



CLIMATE CHANGE MAINSTREAMING GUIDELINES

FOREST, ENERGY AND WILDLIFE SECTOR



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FOREWORD



Green Africa Foundation was founded in Kenya in the year 2000 with a focus of implementing practical community driven projects towards greening Africa. The organization has actively been implementing a number of projects covering: Climate Change, Policy Advocacy, Environmental Conservation, Agriculture, Water and Energy. The organization has been very instrumental in policy advocacy that has seen through a number of policies coming to fruition both at the county and the national level and with agenda of mainstreaming climate change at the county level taking precedence.

The project that enabled the formulation of these guidelines was a DFID StARCK+ Extension Programme, funded through the Act Change Transform (Act! - NRM component) and implemented by Green Africa Foundation. The project's overall goal was to consolidate prior efforts towards completion of climate change legislation and cross sectoral coordination for enhanced climate change main streaming. The objective was to support selected counties, namely Garissa, Marsabit and Wajir to move forward with completion of their climate change legislations and also develop the sectoral climate change mainstreaming guidelines for priority sectors with a view to help give input to the review process of County Integrated Development Plans (CIDPs) 2018-2022. This objective was achieved through a programmatic approach and in partnership between Green Africa Foundation and the county governments of Garissa, Marsabit and Wajir, as well as other stakeholders including national government agencies, the private sector and Civil Society Organizations.

These guidelines are intended to assist the County Government of Marsabit to attain climate change main streaming in the water and sanitation sector by providing a framework for integrating climate change responses for the sector into county planning processes, especially the 2018- 2022 CIDP, as well as other processes such as performance contracting and budget making.

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Hon. CEC Environment and Natural Resource Wajir County Government

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Further gratitude to the County Government of Wajir where this project was implemented through the County departments of: Environment & Natural Resources, Agriculture & Livestock, Water, Energy, Disaster Response Unit, Health, Office of the County Secretary, County Assembly relevant committees and all other departments involved.

To the Kenya Forest Service, Kenya Wildlife Service, Kenya Forest Research Institute, WARMA, local Community Based Organizations, Non-governmental Organizations and Private Sectors who sent representatives who contributed immensely to this process, we highly and sincerely appreciate your valuable contribution. Mr. Jimale Mohamed & Adan Mohamed of ALDEF Wajir branch, may God bless you and reward your efforts and commitments towards ensuring this process was a success.

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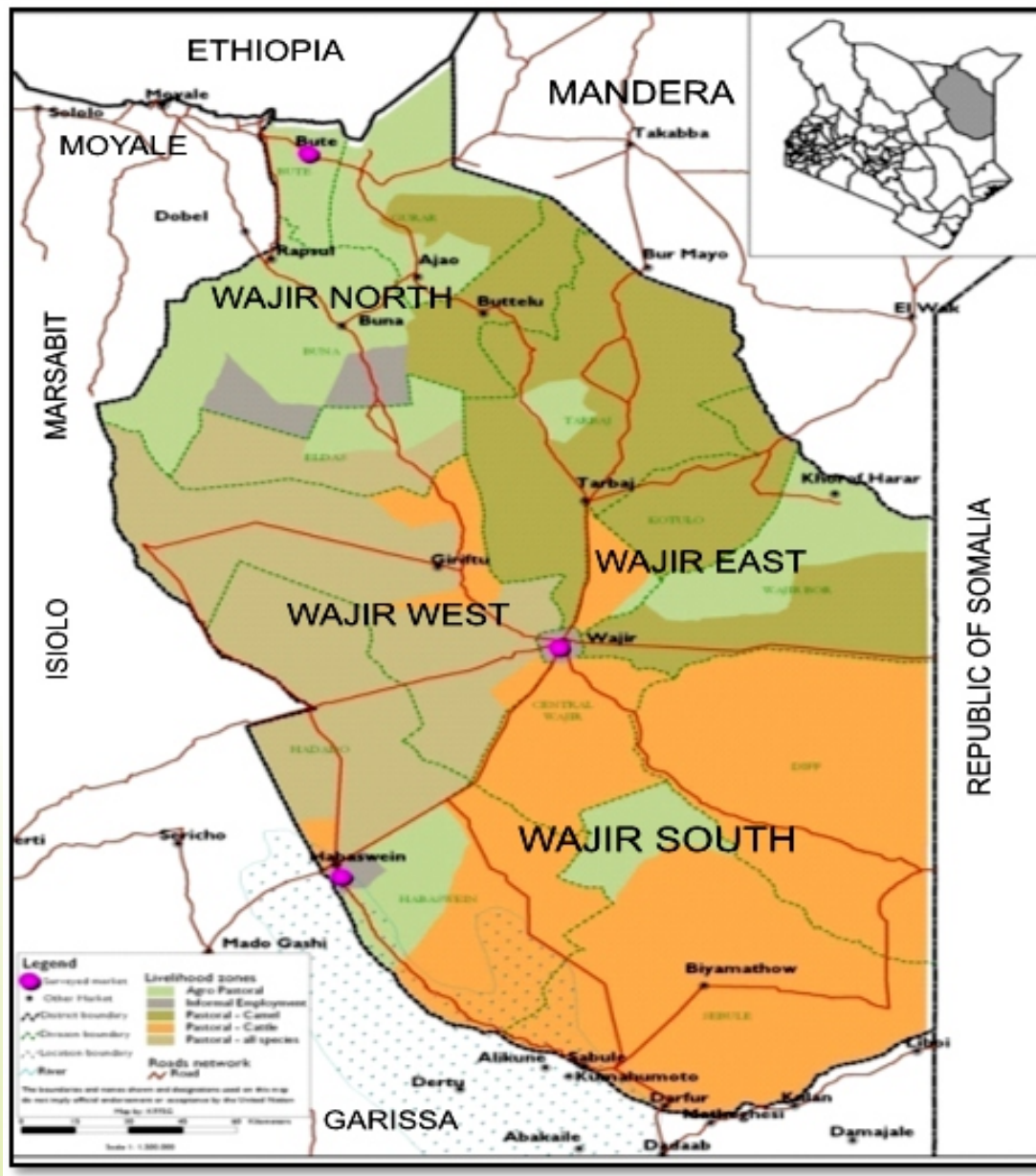
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1.0 WAJIR COUNTY BACKGROUND INFORMATION

1.1 Location and Administrative Units

Wajir County is located in the North Eastern region of the Republic of Kenya between latitudes 1° N 60'N and 0° 20'N and longitudes 39° E and 41° E and covers an area of 56,685.9 Km². It borders Somalia to the East, Ethiopia to the North, Mandera County to the North East, Isiolo County to the South West, Marsabit County to the West and Garissa County to the South. The county comprises of six sub-counties namely: Wajir East, Wajir West, Wajir North, Wajir South, Eldas and Tarbaj. It is further sub-divided into 8 districts, 29 divisions, 30 wards, 142 locations and 172 sub-locations.



Map of Wajir County

1.2 Climate and Topography

Wajir County has an annual average relative humidity of 61.8 % ranging from 56 % in February to 68 % in June. The average annual precipitation received in the county is 240 mm. The annual average temperature is 27.9 °C with maximum temperatures ranging between 31°C in July and 36°C in March while minimum temperatures range between 21 °C in July and 24°C in April.

Wajir County is predominantly plain and lies between 150 metres and 460 metres above sea level and rises gently from the south and east towards the north rising to 200 metres at Buna and 460 metres at Bute and Gurar at the foothills of the Ethiopian highlands.

1.3 Hydrology and Drainage

Wajir County has one seasonal river and lake namely Ewaso Nyiro River and Lake Yahud respectively. The county is prone to seasonal flooding during the rainy season. The county's seasonal swamps and drainage lines serve as grazing zones during the dry season as well as for cultivation during the rainy seasons. The swamps are in Lagboghohol area and in the western and southern part of Habaswein area. The county is generally covered with young sedimentary rocks with loamy soils in the north bordering the Ethiopian highlands.

1.4 Population

According to the Kenya 2009 Population and Housing Census, Wajir County was projected to have a total population of 852,963 in 2017. The males comprise 55 per cent of the population whereas female population account for 45 per cent. 84.2 per cent of the population is below 29 years. The county has an inter-censal growth rate of 3.22 per cent with an average population density of 13 persons per square kilometre. The county's population is mainly rural with only 13.8 per cent of the total population living in urban areas.

The Wajir County population is dominantly comprised of the Somali people who identify themselves through the clans. The main clans include: Degodia, Ajuran, and Ogaden. Most of the urban settlements are found in the county, sub-county and ward headquarters which also serve as market centers. On the other hand, the rural population of whom majority are pastoralists are found in the grazing reserves and watering points which may sometimes double as administrative locations and sub-locations. The settlements are modeled around clans, water and pastoral resources.

1.5 Economic Activities/Livelihood

Majority of the population in Wajir County depend on livestock for their livelihood. The main form of land use is nomadic pastoralism which is seen as the most efficient method of exploiting the range lands. Other economic activities practiced

in the county include small scale crop farming, mining and trading. Farming is practiced in depressions and along drainage lines where there is more moisture due to seasonal flooding, as well as around shallow wells, water pans and boreholes. Due to the aridity of the county, crop production is limited and contributes little to food security. Most inhabitants of the county rely on livestock products like milk and meat as their staple food. The main crops produced include sorghum, drought resistant maize, beans, melons, cowpeas, green grams and horticultural crops like kales, spinach, tomatoes, sweet and hot peppers. These activities are mostly undertaken in small scale for subsistence but commercial farming is beginning to take root in the county.

1.6 Forest Cover and Wildlife

Wajir County has no gazetted forest but has 1.99 per cent woodland cover of Kenya's 6.99 forest cover. However, most of the forest cover is comprised of woody trees and shrubs used for grazing by domestic animals and wildlife. The dominant species is acacia commiphora woodlands/trees which produces gums and resins that are only second to livestock in terms of supporting economic livelihoods in the county. The main forest products include gum and resin, charcoal, firewood, posts, barks, honey, wood carvings and wild fruits. Gums and resins are products that have high value in the international markets. It is used in many applications including cosmetics and pharmaceuticals, paints, confectionaries and soft drink industries, manufacture of acaricides and pesticides, among others.

In terms of wildlife, Wajir County is endowed with various game species like ostrich, hyenas, gazelles, lions, zebras, giraffes, warthogs, snakes and birds.

1.7 Water and Sanitation situation

The main sources of water in the county include underground water from boreholes and shallow wells, pans and dams as well as the seasonal Ewaso Nyiro River. Lake Yahud, which is an underground and permanent lake, situated on the periphery of Wajir town provides water for wildlife and quarry activities although the water is saline and not safe for human consumption. Only about 2 per cent of the county's households have access to piped water with many residents depending on water from water kiosks.

With regards to sanitation, more than 60 per cent of the population in Wajir County relieve themselves in the bush or open field. In the urban centres such as Wajir Town, only a few homesteads and institutions in the county are connected to septic tanks for sewer disposal. The bucket system is used for collection of human waste that is then collected by 'night soil men' for disposal by way of underground burying. This predisposes the population to disease outbreaks and the contamination of water sources with faecal coliforms. According to the Kenya Ministry of Health, Wajir County loses KES. 854 million each year due to poor

sanitation. This includes losses due to medical access time, premature death, health care costs and productivity.

1.8 Waste Management

Only 1.2 per cent of garbage generated is collected by the local authority while 0.6 per cent is disposed in a garbage pit, 8.3 per cent in public garbage heap and 89.9 per cent is burned. At least 13.6 per cent of the households have no place for human waste disposal with latrine accounting for 46 per cent.

1.9 Energy situation

Trees provide the major fuel for households, in terms of firewood and charcoal, which accounts for 96.5 per cent for domestic use as well as for use in institutions and hotels. For lighting, majority of the households depend on solar lanterns and solar torches.

2.0 MAINTREAMING CLIMATE CHANGE IN THE FOREST, ENERGY AND WILDLIFE SECTOR IN WAJIR COUNTY

2.1 Introduction

Like other counties in Kenya, Wajir County's economy is highly dependent on the natural resource base, and thus is highly vulnerable to climate variability and change. Rising temperatures and changing rainfall patterns, resulting in increased frequency and intensity of extreme weather events such as droughts and flooding, threaten the sustainability of the county's development.

Key economic sectors in Wajir County are particularly susceptible to climate change impacts and this threatens to undermine the county's recent and impressive development gains. It is therefore important that the county builds and enhances its climate resilience and adaptive capacity. Building climate resilience requires that Wajir County's systems of governance, ecosystems and society have capability to maintain competent function in the face of climate change. Adaptive capacity is key to improving socio-economic characteristics of communities and households as it includes adjustments in behaviour, resources and technologies, and is a necessary condition for design and implementation of effective adaptation strategies.

Climate change mainstreaming in the various sectors is necessary to equip various coordinating departments in the county government with the tools to effectively respond to the complex challenges of climate change. In this context, mainstreaming implies the integration of climate change policy responses and actions into county sectoral planning and management processes. This integration

operates by providing an overarching guidance system that requires all sectors of the government to implement climate change responses in their core functions. Mainstreaming is a process that encourages cooperation across government departments in planning for a longer-term period rather than fragmented, short-term and reactive planning. County governments are required by the County Governments Act, 2012 to prepare and implement County Integrated Development Plans (CIDPs). The CIDP provides an appropriate channel through which climate change actions can be mainstreamed into county sectoral development plans.

These guidelines are intended to assist the County Government of Wajir to attain climate change mainstreaming in the forest, energy and wildlife sector by providing a framework for integrating climate change responses for the forest, energy and wildlife sector into county planning processes, especially the CIDP, as well as other processes such as performance contracting, and the budget making process.

2.2 Rationale for Climate Change Mainstreaming in the Forest, Energy and Wildlife Sector

The distribution of most of Kenya's forests is determined by rainfall. With rainfall as one of the most affected climatic elements, the survival of Kenya's forest resources is likely to be severely affected. For example, the ASALs such as Wajir County are subject to recurring droughts, which when coupled with overexploitation of resources, result in high vulnerability to land degradation and desertification. The vulnerability of Kenya's forest resource especially in ASALs such as Wajir is further exacerbated by the depletion of forest and other land cover through rapid increase in population and demand for human settlements; both agricultural and grazing land; construction materials; food; fuel wood and charcoal; and herbal medicines.

Climate change adds to the stresses on Kenya's forest cover and wildlife by altering the growth of trees, causing dieback in forests and animal species to migrate, which will in turn impact on forest products supply and wildlife habitat. The reduction in forest cover will have disastrous effects on downstream agriculture and hydropower generation, with big rivers such as Ewaso-Nyiro being reduced to small streams and hundreds of other small rivers completely drying up especially during serious drought periods. This has serious implications for the livelihoods of those living downstream and the rest of the country, which depend on products from these ecosystems.

Climate change, especially increasing climatic variability continues to exacerbate the already serious environmental and forest degradation and deforestation problems many ASAL areas including Wajir County. Deforestation, degradation, desertification, natural disasters, spread of invasive species and loss of bio-

diversity are among the major concerns created by warming climate in Kenya.

Rangelands form some of the largest habitats for wildlife in Kenya and about 75% of the country's wildlife is found in these areas. This makes the country a key tourist attractions destination. Through tourism, wildlife is one of the country's major foreign exchange earners. However, the capacity for these lands to sustain human and wildlife habitation is gradually declining. This is due to extreme weather events such as intense and prolonged droughts and severe flooding, all associated with climate change. The majority of pastoralists are poor and their practice is weather dependent, therefore their adaptive capacity is low making them highly vulnerable to climate change. This is evident in many counties including Wajir, Marsabit, Kajiado, Tana River, Garissa, among others.

3.0 RISKS AND IMPACTS OF CLIMATE CHANGE IN THE FOREST, ENERGY AND WILDLIFE SECTOR

3.1 Land Degradation and Desertification

Natural ecosystems have been adversely affected by climate change, including through variations of temperature and precipitation. The ASALs such as Wajir County are particularly vulnerable to climate change impacts. They are currently under threat from land degradation and desertification caused by climatic variations, and human impacts such as overgrazing of livestock and the creation of settlements. Impacts include loss of biodiversity including threatening of species, change in vegetation composition and structure, decrease in forest coverage, rapid deterioration in land cover, and depletion of water quality and quantity through the destruction of catchments and underground aquifers. Increased scarcity of water resources is a core concern, making resource management more difficult and increasing the likelihood of conflict. Water scarcity will affect energy production, and agricultural systems.

3.2 Human Wildlife conflict

Long-term changes in climate exacerbate environmental degradation leading to loss of wildlife habitat in many vulnerable places. Furthermore, climate change will alter the location and nature of the geographical environment, and wildlife will be forced to migrate to new areas as a way of adapting or face extinction. As there are limited natural places left for wildlife to move to, this will likely bring wildlife into more densely populated human areas, and create situations of human wildlife conflict. In the case of Wajir County there have been rising incidences of hyenas attacking humans. This has been attributed to human encroachment of wildlife habitat in search of new settlements and grazing grounds.

3.3 Invasive and alien species

Invasive species, especially *Prosopis Juliflora*, have disrupted vast tracts of Kenya's rangelands as well as farms and critical natural habitats. Because invasive plant species are well suited to thriving in novel environments because of their ability to beat out competitors for resources and may be more adaptable to changing climate than indigenous plants. Already there is evidence in the ASALs such as neighbouring Garissa County that the *Prosopis Juliflora* menace is getting out of hand, and that if the same is not tackled as a matter of urgency, it will impact negatively on the environment and livelihood systems by taking over livestock and wildlife grazing fields, as well as prime crop production areas. For Wajir County, *Prosopis Juliflora* has not yet reached to menacing levels. There is, however, need to look into the positive contribution of the tree as it is good for charcoal production, it has palatable pods and in the height of drought the pods are used as fodder for the livestock, the wood is also good for furniture making and joinery, and it the tree is a good windbreaker.

4.0 STRATEGIES AND GUIDELINES FOR MAINSTREAMING CLIMATE CHANGE IN THE FOREST, ENERGY AND SECTOR IN WAJIR COUNTY

STRATEGIC ISSUE 1: VULNERABILITIES DUE TO CHANGES IN TEMPERATURE REGIMES AND PRECIPITATION PATTERNS			
Strategic Goal: Enhanced adaptive capacity and resilience of communities to impacts of climate change			
Strategic Objective: Institute measures to reduce the vulnerabilities of communities to changing temperature regimes and precipitation patterns			
Mainstreaming Strategies and Guidelines		Timeline	Responsible
I	The County Government will invest in systems for provision of accurate, timely and reliable climate/weather information to inform decisions of actors in the forestry and agro-forestry, wildlife and energy value chains. This will involve collaboration with national government agencies such as the Kenya Meteorological Department and Kenya Forest Service Kenya forest research institute, Kenya Wildlife Service, National Drought Management Authority for the establishment, improvement, modernization and maintenance of weather infrastructure; integration of scientific and indigenous knowledge and technical skills enhancement	By 2020	Departments of Environment, Energy, Agriculture, Livestock

	in weather data analysis, packaging, dissemination through local radio stations and public forums, and use of early warning weather information.		
II	The County Government will promote tree and vegetation species that are adapted to varied weather conditions. This will involve breeding and promoting the use of tree and forage vegetation varieties that are adapted to flooding, drought, strong winds, hailstorms, heat waves and frost as well as tolerant to emerging pests and diseases.	Continuous	Departments of Environment, Energy, Agriculture, Livestock
III	The County Government will invest in technology development, dissemination and adoption along forestry, energy and wildlife value chains. This will entail research that includes trees and forage varieties that are able to withstand weather variations, providing efficient extension and advisory services, research and development of modern technologies for green energy such as biogas, briquettes, solar and wind in order to move the community away from wood based cooking fuel, and improving the capacity of actors to use new or existing technologies.	Continuous	Departments of Environment, Energy, Agriculture, Livestock
IV	The County Government will promote diversification of enterprises and alternative livelihoods e.g. gum & resin, aloe, bee keeping and honey production, aquaculture, eco-tourism and community conservancies. This will include incorporation climate smart agro-forestry and pastoral production systems based on agro-ecological zones and priorities, promotion of sustainable alternative livelihoods away from forest resource exploitation, putting support to the alternative enterprises in form of grants, credit facilities and formation of producers associations and cooperative societies to enhance production and marketing.	Continuous	Departments of Environment, Energy, Agriculture, Livestock

V	The County Government will support on-farm, urban and peri-urban forestry for resilient communities. This will entail preparation and dissemination of guidelines for advancement of on-farm, urban and peri-urban forestry, promotion of forestry enterprises such as tree nurseries, demonstration or resource centres and education and awareness on the importance of tree planting.	Continuous	Departments of Environment, Energy, Agriculture, Livestock
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STRATEGIC ISSUE 2: VULNERABILITIES DUE TO EXTREME WEATHER EVENTS

Strategic Goal: Reduced vulnerabilities of communities to extreme weather events

Strategic Objective: Institute measures to reduce the vulnerabilities of communities to extreme weather events

Mainstreaming Strategies and Guidelines		Timeline	Responsible
I	The County Government will develop and implement systems for early warning and response, and ensure preparedness for extreme weather events. This will involve collaboration with national government agencies such as the Kenya Meteorology Department and the National Drought Management Authority in developing effective early warning systems, producing and disseminating of downscaled weather information on extreme weather events through local radio stations, public forums, mosques and other channels, and the preparation of contingency plans to end drought emergencies.	Continuous	Departments of Environment, Energy, Agriculture, Livestock, Disaster Risk Reduction
II	The County Government will invest in capacity development initiatives to reduce risks such as droughts, soil and wind erosion, floods and by encouraging hill-top tree planting and forest conservation, and strengthening the capacity of institutions in charge of environmental conservation, forest production, renewable energy and Disaster Risk Reduction (DRR) to cope with climate disasters.	Continuous	Departments of Environment, Energy, Agriculture, Livestock, Disaster Risk Reduction

STRATEGIC ISSUE 3: VULNERABILITIES DUE TO UNSUSTAINABLE NATURAL RESOURCE MANAGEMENT			
Strategic Goal: Enhanced resilience of forest, energy and wildlife systems to climate change impacts through sustainable natural resource management			
Strategic Objective: Mainstream sustainable natural resource management into production systems to enhance resilience of the farmers, pastoralists			
Mainstreaming Strategies and Guidelines		Timeline	Responsible
I	The County Government will establish baselines and undertake inventory of the existing forest and woodland and wildlife resources. This will entail reviewing and collating information on existing forest and woodlands and wildlife resources and their distribution; undertaking inventory and mapping of forest and woodland and wildlife resources; and developing and maintenance of database for forest, woodlands and wildlife resources; preparation of woodland management plan for the county; and establishment of legal mechanisms for gazetement of hills in the county for conservation purposes.	By 2019	Departments of Environment, Energy, Agriculture, Livestock, Disaster Risk Reduction
II	The County Government will promote sustainable management and utilization of forest and wildlife resources. This will involve the development of policy/legal frameworks for sustainable forest and wildlife resources management; the development and implementation of programmes and projects on sustainable management and utilization of forest and wildlife resources, implementation of programs for protection of forests, wildlife corridors and stock routes, control and regulation of new settlements and promotion of eco-tourism.	Continuous	Departments of Environment, Energy, Agriculture, Livestock, Disaster Risk Reduction
III	The County Government will put in place mechanisms for dealing with challenges of alien and invasive species in forest and rangeland systems, especially <i>Prosopis juliflora</i> . Such mechanism will include the management of the prosopis for positive use to increase the forest cover. Such positive uses include fodder for livestock, use of the powder from the pods as nutritive additives to human	Continuous	Departments of Environment, Energy, Agriculture, Livestock, Disaster Risk Reduction

	food, wood for furniture making and joinery, windbreakers for homes and institutions.		
IV	The County Government will prioritize investment in the energy sub-sector to promote energy efficient innovations and technologies, and the development of eco-friendly energy resources such as wind, solar, biogas, briquette etc. in order to address the challenge of over-reliance on wood fuel and charcoal.	Continuous	Departments of Environment, Energy, Agriculture, Livestock, Disaster Risk Reduction
V	The County Government will promote and support conservation and propagation of climate adaptive forest species. This will involve the establishment of in-situ and ex-situ genetic resources conservation areas/centres, the identification of species of trees and vegetation that are adaptive and tolerant to adverse weather conditions, breeding, multiplication and field trials and demonstrations.	Continuous	Departments of Environment, Energy, Agriculture, Livestock, Disaster Risk Reduction
VI	The County Government will invest in research, technology development and dissemination for sustainable forest and wildlife resource management. This will entail participatory and collaborative research towards development of suitable sustainable forest and wildlife resource management technologies and innovations as well as technology packaging and transfer to end users.	Continuous	Departments of Environment, Energy, Agriculture, Livestock, Disaster Risk Reduction
VII	The County Government will establish and implement mechanisms for resolving natural resource use conflicts. This will entail the development of mechanisms for identification of potential natural resource conflict hotspots; the profiling of the natural resource conflict hotspots; and the development of mechanisms for conflict resolution, taking into account traditional conflict resolution mechanisms. This will also include mechanisms for resolving human-wildlife conflicts. Formation of community forest association, establishment of community conservancies and community based natural resource management committees will be prioritized as this will enhance community resource stewardship and ownership.	Continuous	Departments of Environment, Energy, Agriculture, Livestock, Disaster Risk Reduction



**COUNTY GOVERNMENT
OF WAJIR**