emissions from the waste sector increased from 18.854 Gg CO2 eq in 2015 to 29.437 Gg CO2 eq in 2021 and are projected to increase to about 45.7 Gg CO2 eq in 2030. Solid waste disposal emissions are projected to increase from 11.01 Gg CO2 eq in 2021 to 24.16 Gg CO2 eq in 2030 and waste water emission will increase from 18.4 Gg CO2 eq in 2021 to 21.47 Gg CO2 eq in 2030. CH4 and N2O are the major GHG emitted from Waste sector both solid and liquid. (Buikwe District Mitigation Assessment Report 2023)

3.2 Priority Mitigation Actions and Measures

To respond to the causes of climate change, in this DCCAP, the district presents her desired mitigation measures to reduce GHG emissions accruing from the district's activity jurisdiction. The District aim to strengthen the management of her carbon sinks and storage assets and to implement actions for low-carbon development in various sectors in 2030. The mitigation measures in this DCCAP give priority to the AFOLU and waste sectors, whose emission inventories have been developed (Buikwe District Mitigation Assessment Report 2023), and present actions for reducing emissions from the two mitigation sectors. Other sectors covered for mitigation actions, though not part of the inventory due to a lack of activity data include energy and Industrial Processes and Product Use (IPPU). Below are the sectoral mitigation measures:

AFOLU SECTOR

This sector is composed of mitigation measures from Agriculture (crops and livestock), Forestry, and Other Land Use (wetlands), etc.

Agriculture, Forestry and Other Land Use (AFOLU) Sector

Table 3-1: Mitigation measures and actions for AFOLU Sector

SR	STRATEGIC MITIGATION ACTION	MITIGATION MEASURES	DESCRIPTION	MITIGATION SECTOR AFOLU	PROGRESS INDICATORS	GHG COVERED
1	Promote Climate Smart livestock management practices	Promote the use of improved high-yielding livestock breeds.	The measure aims at promoting the use of improved high-yielding livestock breeds to reduce emissions by a certain percentage across all production systems.	Agriculture	Number of improved livestock breeds	CH4 N2O
		Promote the use of low-carbon animal feeds and improve animal nutrition.	The measure aims to establish fodder agroforestry plantations for zero grazing and stall feeding and selections of high-quality feed that will reduce methane released from enteric fermentation.	Agriculture	% uptake improved low carbon animal feeds	CH4 N2O
		Improve livestock manure management	The measures aim to strengthen livestock feed additives and rotational grazing to sequester carbon in the soil, manage manure to reduce methane and nitrous oxide, and cover manure storage facilities.	Agriculture	% uptake of livestock manure mgt practices	CH4 N2O
2	Promote of climate smart sustainable land management (SLM) practices	Promote community CSA through minimum tillage and mulching for soil carbon enhancement and storage.	The measure is aimed at reducing emissions from soil and land degradation and increasing soil carbon sequestration and stocks.	Agriculture	Ha under minimum tillage Increase in crop mulch fields	CO2
		Promote community initiative organic and compost manure farming practices.		Agriculture		N2O
		Enhance the restoration efforts of natural forests using indigenous tree species (re-afforestation, enrichment planting and natural regeneration)	This measure will aim to restore natural forests in private natural forests that have lost their forest cover through enrichment planting with indigenous tree species	Forestry	Area in Ha of forest land restored	CO2
		Support establishment of agroforestry practices for small holder farmers		Agriculture Forestry		CO2

		Promote cultivation of high yielding upland rice	To address methane emissions from rice cultivations, this approach aims to increase rice productivity by encouraging the cultivation of high yielding upland rice rather than low land paddy rice cultivated in wetlands.	Agriculture	Increase in area of upland rice being grown Decrease in area under paddy rice being grown	CH4
		Promote the establishment of timber plantations for large scale farmers and industrialists		Forestry		
3	Wetland management	Promote wetlands restoration and rehabilitation efforts.	This measure entails implementing wetland management practices such as demarcation, gazettement, and restoration of degraded wetlands.	Other Land Use	Number of wetlands demarcated and restored Size of wetland area (Ha) restored	CH4
4	Enhance District level GHG sector categorization and profiling	Support activity data collection for livestock GHG categories.	The measure aims to improve data management for Livestock activity and improve District GHG profile for the livestock sector	Agriculture	Improvement in livestock activity data collected	Non_GHG Action
		Support activity data collection for forestry and wetland GHG categories.	The measure aims to improve data management for forestry and wetland activity to improve District GHG profile for the livestock sector	FOLU	Improvement in FOLU activity data collected	Non_GHG Action
		Support activity data collection for crop agriculture (soil Carbon, Paddy rice etc)	The measure aims to improve data management for crop activity data to improve District GHG profile for the livestock sector	Agriculture	Improvement in crop activity data collected	Non_GHG Action

WASTE SECTOR

Mitigation measures in the waste sector include actions that facilitate efficient solid waste and wastewater management.

Table 3 - 2: Mitigation measures and actions for Waste

SR	STRATEGIC MITIGATION ACTION	MITIGATION MEASURES	DESCRIPTION	MITIGATION SECTOR WASTE	PROGRESS INDICATORS	GHG COVERED
1	Promotion of climate friendly waste management practices	Improve and support urban waste separation and collection systems	The measure will involve the introduction of municipal waste separation collection systems	Waste	Reduction of waste in landfills Adoption of proper functioning of collection system designed for different fractions of waste	CH4
		Promote school bio latrines in education institutions within the district	This measure is aimed at introducing biogas digesters in primary and secondary schools. The digesters will be fed by waste from bio latrines and used for cooking thereby reducing use of firewood for cooking	Waste	Number of education institutions with bio latrines installed	CH4
		Promotion of waste reuse and recycling technology	This measure seeks to promote the reuse, recovery and recycling of waste as well as a source of employment	Waste	% Uptake of waste reuse, recovery and recycling practices such as making of briquettes	CH4
2	Enhance District level GHG sector categorization and profiling	Support activity data collection for solid waste sub sector	The measure aims to improve data collection and management for solid waste to improve District GHG profile	Waste	Improvement solid waste activity data collected	Non_GHG Action
		Support activity data collection for waste water sub sector	The measure aims to improve data collection and management for waste water to improve District GHG profile	Waste	Improvement waste water activity data collected	Non_GHG Action

OTHER MITIGATION SECTORS AND ACTIONS

Energy Sector

Table 3-3: Mitigation measures and actions for Energy Sector

SR	STRATEGIC MITIGATION ACTION	MITIGATION MEASURES	DESCRIPTION	MITIGATION SECTOR ENERGY	PROGRESS INDICATORS	GHG COVERED
1	Enhance efficiency of energy for cooking	Promote the production and uptake of energy-efficient biomass cook stoves.	The measure aims to increase cooking energy efficiency through the use of efficient charcoal and fuelwood stoves in institutions (schools and hospitals) and at households.	Energy	1. Number of households using improved cookstoves 2.Number of institutions (schools and hospitals) using improved cookstoves	CO2
		Support household and institutional-level establishment of energy woodlots	The measure will increase access to fuel wood and reduce emissions from deforestation in natural forests.	Energy	Ha of woodlots established at institutional and HH	CO2
		Improve charcoal production efficiency.	The measure aims to increase the efficiency of charcoal manufacturing, and reducing deforestation in the forestry sector.	Energy	Improved efficiency in charcoal production.	CO2
		Promote use of biogas energy for cooking	The measure will reduce emissions from deforestation associated with charcoal production and fuel wood, and livestock emissions from animal wastes.	Energy	Number of HH and Institutions using biogas for either lighting and or cooking	CH4 CO2
2	Improve access to clean and renewable energy	Promote solar energy use	The measure seeks to increase the uptake of solar energy for lighting	Energy	Number of households using solar in the district Number of institutions in the district (schools and hospitals) using solar	CO2
		Advocate and encourage the scaling up of community-level access and connectivity to grid hydroelectricity.	The measure aims at reducing household emissions from kerosene lamps and indoor air pollution.	Energy	% increase in home connections to grid electricity	CO2

3	Enhance District level GHG sector categorization and profiling	Support activity data collection for energy (non-mobile)	This measure aims to improve data management for non-mobile energy to be able to improve the district GHG profile for the energy sub sector	Energy	Improvement in energy industry activity data collected	Non_GHG Action
		Support activity data collection for energy (mobile)	This measure aims to improve data management for mobile energy to be able to improve the district GHG profile for the transport subsector	Energy	Improvement in transport activity data collected	Non_GHG Action

Industrial Processes and Product Use (IPPU) Sector

Table 3-4: Mitigation measures and action for IPPU Sector

SR	STRATEGIC MITIGATION ACTION	MITIGATION MEASURES	DESCRIPTION	MITIGATION SECTOR IPPU	PROGRESS INDICATORS	GHG COVERED
1	Promote Industrial/factory Symbiosis and material recycling:	Encourage waste Reduction, Reuse, and Recycling at manufacturing companies.	The measure is to reduce waste generation and promote waste management at the factory level.	IPPU Waste	No of Factories/ industries implementing 3Rs	CO2 CH4
		Intensification of monitoring of industrial pollution (solid, liquid, and air)	The measure is aimed at enforcing compliance against industrial pollutants most associated with GHG at source for the 3 waste categories (soil, effluent, and air).	IPPU Waste	% improvement in industrial waste compliance	Non_GHG Action
2	Enhance energy efficiency at factory level	Encourage energy efficiency at factory level for example use of energy-saving bulbs, switching off electrical appliances when not in use.	The measure intends to promote industrial energy use efficiency.	IPPU Energy	% of industries/factories adopting good energy-saving practises	Non_GHG Action
3	Enhance District level GHG sector categorization and profiling	Support activity data collection for IPPU sector GHG categories	The measure aims to improve data management for IPPU sector to improve District GHG profile for the IPPU sector	IPPU	IPPU activity data collected annually	Non_GHG Action

COMPONENT 4: DELIVERY MECHANISM

The delivery mechanism chapter provides information on the enabling environment for the implementation of the DCCAP priority adaptation and mitigation actions and measures. The component specifically presents four (4) thematic areas needed for effective implementation of the DCCAP, i.e., capacity gaps and needs, gender and climate change mainstreaming, financial requirements and mechanisms, and coordination of DCCAP implementation.

4.1 Capacity Gaps and Needs (Enabling environment, institutional and individual)

This section of the DCCAP is informed by the District Capacity Needs Assessment (CNA) Report (Buikwe CNA Report 2023, which highlighted and recommended capacity gaps and needs to enhance the implementation and management of climate actions at the district and community level, with a focus on the three capacity assessment dimensions of the enabling environment (policies and laws); institutional capability to manage climate change; and at the individual level to effectively address the challenges of climate variability and change.

According to the evaluation report ((Buikwe CNA Report 2023), the policy and legal framework to guide the implementation of climate initiatives in local government is insufficient, with limited institutional capabilities to support the coordination and management of climate change, such as insufficient structures and infrastructure, as well as instruments for monitoring, reporting, measuring, and assessing climate actions, hazards, and risks.

The analysis revealed numerous individual and community capacity gaps and needs in terms of knowledge and skills for climate actions, including practical and awareness-raising activities, climate change tools applications and technologies, research, and human resource skills development across various delivery models and approaches ranging from workshops, seminars, short and long-term training courses, and exchange visits, among others (Buikwe CNA Report 2023). As a result, the tables below present the capacity requirements for several categories (district and community) for various dimensions that have been prioritised for effective climate implementation and management, as well as for strengthening district-wide coordination of climate action.

4.1.1 District Level Capacity Building Needs at Three Dimensions

Table 4-1: District Level Capacity Needs (Policy, And Legal Framework)

DISTRICT LEVEL CAPACITY NEEDS				
ENABLING ENVIRONMENT DIMENSION (POLICY, AND LEGAL FRAMEWORK)				
SR	**Capacity Need/Requirement**	**Classification**	**Beneficiaries/Target Audience**	**Delivery Approach/ Mode**
1	Enhance the district-level understanding and knowledge of the National Climate Change Policy and legal frameworks by disseminating the National Climate Change Act 2021 and the Updated Nationally Determined Contribution (NDC).	Awareness	All technical and political staff	1.Workshops/Seminars 2. Policy briefs
2	Develop district-specific ordinances and by-laws on climate change.	Practical and Awareness	District Political and Technical	1. Short-term consultancy. 2. Stakeholder consultation

Table 4-2: District Level Capacity Needs (Institutional)

DISTRICT LEVEL CAPACITY NEEDS				
ENABLING ENVIRONMENT DIMENSION (INSTITUTIONAL)				
SR	**Capacity Need/Requirement**	**Classification**	**Beneficiaries/Target Audience**	**Delivery Approach/ Mode**
1	Operationalize the district-level structure for coordination of climate change as provided for under the National Climate Change Act 2021 through the inauguration of a district climate change committee.	Coordination	District Political	Inauguration of the District Environment Committee with added responsibility for climate change
2	Fully institute and mandate the Natural Resources Department as the district focal point for coordinating and reporting on climate change in the district.	Coordination	ENR _Department	Terms of Reference (ToRs) for District-ENR Department updated to include coordination responsibility for climate change actions.
3	Invest in climate change research across sectors and establish district-level demonstration centres of various climate change technologies to generate knowledge for improving resilience planning and decision-making.	Awareness Practical Training Infrastructure,	District Technical and Community	Funds for climate change Research Establish climate-smart technology demonstration centers

4	Develop a resource mobilization strategy for capacity building at all levels	Awareness	Human Resource	Facilitation for development of resource mobilization strategy
5	Strengthen institutional human resources capacities to address climate change through recruitment and knowledge enhancement, including for existing staff.	Awareness	District Technical staff	Recruitment of more district technical staff to fill the staffing gap Retooling of the newly recruited and existing staff through supporting short- to long-term studies on climate change
6	Mainstream climate change in all climate-sensitive sectors of the district through both "actions" and "budgets" in the district development plan and annual work plans.	Coordination	All Technical staff	Mainstreaming exercise, meetings, and workshop sessions
7	Develop and refurbish weather and climate monitoring stations in various sub-counties of the district to improve data accuracy and early warning.	Infrastructure	All district Departments, Community and non-state actors	Procurement and installation of automatic weather stations

Table 4-3: District Level Capacity Needs (Individual)

DISTRICT LEVEL CAPACITY NEEDS				
ENABLING ENVIRONMENT DIMENSION (INDIVIDUAL)				
SR	**Capacity Need/Requirement**	**Classification**	**Beneficiaries/Target Audience**	**Delivery Approach/ Mode**
1	Build the Capacity of the district technical staff in conducting Climate Risk, Impact, and Vulnerability Assessment (CRVA) across all sectors.	Practical	All ENR staff Other select department staff	Practical workshop sessions Short-term course: Training
2	Strengthen the capacity of the district technical team in the practical mainstreaming of climate in district projects using Climate and Disaster Risk Screening (CDRS) tools.	Practical	All district Technical staff Political staff for awareness	Practical training/workshop
3	Build the capacity of the district technical staff in greenhouse gas (GHG) Inventory profiling and computation for the AFOLU, Waste, and Energy sectors.	Practical	ENR and Production Department Staff	Short cause training

4	Build the capacity of district technical staff in Measuring, Reporting, and Verification (MRV) to enhance district reporting on climate change.	Practical	All district Technical staff	Short-term training and practical workshop sessions
5	Enhance the district's understanding and knowledge of international and national policies and laws on climate change, both technical and political.	Awareness	Political and Technical	Awareness Workshops Participation in the International forum National and international attachments
6	Facilitate district participation in national and international climate change forums for exposure and resource mobilization.	Awareness	Political and Technical	Facilitation of district staff participation in the International Climate Change Forum
7	Train district staff in climate financing, proposal writing, and mainstreaming gender and climate change in work plans and budgets.	Awareness and Practical	District Technical	Training on climate financing, proposal writing, and integration into work plans and budgets
8	Enhance individual district human resources capabilities to address climate change through investment in short- and long-term academic advancement, such as supporting district technical staff to undertake post graduate programmes on climate change.	Awareness, Skills development and Practical	District Technical Staff	Short and long-term courses on climate change
9	Re-tool the district technical staff with the most recent GIS software and modules for mapping hazards, risks, and natural resources monitoring and assessment.	Practical	District Technical staff from ENR, Production, Water, Works	Short term Training Attachment for Coaching and Mentorship
10	Enhance the knowledge and capacity of the district staff in the interpretation of weather, and climate data and information.	Awareness and practical	Technical	Training and workshop
11	Train and equip district technical staff with knowledge on various Climate Smart Technologies (such as fish farming, Agroecology, water harvest and use efficiency, soil and water conservation, eco-tourism, and green infrastructure).	Practical and awareness	District Technical	Short Course training Peer to peer learning

12	Build the capacity of select district staff on basic climate change science and its impacts on sectors.	Awareness	District Technical and political	Workshop and Seminars

Community Level Capacity Building Needs at Three Dimensions

Table 4-4: Community Level Capacity Needs (Policy, And Legal)

COMMUNITY_ LEVEL CAPACITY NEEDS				
ENABLING ENVIRONMENT DIMENSION (POLICY, AND LEGAL FRAMEWORK)				
SR	**Capacity Need/Requirement**	**Classification**	**Beneficiaries/Target Audience**	**Delivery Approach/ Mode**
1	Dissemination of popular versions of national climate change policy, law, and strategies, including the district's ordinances and bylaws on climate change	Awareness	Local environment Committees Communities	Workshop/Seminars

Table 4-5: Community Level Capacity Needs (Institutional)

COMMUNITY_ LEVEL CAPACITY NEEDS				
ENABLING ENVIRONMENT DIMENSION (INSTITUTIONAL)				
SR	**Capacity Need/Requirement**	**Classification**	**Beneficiaries/Target Audience**	**Delivery Approach/ Mode**
1	Activation and re-tooling of environmental committees to include climate change at the sub-county and parish level	Awareness	Local Environment Committee	Expanding the ToRs of Committee to included climate change and induction
2	Promote formal registration and facilitation of farmer and community groups that relate to climate action.	Practical	Community	Climate Change group(s) registration
3	Establish and facilitate Community of Practice (CoP) related to Climate change at parish level (Famer field schools)	Awareness and Practical	Community	Seminars and workshops

Table 4-6: Community Level Capacity Needs (Households and Groups)

COMMUNITY_ LEVEL CAPACITY NEEDS				
ENABLING ENVIRONMENT DIMENSION (HOUSEHOLDS AND GROUPS)				
SR	**Capacity Need/Requirement**	**Classification**	**Beneficiaries/Target Audience**	**Delivery Approach/ Mode**
1	Build local communities' capacity and skills to construct household-level energy-efficient cookstoves, specifically targeting women and youth.	Practical training and awareness	Youth and Women	Onsite demonstration Training and seminars
2	Conduct community skill development in the establishment of bioenergy plantations and woodlots.	Practical training	Community groups both men and women	Onsite demonstration Training and seminars
3	Conduct Ecosystem-based Adaptation (EbA) community training to improve natural resource management for adaptation and resilience building.	Awareness and Practical	Communities adjacent to major ecosystems	Community training and seminars
4	Raise community awareness of the causes and consequences of climate change and enhance their interpretation of weather and climate data and information.	Awareness	All communities	workshop seminars
5	Train communities on record-keeping and reporting on climate hazards, extremes, and impacts to enhance local-level planning and adaptation to climate change.	Awareness and Practical	Select community members	Community workshops and seminars
6	Conduct community training in sustainable land management, including Agroecology and climate-smart agriculture-based practices, and Soil and water conservation, soil and water conservation, as a form of adaptation and resilience building.	Practical and awareness	Communities	Community workshops and seminars Onsite demonstrations
7	Improve community knowledge and skills in various water harvesting techniques, applications, and usage.	Awareness and Practical	Communities	Onsite demonstrations

8	Training in eco-tourism community-led-based practices along major natural resources such as lakes, rivers, forests, and rocks, among others.	Awareness and Practical	Communities	Onsite demonstrations
9	Conduct community-to-community exchange visits to enhance knowledge sharing and exchange on the impacts of climate change and actions for adaptation and mitigation across sectors and communities of similar characteristics.	Awareness	Communities	Peer to Peer learning
10	Improve and fortify community adaptation planning skills in the areas of climate change and disaster risk management and response.	Awareness and Practical	Communities	Training workshop
11	Identify and train community-level livestock household practitioners in pasture growth and management for climate-smart livestock actions and production.	Awareness and Practical	Livestock farmers	Training seminars Creation of demonstration centers
12	Enhance community knowledge and skills in climate change and sustainable fishing activities, and train and skill offshore communities in aquaculture practices to improve livelihoods.	Awareness and Practical	Fishing Communities and Offshore Communities along major wetlands	Seminars and practical trainings/Demonstration
13	Improve community-level resilience planning through the integration of indigenous knowledge practises with climate science and documenting lessons learned with communities.	Awareness and documentation	Communities	Documentation of IK for climate change Planning meetings
14	Build capacity of men in sustainable charcoal production and brick production	Awareness and Practical	Men and youth	Practical Trainings and demonstration
15	Create community level awareness on waste management	Awareness	All category	Community training and seminars

4.2 Gender and Climate Change

This particular section of the DCCAP is informed by the analytical assessment conducted as a part of the DCCAP formulation process to address gender gaps in the delivery of adaptation and mitigation initiatives. (Buikwe Gender and Climate Change Analysis Report 2023.

The district is experiencing several climate extremes (drought, floods, and hailstorms), some of which occur simultaneously and affect different gender categories differently in terms of livelihoods, health, social interactions, and economic activities.

Weather and climate change have had a negative impact on the community's crop harvests in terms of quantity and quality, with men bearing the brunt of the burden (70%), while women only account for 30%. However, when reflecting on household-level food security and nutrition, women bear the most burden. (Buikwe Gender and Climate Change Analysis Report 2023).

The majority of livestock owners are men (92%), with women accounting for only 5%. Cattle milk output has dropped as a result of the severe drought. Because of this ownership tendency, males are disproportionately affected, and initiatives to address livestock adaptation should primarily target men.

In terms of housing infrastructure, torrential rains and high winds have impacted semi-permanent homes, mostly in low-income communities in the district. Women, children, people with impairments, and the elderly are particularly vulnerable, and the impassibility of roads due to flooding has also affected women's and PWD's access to health centres and children's access to schools.

Droughts have historically hampered populations' access to potable water. Considering the social and cultural norms of women's and children's involvement in collecting water, this has disproportionately impacted them, as well as the elderly and those with disabilities. Initiatives for clean domestic water would alleviate the strain on women and children from trekking long distances to fetch water and minimise hygienic disorders resulting from contaminated water sources.

According to the study, male dominance in primary fishing activities (90%) put them at greater risk from climate variability and change in fisheries, such as fish stock declines owing to increased temperatures. Women engage more in secondary fishing activities, including drying and cleaning fish. Female livelihoods are similarly impacted by stock reductions, particularly in fish-dependent communities.

The focus of gender-based climate change initiatives and efforts is to eliminate gender barriers and strengthen the capacities of vulnerable people at all levels: institutional,

community, and household, with a particular emphasis on the livelihoods of men and women, youth, elderly people, and ethnic minorities for adaptation and mitigation to climate change

Gender and Climate Change Strategies

Table 4-7: Gender and Climate Change Strategies

BUIKWE DISTRICT-LEVEL GENDER AND CLIMATE CHANGE ACTIONS/INTERVENTION			
SR	**Gender Climate Change Action**	**Beneficiaries/Target Audience**	**Delivery Approach/ Mode**
1	Review and disseminate the Parenting Guidelines with the component of climate change and environment.	Community members, Local Leaders, FBOs, Technical and Political Staff, Schools, CBOs, NGOs, Care takers of children	Sensitization, training, various Media, Resource Person, Validation, Printing
2	Develop simplified practical messages on climate change for parents and caregivers	Community members, Schools, CBOs, NGOs, Care takers of children	Short term Consultancy Validation
3	Awareness and sensitization on the role of women in the fishing sub sector vis-a vis culture	Community members, Technical staff, political leaders, FBOs	Sensitization meetings, media engagement
4	Conduct targeted community sensitizations and awareness-raising programs, including marginalised groups such as youth, PWDs, the elderly, and women, widows, on the special needs of women and men in addressing climate change.	Community members, Technical staff, women, older persons, youth and PWDs, groups (women, youth and elderly)	Sensitization, training and awareness creation
5	Develop district gender and climate change indicators and a checklist for programming and planning.	Technical and Political officials	Resource Person, internal consultations and validations
6	Develop a district-specific gender strategy that incorporates climate change.	Technical staff, Political Officials, Communities, District Councilors and Opinion Leaders	Resource Person, internal consultations and validations
7	Promote women's leadership at the district and community levels as climate change agent champions.	Women, Technical and Political officials	Sensitisation, lobbying, Affirmative Action, Capacity building for women leaders
8	Build capacity and gender sensitivity of mixed-sex working committees and boards to facilitate increased male involvement in addressing Gender Equality and Women's Empowerment; and formalise Male Action Groups	Working groups, technical staff, women's groups, male action groups, clan elders	Lobbying, Advocacy, Sensitization, Benchmarking and Exposure
9	Promote and strengthen gender and equity budgeting as a good practice with climate change as a cross cutting theme	Technical staff	Sensitization, Training on Gender and Equity Budgeting

10	Develop multimedia campaigns for advocating and taking action against climate change and related gender-based violence at the community level.	Technical and Political Officials, Communities	Advocacy, Media Resource Person, consultations, Awareness
11	Take affirmative action for women and other vulnerable groups to have equitable representation in institutionalizing and establishing climate change committees and working groups at all local government levels.	Women, Youth, PWDs, Older Persons, Technical and Political officials	Advocacy, sensitization, Lobbying
12	Build capacity across all gender categories in sustainable fishing activities and empower women's participation in primary fishing activities.	Fishing Communities, Technical Staff, Resource Person	Resource Person, Technical training/capacity building
13	Take affirmative action to enhance women's ownership and access to land rights as social protection for resilience building.	Women, Community Leaders, Technical staff, political officials	Dissemination of the Land Laws, Sensitization, Awareness creation
14	Train and skill communities in climate-resilient and low-carbon employment opportunities such as tree nursery operations, and apiaries, Plastic management and energy with a focus on women, youth, and people with disabilities (PWDs)	Women, Youth, Older Persons, PWDs, technical and political officials	Training, Resource Person
15	Take affirmative action on building the youth's knowledge and skills on environmental conservation and climate change.	Youth, Community Leaders, Technical and Political staff	Sensitization of Youth, Media engagement, awareness creation

4.3 Financial Requirements and Mechanisms (Financial requirements up to 2030 for adaptation, mitigation, capacity building and coordination and sources)

To implement this DCCAP, the district requires Uganda shillings totaling 106,486,900,000 billion for seven (7) years between 2023 and 2030. 94,526,900,000 Uganda shillings is required for the implementation of adaptation and resilience interventions; 6,720,000,000 Uganda shillings for mitigation measures; and 5,240,000,000 Uganda shillings for the implementation of the delivery mechanism component (capacity building needs, gender, and coordination). Both the Government of Uganda (GoU) and Development Partners (DP), as well as the private sector and non-governmental Organisations (NGOs), will contribute funds, either from on- or off-budget sources.

Table 4-8: DCCAP Financial Requirements

DCCAP Financial Requirements 2023-2030					
SR.	**DCCAP THEMATIC AREA/COMPONENT**	**BUDGET UGX BILLIONS**	**USD @ {3700} MILLIONS**	**PERCENTAGE (%)**	**SOURCES OF FUNDS**
1	Adaptation	94,526,900,000	25,547,811	89	GoU, DP, NGO and Private Sector
2	Mitigation	6,720,000,000	1,816,216	6	GoU, DP, NGO and Private Sector
3	Delivery Mechanism	5,240,000,000	1,416,216	5	GoU, DP, NGO and Private Sector
Grand Total		**Ugx 106,486,900,000**	**$ 28,780,243**		

4.4 Coordination of DCCAP Implementation (Institutional Arrangements)

Part V, Sections 18, 19, and 20 of the National Climate Change Act of 2021 provide for district-level institutional arrangements for climate change coordination and management, which the DCCAP shall follow

Section 18: The Natural Resource Department of the district is designated as the department responsible for climate change matters in the district and is therefore responsible for the implementation of the District Climate Change Action Plan in liaison with other departments.

The department is responsible for promoting awareness and literacy on climate change, providing technical assistance to the District Environment and Natural Resources Committee and the lower local governments' climate change committees on matters related to climate change, coordinating the development of ordinances and bye-laws relating to climate change in the district, monitoring, evaluating, and reporting compliance with the implementation of the DCCAP, preparing and submitting an annual report on the implementation of the DCCAP to the District Environment and Natural Resources Committee for review, and coordinating all district-level climate change activities across all actors.

With such a huge task, the department requires tools, transport, and computer equipment to efficiently carry out the coordinating function as outlined in the National Climate Change Act of 2021.

Section 19: The District Environment and Natural Resources Committee, established under section 27 of the National Environment Act 2019, is designated as the committee responsible for climate change matters in the district. The committee has the

responsibility to ensure the integration of climate change into the development plans, projects, and budgets of the district for approval by the district council; provide assistance in the development and formulation of ordinances and bylaws relating to climate change in the district; disseminate information on climate change through education and outreach programmes; and monitor and evaluate the implementation of climate change activities within the district.

Section 20: Establish and appoint, on the advice of the District Environment and Natural Resources Committee, lower local government climate change committees responsible for climate change in their local jurisdictions. The committees will be in charge of implementing the DCCAP at the municipal, town council, division, county, sub-county, parish, and village levels, as appropriate; developing work plans for climate change adaptation and mitigation activities within their local jurisdictions; mobilising community participation within their local jurisdictions to implement climate change adaptation and mitigation measures and actions; and monitoring and evaluating climate change actions at the local level.

Other District Departments will be responsible for planning, budgeting, and implementing the priority adaptation and mitigation actions and measures identified in this DCCAP and will report to the District Department in charge of Climate Change Coordination (the District Natural Resource Department) on a quarterly basis for compilation and presentation to the District Natural Resources Committee and will coordinate the revision and update of the DCCAP process.

The District Department Responsible for Climate Change will compile an annual report on climate change and DCCAP implementation for the District Natural Resource Committee's consideration and submission to the UNFCCC National Focal Point Institution (Climate Change Department, Ministry of Water and Environment).

4.5 Monitoring, Reporting and Evaluation

For purposes of the DCCAP, the District Environment and Natural Resources Department shall be responsible for monitoring, reporting and evaluation of the implementation all the priority DCCAP action across all sectors, make quarterly reporting to the District Environment and Climate Change Committee and submit a district annual consolidated climate change monitoring report to Climate Change Department to feed into Biannual National Climate Change Report.