Devolving climate change governance in Kwale County, Kenya

Devolution of climate change guide

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FOREWORD

The Climate Change Act 2016 is the principal legal framework for climate governance in Kenya. It provides a framework for climate change resilience and low carbon development. The responsibility now falls on county governments to develop their own mechanisms for mainstreaming climate change in their sectoral policies and plans.

This climate governance guide for Kwale County clarifies the role of county governments in managing climate change at the local level. It seeks to simplify climate change terminology as well as give practical methods for enhancing knowledge transfer between different stakeholders.

The guide is intended to serve as a reference for sustainable resource planning and a basis for the training of relevant stakeholders on local climate change issues.

We, the people of Kenya – Respectful of the environment; which is our heritage and determined to sustain it for the benefit of future generations

- The Constitution of Kenya, 2010
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1.0 INTRODUCTION

Devolution is the centre-piece of the Constitution of Kenya (2010). The Constitution established a National Government and 47 County Governments, which are “distinct but inter-dependent” entities. Article 10 of the Constitution elaborates devolution and power sharing as values and principles that would guide Kenya’s governance system. During the first five years of operationalising devolution, a number of successes have been achieved. Key among them has been the enactment of devolution laws, operationalisation of County Government structures, and the transfer of functions and allocation of resources to County Governments. Devolution laws outline the principles of planning and development at the county level. These principles are expected, among others, to protect the right to self-fulfilment within county’s communities; and serve as a basis for engagement between county governments and the citizenry. Nonetheless, the implementation of the devolved system of government is facing a number of institutional, intergovernmental and resource related challenges.

The devolved governance framework has implications for local-level climate planning. County governments play an important part in setting county policies, and work with local communities to manage climate change. They also have a constitutional obligation to promote sustainable development; and to integrate climate change issues in county planning and budgeting.

The integration of climate change in county planning, budgeting and implementation is particularly relevant with the enactment of Climate Change Act 2016 – Kenya’s principal legal framework on climate action. The Act requires county governments to mainstream climate change actions in County Integrated Development Plans (CIDPs). A core element of the Act, is that county governments “shall, in development, updating and approval of CIDP, and the County Sector Plans, mainstream the implementation of the National Climate Change Action Plan (NCCAP), taking into account national and county priorities”.

Whilst all 47 counties in Kenya have made significant efforts to prioritise climate change in their development planning process, these efforts are scarcely matched with concrete action planning and resource allocation. This is true for Kwale County which is already experiencing devastating impact of climate change, not only in terms of mounting water resource scarcity, but also threatens coastal infrastructure and property. There are also many negative consequences to the natural environment and biodiversity, which include damages to coral reefs and other sensitive habitats.

Although, the National Climate Change Act, 2016, has supported efforts to manage climate change impacts and associated risks at the local level, effective climate action planning requires a clear understanding of the devolved functions and effective coordination between national and county governments. Hence, this guide offers
information to policymakers, county staff and other stakeholders on the roles and mandates of national and county government that are relevant to climate action planning. This will aid in establishing climate governance and improving coordination of adaptation and mitigation activities at the local level.

**Kwale County**

Kwale County is situated in the South-eastern tip of the country (Figure 1). It lies between latitudes 3° 3’ and 4° 45’ South and Longitudes 38° 31’ and 39° 31’ East. It borders Taita Taveta County to the North West, Kilifi County to the North East, Mombasa County and Indian Ocean to the East and United Republic of Tanzania to the South (RoK, 2013). It covers an area of 8,270.2 km² and consists of both terrestrial and marine environments.

The County is divided into four constituencies and 20 county assembly wards with a population of about 649,931 persons (Table 1) and a population growth rate of 3.1 per cent (RoK, 2009). Geographically, Kwale County is divided into four major zones, namely: Coastal Plain, Foot Plateau, Coastal range and Nyika Plateau (MENR, 1985). These regions have altitudes that range from below sea level to 420 m in the Shimba Hills and 842 m on Kibashi Hill. The dominant rainy season is March to June, while the short rains in November to December are only locally reliable.

![Map of Kwale County showing the constituencies and wards.](image-url)
Table 1: Kwale County electoral wards by constituency (GoK, 2013)

2.0 CLIMATE CHANGE IN KWALE COUNTY

Kwale, like the rest of Kenya, is bearing the brunt of human-induced climate change impacts and associated environmental and economic losses. Climate change in Kwale manifests itself in rapid-onset events, such as frequent flooding; and slow-onset ones, such as rising temperatures, recurrent droughts, sea level rise, land and forest degradation, loss of biodiversity and desertification. These events have led to severe crop and livestock losses, and high prevalence of pests and diseases.

The local economy in Kwale is climate sensitive. Therefore sectors with closer links to climate - such as water, agriculture, forestry, health and tourism – are most affected. This compounds the efforts to address socio-economic challenges at the county level. Hence, there is need to empower communities to
take increased responsibility in making decisions affecting them including with regard to climate action planning.

While Kenya’s contribution to global greenhouse gas emissions is relatively low, its surging population and growing urban economy necessitate a transition to a “low carbon climate resilient development pathway” (RoK, 2012). Currently, Kenya’s greenhouse gas emissions stand at 73 MtCO₂eq in 2010, out of which the majority comes from land use, land-use change and forestry (LULUCF) and agriculture sectors (RoK, 2015).

![Figure 2: Update of Kenya’s Emission Baseline Projections and Impact on NDC Target GoK, 2017](image)

This is explained by the horizontal expansion of agriculture and over-dependence on wood fuel by a large proportion of the population. As the country strives to achieve a middle income status by 2030 as envisaged in Kenya’s development blueprint Vision 2030, emissions from transport and energy sectors will increase significantly. Ensuring a climate resilient pathway will require deliberate efforts at both national and county levels of governance to deepen and scale-up low carbon and climate resilient development projects, particularly in three high-impact areas of renewable energy and energy efficiency, climate-smart land use and food security; and waste management. Climate-smart land use projects encompass climate-smart agriculture, forestry, land restoration, ecosystem-based adaptation, coastal area management projects, and improved water management including rainwater harvesting.
Some possible climate impacts on Kenya and Kwale:

- Increase in temperature of 3 degrees. This means that the yield of maize and beans will be much less than nowadays.
- There will be more rain but in a shorter time and more intensively, this means that there will be more floods which may remove fertile top soil.
- One metre sea level rise could affect nearly 39 per cent of coastal urban areas, especially Mombasa.


2.1. Climate planning: strategic sectors in Kwale County

Agricultural productivity

Kwale County was divided into five agro-ecological zones, namely sugarcane, coconut-cassava, livestock-millet, cashew and ranching zones. Rain-reliant mixed farming is the popular practised type of agriculture. The farm size ranges from 4.4 - 100 acres. Farmers grow maize, cassava, beans, peas, grams, coconuts, mangoes, cashew-nuts, sugarcane, cotton, simsim, bixa and tobacco. The livestock kept include cattle, goats, sheep, chicken, donkeys, camels, pigs and bee keeping.

Impacts from climate change

Unpredictable rain patterns and decline in rainfall result in crop failure, pasture deterioration, poor livestock body conditions, and reduced milk production. The increase in temperature is likely to increase the prevalence of crop pests and diseases, which often negatively affect crop yields. This may also affect fodder for livestock, thereby reducing productivity. The increase in outbreaks of livestock diseases and pastoralists’ movement also exacerbates conflicts.

Policies and laws

The Government recognises that agriculture is one of the most important sectors in Kenya and is therefore governed by one of the most elaborate legal, policy and institutional frameworks. The Vision 2030 identifies agriculture as a key sector in achieving the desired annual economic growth rate, by transforming smallholder agriculture from subsistence to an innovative, commercially-oriented and modern sector. The aim is to achieve a food-secure and prosperous nation by 2020 by shifting Kenya’s
agriculture from subsistence to agriculture as business. Recent years have witnessed considerable legislative reforms to achieve these objectives.

**Fisheries**

Major fish reserves are found in marine waters and include: Shimoni, Vanga, Msambweni, Diani, and Tiwi. There are 40 landing sites and the main types of fish catch are rabbit fish, scavengers, jack fish and king fish (County Government of Kwale 2013). About 338 inland fish farms exist and are gradually increasing due to government funding.

**Impacts from climate change**

Rising ocean temperatures and change in pH and salinity interferes with the spawning, growth and development of marine species, which changes fish distribution. The decline in rainfall and drought periods lower water levels and qualities of inland fisheries. These impacts reduce local fish catch, increase fish disease incidences and lower marine biodiversity.

**Water Resources**

The county has only two permanent rivers i.e. Pemba and Mwache, seven seasonal rivers, 693 shallow wells, 54 springs, six dams, 110 boreholes, water pans and rock catchments (County Government of Kwale 2013). These water sources are used by government and private water companies to supply water across the county.

**Impacts from climate change**

Changes in rainfall, frequent prolonged drought and salt water intrusions have aggravated water situation in Kwale County. Flash floods and widespread runoffs increase the risk of contamination that reduces quality of available waters and damages water infrastructures. Increased extraction lowers groundwater levels and leads to salt water intrusions.

**Policies and laws**

Water management is a devolved function. This means that the County Government has the responsibility for developing laws, policies, strategies and plans for managing water within the overall national and policy framework provided under the National Water Policy and Water Act.

Indeed, water is so important that the Constitution (Art 43(1)(d) protects “the right to clean and safe water in adequate quantities.” Any person can enforce that right through the court of law, under Article 70 of the Constitution. The Court may make any order to prevent, stop or discontinue any violation of the right, compel any public officer to take measures to prevent or discontinue any act or omission that violates
the right, or provide compensation for any victim of a violation of the right.

**Wildlife Management**

Kwale has a wide array of wildlife species that also includes endangered and endemic species such as sable antelope, shimba hills reed frog, black and rufous elephant-shrew and 22 coastal endemic bird species (County Government of Kwale 2013). Shimba Hills National Reserve and Mwaluganje Sanctuary are the two main terrestrial protected areas in the county. The presence of diverse wildlife has promoted both domestic and international tourisms in the County.

**Impacts from climate change**

Shifts in rainfall, reduced water sources, decreased forage areas, intense droughts and frequent bush fires impact food resources and habitats. These impacts increase wildlife movement into human settlements increasing cases of human-wildlife conflict that are leading to a decline in wildlife population or even to the extinction of endemic species.

**Marine area**

The coastline consists of coral reefs, beaches and cliffs, river inlets and mangrove swamps. Coral reefs include Makokowe, Mwamba, Midira, Mpwa, Mwamba cha Kitungamwe and Marembo reefs. These environments host the endangered green turtle, hawksbill turtle and the dugong. Kisite Marine Park, Mpunguti Marine Reserve and Diani Marine Reserve are marine protected areas in the county.

**Impacts from climate change**

Change in marine temperature causes bleaching of corals, which also lowers associated reef biodiversity. Decrease in pH due to increased levels of dissolved carbon dioxide affects the skeleton-building ability of corals and shell fish (calcification), which reduces tourism and fish productivity. Rising sea levels will also increase salinity upstream lowering agricultural potential.

**Forestry**

Forests are a major source of livelihood in Kwale County. Local communities depend on them for income, medicine and food. The sizes of the gazetted forest and non-gazetted forests are estimated at 350.45 km² and 1900 km², respectively (County Government of Kwale 2013). Kaya forests, which account for a larger proportion of forests, spread along 200 km of coastal Kenya in Kilifi, Kwale and Mombasa Counties. These forests are a source of cultural identity for the Mijikenda community. Although Kayas have been sustainably managed through traditional systems based on in-depth
knowledge of the local environment, they continue to reduce in number and sizes. This is partly explained by population growth, unsustainable agricultural practices, mining, charcoal burning and climate change (MoENR, 2015). The indigenous forest of Shimba Hills is a water tower and is one of the last remnants of coastal forest in Kenya.

**Impacts from climate change**

Changes in temperature, precipitation and the amount of carbon dioxide in the air will affect the length of growing season, geographic ranges of certain species, reduce sap production, which increases tree vulnerability to diseases and pests, promote invasive species and lead to extinction of tree species that cannot adapt to changing climatic conditions. Rising sea levels and change in salinity levels cause erosion of sediments, lower propagation success and species diversity in mangrove forests.

**Policies and laws**

The forest law draws its mandate from the constitution. Kenya recognises the importance of forests but does not have a comprehensive policy. The Forest Management and Conservation Act is the main law on forests.

Article 69(1) of the Constitution enjoins the State to “ensure sustainable exploitation, utilisation, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits”. It encourages citizens to participate in the management, protection and conservation of the environment. They also have a duty to cooperate with state organs and other persons in order to protect and conserve the environment.

The State is required to protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities. This is important for protection and management of the Kayas.

The Constitution also requires the State to protect genetic resources and biological diversity; eliminate processes and activities that are likely to endanger the environment. This is also important in the management and protection of the Kayas, especially in the face of increasing exploration of minerals in Kwale.

**Mining**

Several mining enterprises are present in the County, namely, Calcium Products Limited at Mrima, Ramisi Sugar Factory, limestone mining at Waa, Titanium extraction at Nguluku by Base Titanium limited and Niobium prospecting at Mrima Hills. There are three companies mining silica sand for commercial glass production. There is also small scale gemstone mining. Experts indicate potential for other minerals such as lead and coal in the County. However, mining often does cause a lot of environmental
and social harm.

The exploitation for example uses and pollutes a lot of water and large areas of land are destroyed. Communities are often displaced, they have to leave their homes and lose their fields. The benefits for the local population are often very small compared to the devastating social and environmental impacts.

Impacts from climate change

While mining often increases pollution, it is also vulnerable to climate change. Mining is reliant on land and water access, two resources that are becoming scarce in the County. Sea level rise and flash floods can flood mining tunnels and damage transport infrastructures, while a reduced supply of water and conflicts over water use, may negatively affect mining operations.

Policies and Laws

The Kenyan Constitution and the Mining Act of 2014 say that all minerals and mineral oils belong to the Kenyan people. The Act is implemented by the Commissioner of Mines and Geology who is appointed by the Cabinet Secretary. Article 71 of the Constitution requires Parliament to ratify agreements for exploitation of natural resources.

Before starting any mining or prospecting activity, a company has to obtain a license from the commissioner of mines. This license gives legal access to the underground resources, but not to the land itself. The owners retain the right to their lands. The commissioner can only approve and issue a licence if there is consent from local communities, owners and occupiers of the land and from the devolved local government.

The company needs to meet with the community and inform about the project and then hold a public consultation, in which the community approves or rejects the project. However, this step is sometimes ignored or companies do spend a lot of money and make many false promises to get the support of the community. The licensees must further offer a fair compensation for damages, obstructions, and other inconveniences, to owners and/or occupiers of the land.

The Environmental Management and Coordination Act (EMCA) 1999 states that any major mining activity must be preceded by an Environmental Impact Assessment (EIA). The EIA is an assessment of the possible positive and negative impacts that the extraction project may have on the natural and social environment. The EIA process requires a period for public participation to ensure free and informed consent. This means that the company must hold at least three public meetings with the affected parties and communities. Unfortunately, most EIAs are far from complete and are rarely objectively evaluated by the regulatory agencies.
Housing

Kwale County population is spread across five urban towns namely: Kwale, Ukunda/Diani, Msambweni, Kinango, and Lunga-Lunga and a large rural area at an average density of 86 persons/km² in 2012 (County Government of Kwale 2013). Rural houses have either thatched or corrugated roofs with few having stones walls. Piped water is only found in a few localities.

Impacts from climate change

Flash floods will increase contamination of water sources by sewage and industrial waste. Rising sea levels threaten buildings near the coastline with seepage and flooding. Increase in temperature might increase risk of heat strokes in elderly persons. High velocity winds could destabilise temporary roofs and houses endangering lives.

Transport

Kwale District had a total of 1079km of classified roads in 1985 which has increased to 1483 km in 2013. There are five airstrips located at Lunga-Lunga, Mackinnon Road, Shimba Hills National Reserve, Ramisi and private Diani Beach used by tourists. The Nairobi-Mombasa railway lines serves Kwale County at Mazeras, Mariakani, Maji ya Chumvi, Samburu, Taru and Mackinnon Road Stations. There are also private motor boats for hire to local and foreign tourists for ocean expeditions.

Impacts from climate change

Unpredictable heavy rains threaten road durability and reduce safety for road and airplane users. Poor drainage systems might destroy infrastructure through flash floods.

Disaster Management

Droughts, flooding, strong winds and disease outbreaks are disasters associated with unpredictable weather patterns. These reduce agricultural productivity, reduce tourism potential and increase poverty at the grassroots. They lead to livestock and can sometimes cause human deaths.

Impacts from climate change

Climate change is projected to increase the extent, intensity, and frequency of natural disasters. This is particularly seen in disease and pests outbreaks, invasive species, wildfires and complications in disaster management through infrastructure destruction.
**3.0 CLIMATE CHANGE GOVERNANCE**

The general definition of governance is “the structures and processes by which collective action among diverse social actors (state, private, and civil society) is coordinated towards upholding certain publicly held values and resources” (Ernstson et al. 2010).

No two governance strategies are similar but every governance strategy has its own tools, structures and processes specific to the issues or challenges it has to address. Climate governance involves all mechanisms and measures for preventing, mitigating, or adapting to the risks and threats posed by climate change (Jagers and Stripple 2003).

International climate governance

Learn more about global climate change governance and the UNFCCC here: http://bigpicture.unfccc.int/

Climate governance involves all the mechanisms and measures for preventing, mitigating, or adapting to the risks and threats posed by climate change.

Internationally, the United Nations Framework Convention on Climate Change (UNFCCC) is important for steering global climate change politics.

The UNFCCC was created in 1992 with the mission to stop dangerous climate change. Today 196 states are members of the UNFCCC. These countries meet once a year during the “Conference of the Parties” (the COP) to agree on politics against climate change.

During the 21st COP in Paris in December 2015, the member states of the UNFCCC came to an agreement that guides global climate action today: the Paris Agreement. The agreement requires all countries to do their best to address climate change through “Nationally Cetermined Contributions” (NDCs). In the NDCs each country describes what it wants to do to fight climate change.

**An effective climate governance strategy will produce:**

a. Effective policies and legislative frameworks that structure efforts in implementation of climate actions;

b. Realistic strategies to achieve specific goals for reducing negative impacts and risks from climate change;
c. Holistic activities that improve living standards at the grassroots and
d. An increase actor networks for efficient capacity building across all governance levels (Figure 2).

Implementation of all four factors together encourages decisions that inte

**Figure 3: The four main pillars of climate governance**

grate climate change knowledge into all sectors and promote sustainable development. It also enables stakeholders to identify barriers to optimal adaptation and streamline coordination between agencies tasked with climate related activities.

Proper governance of climate change impacts can expose many opportunities that can sustain development and drive economic growth. A good strategy will enhance climate adaptation and mitigation and create a win-win scenario for all stakeholders at the County.
4.0 PILlARS FOR EFFECTIVE CLIMATE GOVERNANCE

Climate change is at the centre of development. Kenya circumscribes its climate governance within the framework of the national long-term development policy – the Kenya Vision 2030. Good practice in climate governance strategy consists of three pillars, namely:

a. **Economic development pillar**, which supports scientific advancement and direct economic benefits.

The ability to accurately predict local weather conditions determines the quality of response by institutions to disasters and environmental emergencies. The prediction accuracy can be enhanced by use of radar technology, modern satellite technology and computer models that can visualise various scenarios under different climate governance regimes.

Efficient knowledge transfer in a community makes farmers and pastoralists implement a mix of indigenous agricultural knowledge and scientific information that is also beneficial to the environment. As a result, horticultural crop production and floriculture have increased, pastoralists have diversified their livestock species and farmers have discarded unsustainable crops and replaced them with additional income generating activities such as rabbit breeding and fish farming.

b. **Social pillar**, which promotes community knowledge of the environment;

A highly cohesive community creates harmony between the government, the private sector and the civil society and has many advantages. The core advantage is the ability to transmit information quickly and efficiently across its networks and results in knowledgeable people with consistent opinions on issues. Secondly, cohesive societies will respond to a crisis effectively and experience fewer conflicts because resolution processes are understood by the majority and deviants are dealt with immediately. This also reduces the possibility that a resource conflict will be politicised and lessens unwarranted violent effects.

c. **Ecological pillar**, which guarantees a well-maintained environment and biodiversity.

Implementation of widely publicised climate adaptation measures leads to the prevention, tolerance or sharing of economic losses, changes in land use or activities, changes of species location, and restoration of biodiversity and associated ecosystem services. When adaptation measures are implemented effectively, the environment becomes more resilient towards climate change impacts and increases the carbon sequestration capacity of ecosystems. These measures would also help protect the natural resource base on which many sectors of Kenya’s economy are based.
These three pillars adequately address the challenges caused by climate change in Kwale County as well as in whole of Kenya. However, these great opportunities can only be realised after effective knowledge transfer strategies have been put in place by government institutions to promote private-public partnerships that enable positive socioeconomic growth of citizens at all levels.

**Building climate resilient communities**

Climate change is a right and development issue because it cuts across a range of sectors (RoK, 2012). This is particularly true for rural communities who depend on climate sensitive sectors for livelihoods.

Key challenges caused by climate change in Kwale County can be summarised as:

1. Food insecurity from reduced agricultural productivity, drought, dependence on rain-fed agriculture (RoK, 2012) and lowered fish catch.
2. Increased conflict cases between pastoralists and farmers and also conflicts between mining companies and communities due to reduction in water supply. Furthermore, any resource conflict event ranging from tension to violent confrontation is handled by security agents deployed to restore peace, which is a temporary solution.
3. Increased human-wildlife conflicts due to increased movement of wildlife into human settlements in search of forage, prey and water sources.
4. Degraded environments especially after droughts through overgrasing, soil erosion after flash floods, unmanaged mining activities and other destructive human activities that lower productivity of the land.
5. Lack of a comprehensive database on biodiversity that can be used to determine change in trends of biodiversity through extinction, invasive species, change in life cycles and habitats.

The type of strategies employed to disseminate climate change information to affected households and communities is the major challenge in building resilience. Article 6 of the United Nations Framework Convention on Climate Change (UNFCCC) articulates the importance of climate change communication with the general public and reiterates the need to engage various stakeholders to debate this issue. It also highlights the responsibility of the UNFCCC signatory countries to develop and implement educational and public awareness programmes on climate change and its effects, to ensure public access to information, and to promote public participation in addressing communication issues. Since the Paris summit in December 2015, many countries have intensified efforts to communicate matters related to climate change.

Because the phenomenon of climate change is global in nature, many people do not
believe it is related to them. Yet most impacts of climate change are local. The sooner people realise that climate change is a development issue with far reaching impacts across sectors, the more rapidly the required mitigation and adaptation measures may be implemented. In this context, communication on climate change can play a key role. Effective knowledge transfer can therefore increase the capacities to deal with climate change at the local level. Among others, these are three important factors that facilitate knowledge transfer:

a. Political will which is measured by efforts to endorse, fund, support and implement strategies that reduce destructive human activities, increase climate advocacy groups and promote technological innovation for effective climate governance. With the signing of the Paris Agreement, many countries are now abandoning the “business-as-usual” approach and starting to show political will in integrating climate change issues into their development plans.

b. Effective rural climate governance that considers and connects the different relevant sectors, establishes links with and supports local climate change activities on the community, and makes use the interphases between the levels of governance.

c. Disaster management which is coordinated and proactive (not reactionary), and relies on an evidence-based strategic approach with strong connections between early warning system sector, planning and finance bodies and implementation organisations.

There is a need for an effective strategy that will improve knowledge transfer from technocrats to county officials and community groups. Such a strategy will integrate climate change into County Development Plans and guide how climate-related decisions are implemented from the national level down to the grassroots.
5.0 MANDATES AND FUNCTIONS IN A DEVOLVED SYSTEM

5.1 What is devolution?

Devolution is a legal democratic process that results in key shifts of power, responsibilities and resources from the “centre” to the “sub-centres” on the periphery. In government, such shift of power could involve responsibilities such as, problem identification, policy making, planning, revenue generation, budget execution, accounting and auditing, and monitoring and evaluation.

The Constitution of Kenya, in 2010, has established two levels of government, the national and county governments. These two levels of government are distinct but inter-dependent entities, which are required to conduct their mutual relations on the basis of consultation and cooperation. County governments have significant control over major public services and finances. With this Constitution, the country strives to enlarge participation in decision making, and consequently enhance their local relevance and citizen participation in implementation. These measures should then expand the scope of efficiency and cost effectiveness in service delivery. This new administrative came into effect in March 2013 after the elections of county governors and assemblies.

A county is a single geographical unit that is made up of several sub-counties and electoral wards. A county is headed by an elected governor and deputy governor while a ward is headed by an elected ward representative known as the Member of the County Assembly (MCA). The management of key sectors in the county is accomplished by county executive committees who are appointed by the governor and approved by the county assembly.

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<tr>
<td>Approval of county budget</td>
<td>Supervise the administration and delivery of legislation</td>
</tr>
<tr>
<td>Approval of county policies and plans</td>
<td>Prepare proposed law for consideration by the county assembly</td>
</tr>
</tbody>
</table>

*Table 2: Functions of the county assembly and county executive*
In addition, at the national level there are two levels of citizen representatives in parliament:

1. An elected senator who represents each county at the Senate (upper house)
2. An elected Member of Parliament who represents a constituency (a geographical unit within the county) at the National Assembly (lower house).

There are also several nominated positions in the county assemblies that include representatives for marginalised groups and special seats to ensure the two-third gender rule is observed.

Therefore, devolution has increased the number of elected and nominated officials that represent and manage the needs of their communities in government (Figure 2). There are a total of 67 senators, 349 members of parliament, 47 governors and 2526 ward representatives in Kenya.

![Figure 4: Connections between people and their government representatives](image)

The Fourth Schedule of the 2010 Kenyan Constitution identifies how governance roles are distributed between the National and County Governments (Table 3). In general, the national government is in charge of developing policies on education, tourism, health and agriculture while County governments are in charge of implementing the said policies amongst other functions such as waste disposal.
The 4th Schedule is much broader than this table, which focuses on climate change-relevant functions. There is a fine line among the responsibilities and their execution on the principle of cooperation and consultation as per the Constitution.

<table>
<thead>
<tr>
<th>National government functions</th>
<th>Devolved functions at the County level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education policy, standards, curricula, examinations of universities, tertiary educational institutions, research institutions, primary schools, secondary schools and special education institutions</td>
<td>Pre-primary education, village polytechnics, home-craft centres and childcare facilities.</td>
</tr>
<tr>
<td>Protection of the environment and natural resources with a view to establishing a durable and sustainable system of development, such as the energy policy</td>
<td>Implementation of policies on soil and water conservation; and forestry</td>
</tr>
<tr>
<td>Formulation of agricultural policy.</td>
<td>Implementation of the agriculture policy</td>
</tr>
<tr>
<td>Formulation of veterinary policy</td>
<td>Management of veterinary services (excluding regulation of the profession)</td>
</tr>
<tr>
<td>Tourism policy and development.</td>
<td>Promotion of local tourism</td>
</tr>
<tr>
<td>General principles of land planning and the co-ordination of planning by the counties.</td>
<td>Management of public amenities county parks, beaches and recreation facilities</td>
</tr>
<tr>
<td>Capacity building and technical assistance to the counties.</td>
<td>Ensuring participation of communities in governance at the local level</td>
</tr>
<tr>
<td>Disaster management.</td>
<td>Refuse removal, refuse dumps and solid waste disposal.</td>
</tr>
<tr>
<td></td>
<td>Control of air pollution, noise pollution</td>
</tr>
</tbody>
</table>

Table 3: List of functions for the two levels of government in Kenya
<table>
<thead>
<tr>
<th>Sectors</th>
<th>Function</th>
</tr>
</thead>
</table>
| Agriculture      | - Crop and animal husbandry  
                  | - Livestock sale yards  
                  | - County abattoirs  
                  | - Plant and animal disease control  
                  | - Fisheries |
| Water and sanitation | - Refuse removal, refuse dumps and solid waste disposal  
                  | - Water and sanitation services |
| Health           | - County health facilities and pharmacies  
                  | - Ambulance services  
                  | - Promotion of primary health care  
                  | - Licensing and control of undertakings that sell food to the public  
                  | - Veterinary services |
| Education        | - Pre-primary education and village polytechnics  
                  | - home craft centres and childcare facilities |
| Environment      | - Control of air pollution, noise pollution, other public nuisances  
                  | - Implementation of specific national government policies on natural resources and environmental conservation, including soil and water conservation; and forestry |
| Energy           | - Electricity and gas reticulation and energy regulation. |
| Public works     | - County public works and services, including storm water management systems in built-up areas |

Table 4: Simplified List of functions for the two levels of government in Kenya
5.2 Role of Kenyan national government in climate governance

Kenya ratified the UNFCCC on 30th August 1994 as a commitment to combating climate change and achieving the convention obligations (RoK, 2002). Since then, the national government has adopted laws and policy documents that express the country’s interests, commitments and priorities with regard to the climate change. These include:

a. **Policies** that are exclusively devoted to aspects of climate change, i.e.

**National Climate Change Act 2016**

This is the principal legal framework for climate governance in Kenya. The Act establishes National Climate Change Council. The Council provides an overarching national climate change coordination mechanism, particularly in the preparation of action plans, strategies and policies. The Act also gives financial provisions through creation of the Climate Change Fund which will receive monies from the Consolidated Fund and other sources (RoK, 2016). The Climate Change Act 2016 has set up the institutional framework for climate change governance (Figure 4).

![Climate change institutional coordination structures in the Climate Change Act, 2016](Source: adopted from National Adaptation Plan, 2015)
b. **Strategies and plans** describe how adaptation and mitigation actions are to be implemented in Kenya. These include:-

**National Climate Change Response Strategy (NCCRS)**

It outlines measures needed to address challenges posed by climate variability and change in Kenya. The strategy identifies eight objectives that the government would undertake to respond to climate change in Kenya. They include enhancing understanding of the global climate change regime, assessing the evidence and impacts of climate change, recommending robust adaptation and mitigation measures, promoting international agreements and providing enabling policy, legal and institutional framework to combating climate change (RoK, 2010).

I. **National Climate Change Action Plan (NCCAP) 2013 – 2017**

The action plan was formulated to operationalize NCCRS. It covers, among others, low-carbon development strategies; adaptation and mitigation options; climate finance; and an enabling policy, legislative, and institutional framework intended to enhance mainstreaming. The actions are premised on their contribution toward achieving Kenya’s long-term development goals in addition to intermediate benefits such as improved livelihood and attracting international climate finance (RoK, 2012). It further commits all government ministries, departments, and agencies to play a role in mainstreaming climate change across their functions and processes. NCCAP is reviewed every five years to inform the Medium Term Plan (MTP). Consequently, there is on-going dialogue in Kenya to formulate a new NCCAP for the MTP 2018 – 2022.

II. **National Adaptation Plan (NAP)**

The formulation of this action plan was informed by the proposed interventions in the National Climate Change Action Plan (NCCAP). National Adaptation Plan focuses on (i) highlighting the importance of adaptation and resilience building actions in development; (ii) integrating climate change adaptation into national and county level development planning and budgeting processes; (iii) enhancing the resilience of public and private sector investment in the national transformation, economic and social and pillars of Vision 2030 to climate shocks; (iv) enhancing synergies between adaptation and mitigation actions in order to attain a low carbon climate resilient economy; and (v) enhancing resilience of vulnerable populations to climate shocks through adaptation and disaster risk reduction strategies. The plan supports innovation and development of appropriate technologies particularly in the energy sector and informal sector. It has categorized actions into short term (1-2 years); medium term (3-5 years); long term (>6 years). Like NCCAP, NAP is reviewed every five years to inform the MTP.
III. Nationally Determined Contributions (NDCs)

Kenya submitted its Intended Nationally Determined Contributions (INDC) to the UN Framework Convention on Climate Change (UNFCCC) in July 2015, well ahead of the 2015 Paris Climate Summit. Kenya’s INDC builds on the participatory multi-stakeholder and cross-sectoral consultative processes during the development of NCCRS and NCCAP at national and county levels. The NDC for Kenya includes both mitigation and adaptation components based on the national circumstances and in line with decisions 1/CP.19 and 1/CP.20. Kenya’s NDC is being implemented with both domestic and international support. Over US$ 40 billion are required for climate actions across sectors up to 2030.

IV. Climate change units

The Climate Change Act 2016 envisages the establishment of climate change units/desks in all government departments and agencies where trained officers would be required to share information with other stakeholders and manage climate change issues.

c. **Activities** come from policies and strategies in the form of projects that include:

   I. **Kenya climate smart agriculture programme (2015 – 2030)**
   
   II. **Building climate change resilience and food security programme (2012 – 2014)**
   
   III. **Adaptation to climate change in arid lands (2010 – 2017)**
   
   IV. **Afforestation and restoration of degraded lands projects**

   

   d. **Actor networks** are made up of a wide range of individuals and institutions at all climate governance levels. The links between actors result in networks with rich knowledge and skills that plays a significant role in tackling climate change and supporting green economic growth. Actor networks These include:-

   I. National Climate Change Secretariat at the Ministry of Environment that provide for the implementation of the actions identified

   II. The Climate Governance Network (CGN) is a partnership of stakeholders supported by Transparency International Kenya which forms a network that facilitates shared-learning, information exchange, and cooperative climate finance governance (CFG) advocacy.

   III. The Kenya Climate Change Working Group (KCCWG) is a national network of Civil Society organisations uniting voices and action on climate change.

   IV. Other non-governmental and community-based organisations.
5.3 Climate change governance at the county level

Climate change will continue to undermine or reverse development gains and aspirations for further growth, particularly at the county level. Hence, appropriate responses are required to enhance climate resilience and reduce human impact on climate system. While considerable efforts have been made at the national level to mainstream climate change in policies, strategies and plans, additional efforts are required at the county level given the critical role of devolved units in development. Integrating climate change into County Integrated Development Plans (CIDPs) and budgeting seems to be the logical starting point for any intervention aimed to climate proof development programs and projects. The CIDP sets out financial and economic priorities over a five-year medium term. Prioritised climate change interventions must also be mainstreamed into county sectoral plans, county spatial Plans, and the cities and urban area plans.

Kenya has formulated the Climate Change Act 2016 which serves as the national legal framework for climate governance. Counties are supposed to use the Act to formulate their own local context policies that conform to Kenya’s public finance policies and laws. They are also required to mainstream the implementation of the National Climate Change Action Plan into County planning and policies.

Makueni County has been at the forefront of developing a forward looking climate finance framework to provide funding for climate change activities identified in CIDP. The County Public Finance Management Act 2015, on climate change sets aside one per cent of the County annual development budget towards climate change action.

At the ward level, climate change planning committees, consisting of 11 members with representation for women, youth, and persons living with disabilities have been established to identify and prioritise climate change goals through public participation. These committees are required to conduct participatory livelihood and resilience assessments, and use the findings to prioritise and design investments that will promote climate change resilience.

Makueni County through Public Financial Management (Makueni County Climate Change Fund) Regulations 2015, has become a sub-national implementing entity capable of accessing climate finance from bilateral and multilateral donors, including Green Climate Fund (GCF). Makueni is the first county in Kenya to receive Kshs. 50 million from the UK’s Department for International Development (DFID) for mainstreaming climate adaptation into planning and budgeting at the county level and setting up mechanisms to access climate finance (from global, national and private sources) for prioritised adaptation actions1.
One of the strategic climate change adaptation interventions for Makueni County is rainwater harvesting both at farm and community level – construction of farm ponds and community water storage facility – for multiple uses. Promotion of drip irrigation and smallholder irrigation schemes is part of the County strategy to reduce dependency of the economy on rain-fed agriculture and to promote commercialised agriculture that will secure higher rural incomes and improve food security.

The Kwale County Integrated Development Plan (CIDP) identifies mitigation measures such as efficient technologies including solar and wind energies, and adaptation measures to help the community cope and adjust their livelihoods to the changing climatic conditions. The National Drought Management Authority (NDMA) and the Kwale County government are facilitating early drought response in Kwale to enhance preparedness and build local capacity to manage drought episodes. NDMA has given top priority to water development to ensure reliable supplies during prolonged drought spells.

The next step for Kwale County is the formation of Climate Adaptation Planning Committee to formulate forward looking approached towards effective climate governance.

<table>
<thead>
<tr>
<th>What needs to be done</th>
<th>Role in climate governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policies</td>
<td></td>
</tr>
<tr>
<td>County Climate Change legislation</td>
<td>Enabling county government to build their local resilience to climate change.</td>
</tr>
<tr>
<td>County Climate Change Fund Bill</td>
<td>Legally committing counties to contribute funds to ensure sustainability of climate governance.</td>
</tr>
<tr>
<td>Strategies</td>
<td></td>
</tr>
<tr>
<td>County Resource Strategic Plan</td>
<td>Describing management of resources that are vulnerable to climate change impacts</td>
</tr>
<tr>
<td>County Adaptation Fund</td>
<td>Financing to assist vulnerable communities and to implement county and ward adaptation actions</td>
</tr>
</tbody>
</table>

https://www.makueni.go.ke/climate-change-regulations
Activities | County adaptation monitoring and evaluation systems | Collecting data on adaptation for use in developing national level data sets
---|---|---
| County Climate Information Services | Providing accurate information down to the household level by trained personnel for better adaptation planning.
Actor networks | Climate Adaptation Planning committees | Developing area-specific proposals which are approved by the county level committees.
Local community groups | Focusing on local development and adaptation priorities from all sectors

Table 5: Description of climate governance duties for county governments

There have been several initiatives to enhance adaptive capacity of the Kwale community that are managed by non-governmental organisations. These include; Promoting Sustainable Forest Governance for Climate Change Adaptation and Improved Livelihoods in Kwale, Kenyan Climate Change Adaptation (KCCAP) Programme. Also, the Kwale County Natural Resources Network (KCNRN) is a Community Based Organization that sensitizes communities in the County.

5.4 Citizen’s space in climate change governance

The citizen space is a social place of engagement created by an individual person depending on their experiences, knowledge level, desires and expectations to influence local governance (Table 5). High citizen participation in local decision-making is characterised by positive perception of local projects, improved accountability by County officials, more cohesive community and increased activities and programs by the community.

<table>
<thead>
<tr>
<th>Role and rights of the citizen</th>
<th>What citizen space is not</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔ Right to participate in climate governance</td>
<td>✗ Citizen forums should not increase or exaggerate local social tensions</td>
</tr>
<tr>
<td>✔ Awareness of empowerment opportunities</td>
<td>✗ The space should not be used to campaign for political seats or power</td>
</tr>
<tr>
<td>✔ Right to associate and right to freedom of speech</td>
<td>✗ People should not be coerced, bribed or threatened to stop participating in governance</td>
</tr>
<tr>
<td>✔ Contribute and assess development ideas</td>
<td>✗ Participation should not discriminate on religion, gender, ethnicity, age etc.</td>
</tr>
<tr>
<td>✔ Participate in policy making and strategy development</td>
<td></td>
</tr>
<tr>
<td>✔ Monitor use of public resources such as the Constituency development Fund (CDF)</td>
<td></td>
</tr>
</tbody>
</table>

Table 6: Understanding the citizen space
Public participation is one of the key values and principles of good governance. The County Government Act 2012 requires the county government to facilitate processes of public participation. Guided by an awareness of climate risks, the people can prioritise spending on climate change adaptation and low carbon development.

The National and County governments should create awareness on how a citizen can participate in public decision-making in areas that affect their livelihoods. Also, government should facilitate regular forums “barazas” to encourage active participation at the grassroots.

The constitution enables the county executive committee to establish a Citizens’ Service Centre at the county, sub-county, Ward, and village. Attendance to public forums by individuals or representatives of community groups is also a way of using such available space for dialogue and action in community programs.

**Guiding questions for participating in climate change planning and budgeting**

- Are budget planning and expenditures being directed toward appropriate priorities in view of mitigation and adaptation? For example, is sufficient budget allocated and spent for water harvesting and storage, irrigation development, flood protection measures, land restoration, early warning systems, crop and livestock insurance, afforestation, waste management, renewable energy, energy efficiency?
- Is the process of budget planning and budget making inclusive and participatory?
- Do recent changes in budget allocations and expenditures provide evidence for increased attention to climate resilience, low carbon developments and disaster preparedness?
- Do public investment decisions consider geographical distribution of climate risks and vulnerabilities? For example, are investments in water harvesting going toward the most water-stressed areas? Are investments in flood control measures going to flood-prone areas?

(Source: Adapted from World Bank, 2010)

Further participation by citizens in governance can either be formal or informal through:

a. County Public Service Boards – This participation opportunity is for experts with knowledge in governance and resource management.

b. County Assemblies Service Boards – The non-member is an ordinary citizen who is appointed to support provision of services and facilities to ensure the efficient functioning of the County.

c. Ward level representation – A Ward representative or Member of County assembly (MCA) regularly meets people either in citizen forums or resource specific meetings
to exchange information on ward governance and challenges.

d. Village council – the village administrator organises regular barazas to educate, solve or advice on matters relevant to the community.

e. Individual participation can be done through petitions, complain letters to county officials, volunteering expertise or donations towards certain projects.

5.5 Creating actor networks for efficient knowledge transfer

An actor is an individual or an organised group of persons participating in a certain activity or process. Actors are categorised using different criteria such as area of activity (rural, urban), origin (community, private, public), age (youth, mature, children) etc.

A network is a pattern of relations between actors in a given area or sector (Figure 3). A relation is a link between two actors and signifies an exchange of a defined benefit. Actor interactions can be horizontal or vertical and there is no limit to how many interactions a single actor can have in a given network.

The number of links in a network indicates the level of engagement between actors, which is also an indicator of the quantity of information exchanged in network. The more diverse actors, the richer the quality of information disseminated in the network. Actors that have the most linkages are considered central (dominant) in decision-making in the network.

*Figure 6: Illustration of the components of a social network.*
A network is a social structure whose qualities can be used to explain challenges/ barriers to development and opportunities available to the given community. For example, which issue is creating the most networks; reasons why there are missing linkages and which actors can be intermediaries in solving problems or creating new relations in the network

How to develop a local climate governance actor network:-

a. Identify the actors involved in four aspects of governance – policy making, strategy development and implementation of activities. the different actors in the network;

b. Categorise the actors into suitable groups e.g. public, civic and private

c. Establish the type of relation between actors that is either finance, information, material goods

d. Draw a matrix that will reveal presence or absence of links between actors

c. Use a social network program to illustrate the matrix into a network and quantitatively identify the central actors, missing linkages and opportunities for the actors.

**Actor network – Kwale County Natural Resource Network**

Kwale County Natural Resources Network (KCNRN) is a Community Based Organisation that aims at sustainable utilization natural resources. It sensitises and mobilises local communities in Kwale County to participate actively in the formulation of policies and legislations both at the County and National levels to shape sustainable management of natural resources. Drawing from the wide wealth of knowledge and expertise from its diverse membership, the Network is playing significant role in Natural resources conservation and management in the County. The Network also aims at promoting and enhancing information sharing and exchange between its members and institutions in charge of natural resource management and climate change.

**6.0 PROCESSES AND ACTIVITIES THAT ENHANCE CLIMATE GOVERNANCE**

Once the county government appoints the Climate Change Adaptation Committee then different county departments can work together to achieve the following important steps that ensure success of the county climate governance system.

1. Develop a comprehensive county climate database that contains past measurements of various weather parameters. These can be obtained from Kenya Meteorological department and other international organisations. This information can
be used to simulate future weather conditions to enable proper planning for disasters.

2. Undertake a detailed mapping exercise of the county to document current vegetation zones, water sources, settlement areas, protected areas, conflict zones, coastal zones, and economic activity. These maps must be updated on a regular basis to enable analysis of trends over time with change in climate.

3. Develop a comprehensive digital database for:
   a. Economic resources i.e. crops, livestock, fisheries etc. This should include diversity of utilised resources, harvest quantities, livestock productivity, monetary values, market dynamics, associated actors and stakeholders in the sectors.
   b. Biodiversity including plants and animals species. This information should include; endemic, endangered, common and extinct species, invasive species, species that are poached or bush-meat, species population, abundance and distribution in the county, species utilisation, conflict cases and cultural important species.
   c. Stakeholders and actors. This information must be developed from the village level up to the county level and should include type of contributions of actors to their networks. It will range from farmers, herbalists, seed companies to international organizations active in the county.

4. Review contracts with mining companies to ensure; compliance with Environmental Impacts Assessment (EIA) recommendations, mined areas are rehabilitated for use by community, considerations to climate change impacts are included and that their emissions are regulated.

5. Institute village-level awareness programs that promote a “back to basics” nature campaign. The campaign could include tree planting practices, domesticating medicinal plant species, harvesting of rain water by households, use of biogas for energy, smart agriculture, clean environment through the 3Rs principle (reduce, reuse and recycle).

7.0 MONITORING AND EVALUATION PLAN

Monitoring is the collection of information on the progress of a programme against its given objectives and goals over a period of time. An evaluation is the assessment of an ongoing project, strategy, policy or programme to understand the extent to which results are achieved. Evaluation provides reliable information for making effective future decisions regarding the stated project. Monitoring and evaluation processes play
a central role in identifying how best to reduce vulnerability and build resilience to climate change. They can also help to understand whether or not a policy or set of interventions has been effective in achieving its objectives (e.g. reducing emissions or increasing resilience) and whether or not these objectives have been achieved efficiently. Monitoring and evaluation can promote accountability and transparency regarding the allocation and use of resources; as well as the results achieved through local climate action planning.

Climate governance at the county level involves four main levels, namely; county headquarters, constituency office, ward office and the village offices. These four offices must agree on standardised indicators for the selected policies, strategies, activities and actors to be used during monitoring and evaluation for effective climate governance.

The following methods can be used to collect data by designated officers during a monitoring and evaluation exercise:-

a. Periodical reports from meetings held at the four governance levels. The frequency of the meetings can be agreed upon by stakeholders. Indicators from project/program will be monitored against the achievement timeline. The report should be standardised using a template for easier results comparison across wards.

b. Network analysis done twice a year at ward and constituency levels to establish central actors and their level of brokerage in the networks. This analysis will also help to expose which challenges are hindering the effectiveness of climate governance.

c. Field visits by officials from the county and wards to confirm existence and progress of funded activities by the community. Reports from the field visit committees will be forwarded to relevant officials for feedback and further action as required.

Monitoring and evaluation are important processes that provide valuable information for adjusting governance objectives, detecting trends in outcomes, change in stakeholder composition per sector and getting value for allocated funds at every project stage.

Table 6 shows a template form that can be used also as an implementation plan to ensure the achievement timeline is followed and also used as a monitoring and evaluation form during meetings and field visits.

<table>
<thead>
<tr>
<th>Outputs</th>
<th>Activities</th>
<th>Timeframe</th>
<th>Inputs</th>
<th>Stakeholders</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Table 7: Sample of a monitoring and evaluation template.
8.0. MARINE ECOSYSTEMS / COASTAL ZONES

Vulnerability and Impact

Kenya has a coastline extending to about 600 km from the Somalia border in the north to the Tanzania border in the south and an Exclusive Economic Zone (EEZ) stretching up to 200 nautical miles offshore. This coastline is characterised by diverse and productive ecosystems. Some of the key coastal ecosystems in Kenya include the coral reefs (209 species), sea grasses (12 species), mangroves (nine species), coastal forests, estuaries, delta, sand dunes and beaches.

Extent of Marine ecosystems

The coral reefs, estimated at 50,000 ha, occur as lagoons, reef flats and fringing reefs. The fringing reef system runs parallel to the coastline and is broken at places where river mouths, creeks and bays open into the ocean. This is primarily due to reduced water clarity in such areas. Sea grass cover in Kenya is approximated to be 3400 ha. They occur in shallow marine waters such as bays, lagoons and along continental shelves. The mangroves, covering 53,000-61,000 ha, occur in estuaries, creeks and bays with largest formation occurring in Lamu Archipelago (67per cent) in Lamu County and the Funzi-Vanga system in Kwale County. The beaches and sand dunes cover about 27,000 ha.

Importance

Understanding the existing ecosystems in any given area is a key step in promoting effective decision making with regards to their sustainable use and prioritisation for management amidst other competing uses (often economic driven). The coastal ecosystems support local livelihoods and are also significant to the national economy in terms of tourism, forestry and fisheries among others. They sustain key natural processes such as the carbon cycle, the nitrogen cycle and the hydrological cycle which have local, regional and global significance. For instance, they contribute towards nutrient cycling, which is key in determining soil fertility and water purification. They are also great carbon sinks with significant impact on the climate regime. Mangroves absorb up to six times the volume of carbon dioxide sequestrated by terrestrial forests.
The ecosystems (mangroves/corals/sea grass/dunes) further provide natural defence from extreme events such as tsunamis and storm surges that would lead to flooding, particularly in low lying coastal areas. Such defences would be very expensive if they were to be exclusively replaced by grey infrastructure like sea walls. Further, mangroves and sea grass stabilise the shoreline substrate mitigating the impacts of erosion and sedimentation. Through these functions, coastal ecosystems offer opportunities for poverty alleviation, promoting ecosystem based adaptation and disaster risk reduction and mitigation against the impacts of climate change.

Table 8. Services provided by coastal and marine ecosystems

Adapted from UNEP 2009.

**Threats**

The perceived high value of coastal ecosystems coupled with high poverty rates (e.g. 80 per cent per cent in Kwale) and rapid population increase has led to increased level of dependence on the ecosystems by coastal communities. This has led to unsustainable exploitation of these resources, encroachment and pollution among other threats (see table 1). Climate change is expected to exert additional pressure that will further compromise the integrity of these ecosystems by altering their capacity to provide the vital goods and services.

Some of the effects of climate change include rise in sea level, change in precipitation patterns, increase in temperatures, ocean acidification and storm surges. Some of the potential impacts include 1) bleaching of corals affecting the reefs and fisher-
ies, 2) sedimentation and inundation affecting mangrove distribution, 3) erosion of beaches/dunes and 4) salt water intrusion into water aquifers affecting availability of portable water. There are also possibilities of increased immigration by communities relocating from the areas ravaged by drought (Kwale is predominantly semi-arid) in the hinterland as they turn to marine based alternative livelihoods. This can in turn increase the number of dependent communities and their level of vulnerability as well as that of the ecosystems. Addressing human induced pressures is thus one of the ways to contribute towards building the resilience of the coastal ecosystems.

### Policies and Laws

The Constitution of Kenya 2010 - The right to a clean and healthy environment for every Kenyan is entrenched in the constitution and includes the right to healthy ecosystems. The constitution further obliges the State to ensure sustainable exploitation, utilisation, management and conservation of the environment and its natural resources. It also provides for appropriate legislative frameworks for stakeholder participation (including local communities) in decisions that affect them, including the management of the coastal resources they depend on.

The Environmental Management and Protection act, 1999 is the overarching framework for environmental management in Kenya. The management of costal and marine

<table>
<thead>
<tr>
<th>Threat</th>
<th>Sources</th>
</tr>
</thead>
</table>
| Overexploitation of natural resources | • Overharvesting of fish stocks and invertebrates  
• Destructive fishing practices  
• Mangrove destruction/conversion  
• Poaching of turtles and eggs  
• Inadequate infrastructure and capacity for monitoring and surveillance making overexploitation easy |
| Habitat degradation                | • Mangrove and coastal forests clearance  
• Coastal urbanisation and industrialisation  
• Development of transport infrastructure  
• Conversion to agriculture and aquaculture  
• Coral mining for building materials |
| Land-based sources of pollution    | • Tourism  
• Coastal urbanisation and industrialisation  
• Agricultural pollution  
• Soil erosion  
• Land-based extraction of minerals, oil and gas |
| Marine pollution                   | • Oil and gas development  
• Oil spills and illegal discharges  
• Hazardous waste dumping  
• Noise pollution |
| Natural disasters                  | • El-Niño  
• Climate change |

*Table 9. Key threats to Kenyan coastal and marine ecosystems*
environment which encompasses the marine ecosystems is institutionalised under Section 55 of the framework, which requires the preparation of an integrated coastal zone management plan. The provisions for stakeholder (including local communities) participation are clear in the framework and apply to its regulations. The Act prevails in all cases where other laws conflict.

The coastal zone is however unique considering interface between the land and the sea, the dynamic nature of the processes involved in shaping the coastal zone, the multiple challenges it faces with regards to the different institutions mandated to manage its resources and the different tiers of government involved in these processes. This previously led to duplication of efforts, conflicts among different actors and degradation of the ecosystems. In response to the challenges facing the coastal zone, Kenya has developed the following specific frameworks for integrated coastal zone management. These include:

a. An integrated coastal zone management policy (2014) - The overall objective of the policy is to guide the management and utilisation of coastal and marine environment and its resources to ensure sustainable livelihoods and development.

b. The Integrated coastal zone management action plan (2011-2015) - The plan (currently under review) identified priority themes and activities that were to be implemented by different actors between 2011-2015. Its overall goal was to conserve the coastal and marine environment and to ensure that its resources are utilised in a sustainable manner for the benefit of coastal communities and the national economy. The plan is used to implement the ICZM policy and shares the objectives of the policy as listed below.

The guiding principles of the plan and policy include

Ecosystem-based approach, coordination, integration and co-management, participatory and inclusive approach, precautionary principle, use of best available science and adaptive management, stewardship, application of multiple resource use management, polluter pays, balance between development and conservation, international and regional cooperation.

c. A shoreline management strategy - The strategy gives a description of Kenya’s shoreline, identifies the key shoreline management issues, recommends shoreline management policies and objectives in response to these issues and outlines strategies to achieve these policies and objectives. It advocates for site (cell-sections of coastline with similar sediment transport and morphological characteristics) specific management as opposed to use of administrative boundaries. It classifies the shoreline management issues into four key categories which include
Uncontrolled and unplanned development arising from socioeconomic pressures

- Shoreline change (erosion / accretion)

- Degradation of natural habitats (mangroves, coral reefs, sea grass beds, sand beaches & sand dunes, important bird areas, coastal forest)

- Water pollution (solid waste, effluent discharge, storm water, hinterland development).

Coral Reef and Seagrass Ecosystems Conservation Strategy 2014-2018 - The strategy discusses the threats facing the two ecosystems and proposes appropriate actions to enhance their conservation at national level.

The management of the specific ecosystems falls under different agencies such as Kenya Forest Service, Kenya wildlife service, State department of fisheries and blue economy, Coast Development Authority, Water resource management Authority and the County government for devolved resources such as non-gazette forests. Their sectoral acts, policies and strategies apply in managing different aspects of the resources based on their mandates.

<table>
<thead>
<tr>
<th>Ecosystem</th>
<th>Policy/Act/Institution</th>
</tr>
</thead>
</table>
| Mangroves                  | Kenya Forest Service  
Forest Act, 2005; Forest policy;  
Community can be directly involved through consultations as well as in development of forest management plans through community forest associations (CFA’s) |
| Corals and sea grasses     | Kenya wildlife service  
Wildlife Management and Coordination Act 2013; particularly where they occur in Marine protected areas;  
Community can be directly involved through consultations as well as in establishment of community conservation areas (CCA’s) |
| Beaches and sand dunes     | Constitution of Kenya 2010  
BMU regulations 2007;  
management of beaches is a devolved county function;  
Community can be directly involved through general consultations as well as through formation of Beach Management Units (BMUs). |
| Estuaries and deltas       | Water resource management Authority;  
can be directly involved through general consultations as well as through formation of water resource users association (WRUA) |
### Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td><strong>Weather vs. Climate</strong></td>
<td>Weather is the state of the atmosphere at some place or time. It is usually described in hours or days. For example: it is sunny/ rainy/ windy today. Climate is the average weather that an area experiences over a long time. For example: a place has a tropical (warm and wet) climate.</td>
</tr>
<tr>
<td><strong>Climate Change</strong></td>
<td>A change in the climate over a long period of time, typically decades or longer.</td>
</tr>
<tr>
<td><strong>Greenhouse Gas Effect</strong></td>
<td>Greenhouse gases in the atmosphere trap heat caused by the sun's radiation. This makes the planet become warmer, similar to the way it makes a greenhouse become warmer. The most important man-made greenhouse gases in the Earth's atmosphere are carbon dioxide and methane. CO2 = Hewa Kaa</td>
</tr>
<tr>
<td><strong>Fossil Fuels</strong></td>
<td>Fuel that is formed in the Earth from the fossils of old plants and animals that were buried millions of years ago, including oil, coal, natural gas and tar sands. Burning fossil fuels to produce energy is where the majority of man-made greenhouse gasses come from.</td>
</tr>
<tr>
<td><strong>Renewable Energy</strong></td>
<td>A continual source of energy, such as energy from the sun, wind, flowing water, heat from the Earth and movement of the tides.</td>
</tr>
<tr>
<td><strong>Sea-Level Rise</strong></td>
<td>Sea-level rise is caused by two major factors: First, as glaciers or icecaps break off or melt, more water gets into the ocean. Second, warmer temperatures of the ocean cause the water to expand.</td>
</tr>
<tr>
<td><strong>Adaptation</strong></td>
<td>Activities that will help us respond to the impacts of climate change that are already happening and are expected to happen in future.</td>
</tr>
<tr>
<td><strong>Mitigation</strong></td>
<td>Efforts to reduce or prevent the increases in atmospheric greenhouse gases.</td>
</tr>
<tr>
<td><strong>Hazard</strong></td>
<td>Potentially harmful natural or human activities that, when they occur, may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, and environmental damage.</td>
</tr>
<tr>
<td><strong>Vulnerability</strong></td>
<td>The predisposition to be harmed or experiencing the negative effects of a specific event. For example, a community living on a flood plain is more vulnerable to flooding than a community living on a hillside.</td>
</tr>
</tbody>
</table>
**Exposure**
The presence of people, cultural and social assets, livelihoods, services and resources in places that could be affected by a disaster.¹

**Capacity**
The combination of the strengths, attributes and resources available within a community, society or organisation that can be used to achieve agreed goals.²

**Resilience**
A resilient system is one that is better able to cope with change and can recover quickly. Building resilience looks to making systems, places and people more robust, both in being able to ‘bounce back’ after a stress, but also in being able to ‘bounce forward’ – adapting to long term changes in trends.
(From ALEX M: )

### Important Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>CEDRA</td>
<td>Climate change and Environmental Degradation Risk and Adaptation assessment</td>
</tr>
<tr>
<td>CIDP</td>
<td>County Integrated Development Plan</td>
</tr>
<tr>
<td>EMCA</td>
<td>Environmental Management and Coordination Act</td>
</tr>
<tr>
<td>GHG</td>
<td>Green House Gases</td>
</tr>
<tr>
<td>ILEG</td>
<td>Institute of Law and Environmental Governance</td>
</tr>
<tr>
<td>INGOs</td>
<td>International Non-Governmental Organisations</td>
</tr>
<tr>
<td>KAM</td>
<td>Kenya Association of Manufacturers</td>
</tr>
<tr>
<td>KCNRN</td>
<td>Kwale County Natural Resource Network</td>
</tr>
<tr>
<td>KEPSA</td>
<td>Kenya Private Sector Alliance</td>
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<tr>
<td>KNCCI</td>
<td>Kenya National Chamber of Commerce and Industry</td>
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<tr>
<td>NCCAP</td>
<td>National Climate Change Action Plan</td>
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<tr>
<td>NCCRS</td>
<td>National Climate Change Response Strategy</td>
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<tr>
<td>NDC</td>
<td>Nationally Determined Contributions</td>
</tr>
<tr>
<td>NEMA</td>
<td>National Environmental Management Authority</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organisations</td>
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<tr>
<td>UNFCCC</td>
<td>United Nations Framework Convention on Climate Change</td>
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<tr>
<td>WWF</td>
<td>World Wide Fund for Nature</td>
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REFERENCES


