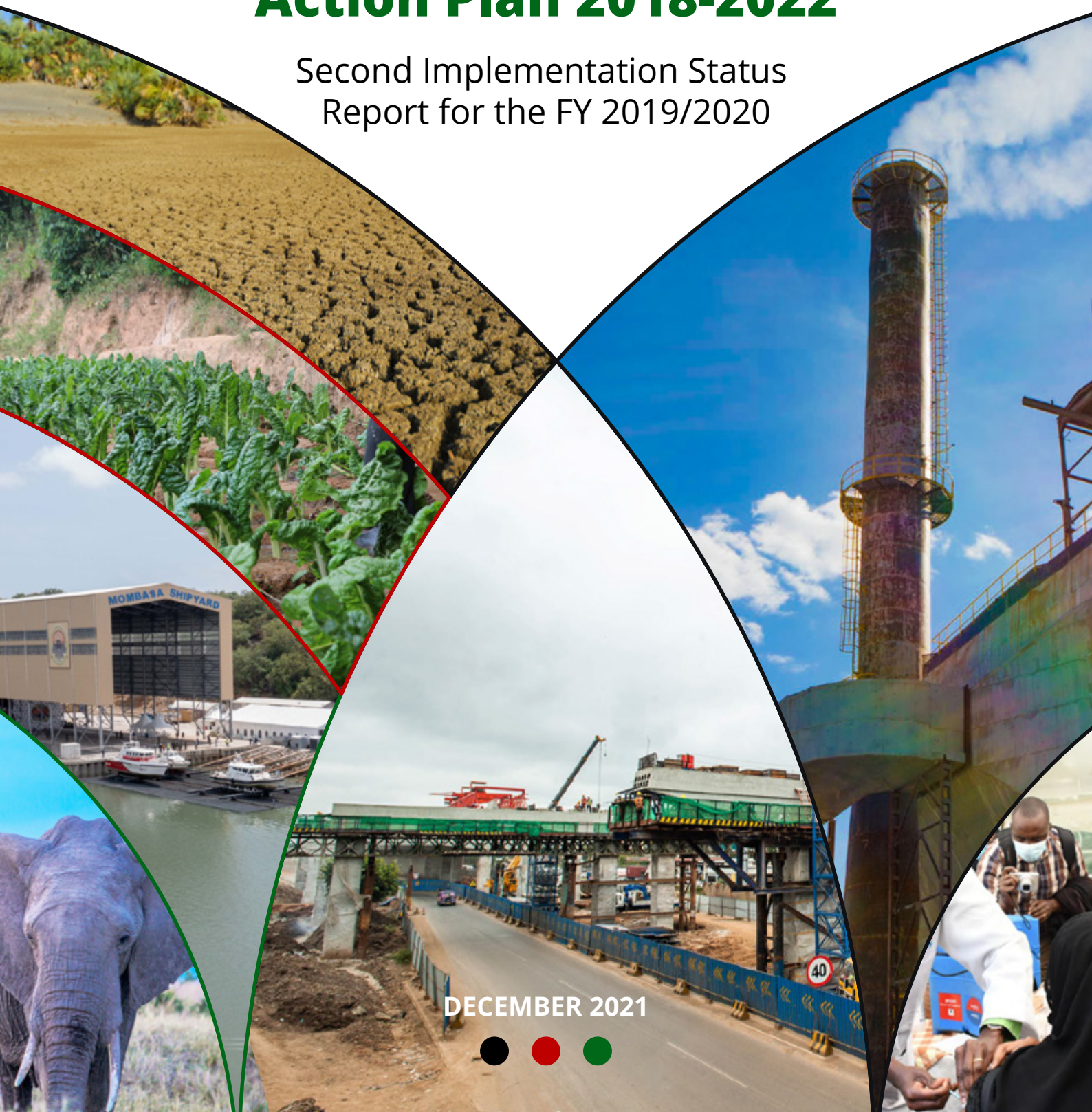
REPUBLIC OF KENYA

MINISTRY OF ENVIRONMENT AND FORESTRY

Climate Change Directorate

National Climate Change Action Plan 2018-2022

Second Implementation Status Report for the FY 2019/2020



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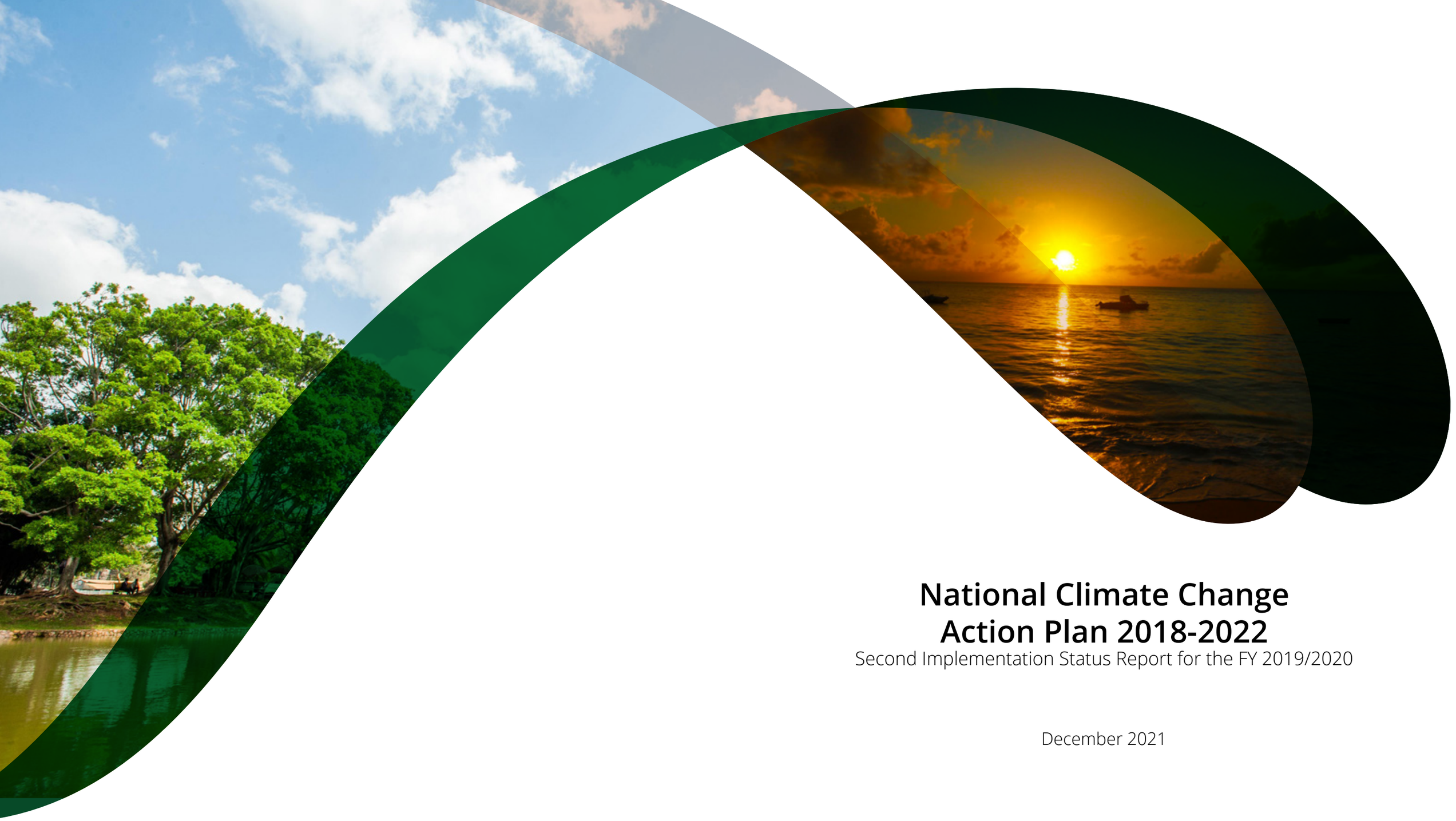

National Climate Change Action Plan 2018-2022

Second Implementation Status Report for the FY 2019/2020

December 2021

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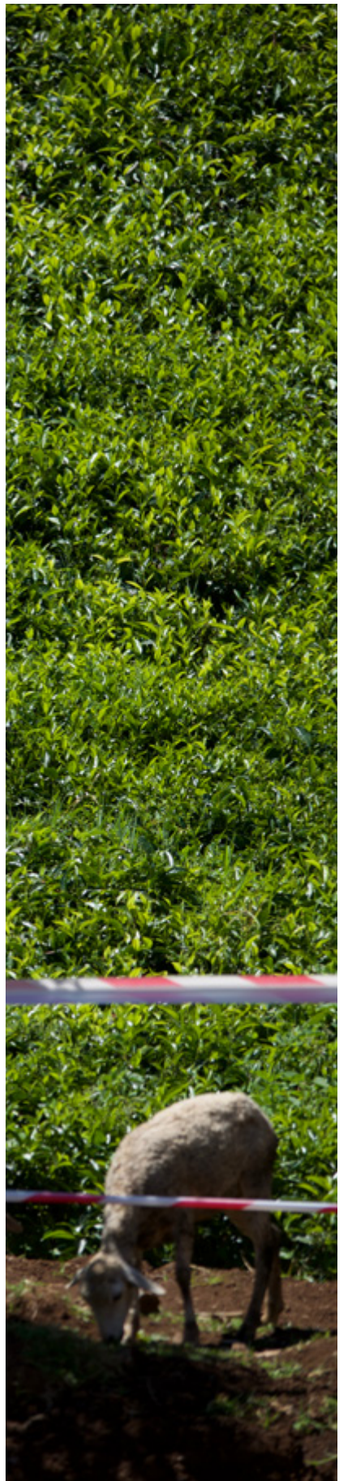
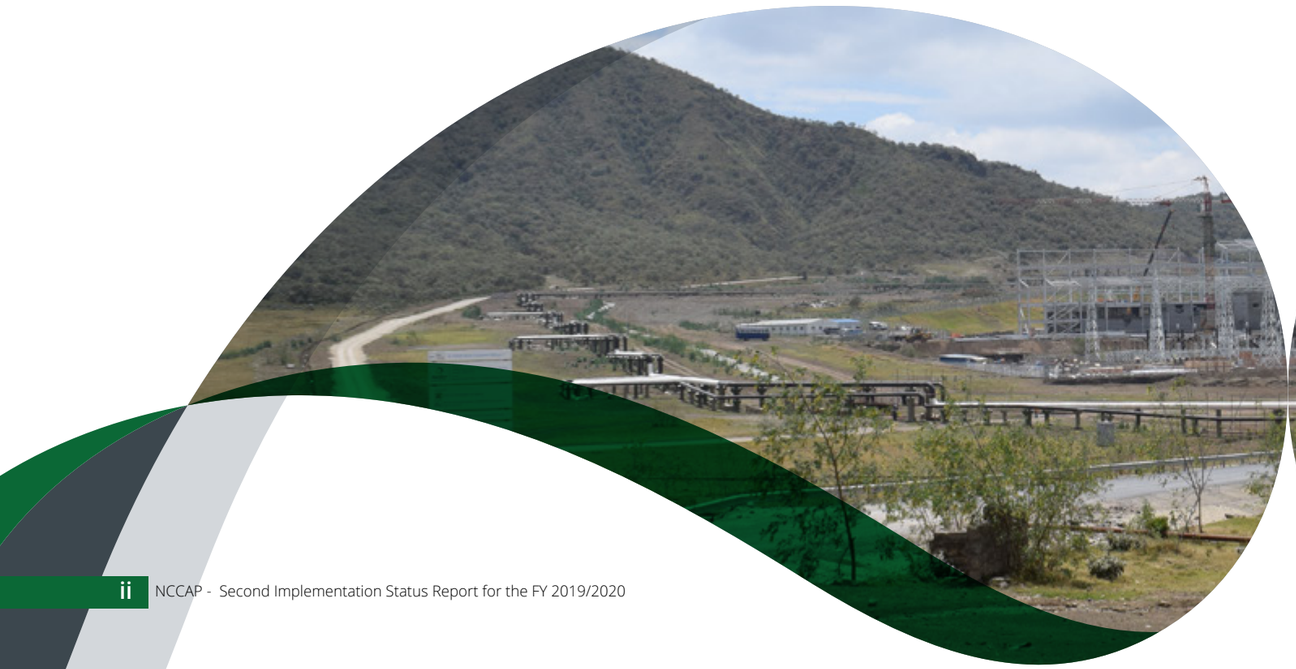


List of Acronyms

ASAL	Arid and Semi-arid Lands
BRT	Bus Rapid Transport
CBIN	Climate Business Information Network
CBNRM	Community Based Natural Resource Management
CPEBR	Climate Public Expenditure and Budget Review
CCD	Climate Change Directorate
CCCF	County Climate Change Fund
CCU	Climate Change Unit
CEC	County Executive Committee ember
CFA	Community Forest Association
CIS	Climate Information Services
CSA	Climate Smart Agriculture
CSO	Civil Society Organisation
CORDIO EA	Coastal Oceans Research and Development Indian Ocean East Africa
DRM	Disaster Risk Management
EPRA	Energy and Petroleum Regulatory Authority
EWS	Early Warning System
FAO	Food and Agriculture Organisation
FLLoCA	Financing Locally Led Climate Action
FRL	Forest Reference Level
GCF	Green Climate Fund
GDC	Geothermal Development Cooperation
GHG	Greenhouse Gas
GoK	Government of Kenya
GZD	Green Zones Development
HA	Hectares
HSNP	Hunger Safety Net Programme
IISD	International Institute for Sustainable Development
KAM	Kenya Association of Manufacturers
KBL	Kenya Breweries Limited
KCB	Kenya Commercial Bank
KCCWG	Kenya Climate Change Working Group
KEFRI	Kenya Forestry Research Institute
KENGEN	Kenya Electricity Generating Company
KeNHA	Kenya National Highways Authority
KEPSA	Kenya Private Sector Alliance
KFS	Kenya Forest Service
KMD	Kenya Meteorological Department
KNEC	Kenya National Examination Council
KNEECS	Kenya National Energy Efficiency and Conservation Strategy
KPCG	Kenya Platform for Climate Governance
KPLC	Kenya Power and Lighting Company
KSG	Kenya School of Government
KWS	Kenya Wildlife Service
LPG	Liquefied Petroleum Gas
MDAs	Ministries, Departments and Agencies
MEF	Ministry of Environment and Forestry
MRV+	Measurement, Reporting and Verification Plus
MSME	Micro, Small and Medium Enterprises
MW	Megawatt
NAP	National Adaptation Plan
NCCAP	National Climate Change Action Plan
NCCRS	National Climate Change Response Strategy
NDA	National Designated Authority
NDC	Nationally Determined Contribution
NDMA	National Drought Management Authority
NDOC	National Disaster Operation Centre
NEMA	National Environment Management Authority
NFMS	National Forest Monitoring System
NSNP	National Safety Net Programme
PET	Polyethylene terephthalate
REDD+	Reducing Emissions from Deforestation and Degradation plus
SAGA	Semi Autonomous Government Agency
SGR	Standard Gauge Railway
SLEEK	System for Land Based Emissions Estimation in Kenya
TLU	Tropical Livestock Unit
TVET	Technical and Vocational Education Training
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
WIO	Western Indian Ocean
WMO	World Meteorological Organisation



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Executive Summary

The National Climate Change Action Plan (NCCAP) 2018-2022 sets out the path towards low carbon climate resilient development in a manner that prioritises adaptation. It provides a framework for Kenya to deliver on its National Adaptation Plan (NAP) 2015-2030 and its Nationally Determined Contribution (NDC) under the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC). It encourages the mainstreaming of adaptation and mitigation actions across sectors and levels of government; and engagement and participation of key stakeholders including the private sector, development partners and the general public in climate change processes and interventions.

This second NCCAP implementation progress report covers the period July 2019 to June 2020 and is based on submissions by national and county governments and informed by contributions from the private sector and Civil Society Organisations (CSOs). It covers progress made in the seven priority areas in the NCCAP namely disaster risk management; food and nutrition security; water and the blue economy; forestry, wildlife and tourism; health, sanitation and human settlements; manufacturing; and energy and transport. Also included is progress made with the enablers, namely the policy and regulatory framework; technology and innovation; capacity development and knowledge management; climate finance and resource mobilization; and transparency, measurement, reporting and verification plus (MRV+). The enabling actions are meant to enhance delivery of the adaptation and mitigation actions set out under the seven priority areas.

Data was collected using an online reporting tool that was sent to all ministries, state departments, agencies (MDAs), and county governments. Private sector entities were approached through the Kenya Private Sector Alliance (KEPSA), while the Kenya Climate Change Working Group (KCCWG) and the Kenya Platform for Climate Governance (KPCG) facilitated access to CSOs. Potential respondents were requested to complete the form and submit online. The decision to use an online tool was informed by the need to reach more people across the country quickly and easily, and online responses became even more useful during the Covid-19 pandemic that restricted movement and face to face meetings.

A total of 90 institutions responded including 40 county governments, 34 MDAs, 11 research institutions and 5 private sector entities. Sixty two respondents (62%) were reporting for the first time compared to thirty eight (38%) who were reporting for the second time. A majority of the respondents focused their actions on addressing climate risks such as drought, floods, changing rainfall patterns, and landslides which are consistent with priorities in NCCAP, NAP and NDC among others. Many institutions saw opportunities in carbon sequestration, resilience building (e.g., through livelihood diversification and water conservation), awareness creation, and capacity building (including early warning and preparedness).

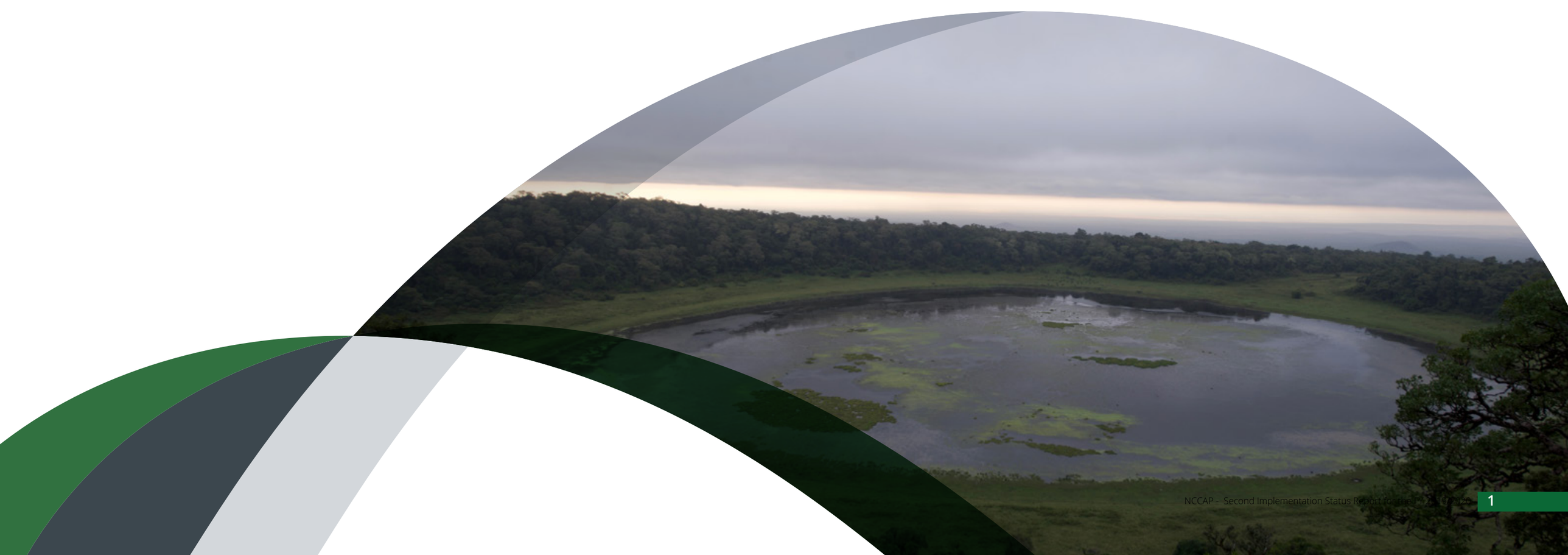
Several challenges were reported that affected implementation of the action plan during the reporting period. These included weak or non-existent climate change coordinating units in the reporting institutions, more so in the counties; poor coordination among the different actors leading to duplication of efforts and risk of double counting; inadequate financial resources to support implementation and reporting; and the locust invasion and Covid-19 pandemic that led to a diversion of resources to deal with these emergent challenges.

To address these challenges, it is recommended that CCD carry out the following actions:

- Sensitize and build capacity of all relevant units within ministries, departments, agencies, counties, private sector and CSOs that are responsible for coordinating climate change actions so that monitoring and reporting can be more streamlined;
- Adopt a biennial reporting timeline to reduce the demand on those expected to report and cost adaptation actions, and on the CCD that carries out the exercise;
- Invest in a data management system with higher functionality and capabilities since the open-source Kobo software that has been used in the last two years has limitations in terms of what users can do; and
- Ring-fence climate finance so that implementation of activities is not disrupted. This also implies that government and other institutions plan for emergent challenges.

CHAPTER ONE

INTRODUCTION



The National Climate Change Action Plan (NCCAP) 2018-2022 aims to further Kenya's development goals by providing mechanisms and measures to achieve low carbon climate resilient development in a manner that prioritises adaptation. The NCCAP is a requirement set out in the Climate Change Act, 2016 and it provides a framework for Kenya to deliver on its National Adaptation Plan (NAP) 2015-2030 and its Nationally Determined Contribution (NDC) under the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC). It is a five-year plan that provides an overarching blueprint to guide the mainstreaming of adaptation and mitigation actions across sectors and levels of government. NCCAP 2018-2022 encourages the engagement and participation of key stakeholders, including Ministries and Agencies, County Governments, development partners, the private sector, civil society, and the general public.

1.1 Background to the annual reporting process

Section 13(7) of the Climate Change Act, 2016 requires that the Climate Change Directorate (CCD) undertake a biennial review of the implementation of the NCCAP and report to the National Climate Change Council. The review is informed by the inputs of public entities that are required to report annually to the Council on the status and progress of performance and implementation of all assigned climate change duties and functions. [1] Additionally, the review is informed by County Government reports on the progress of the implementation of climate change actions, which are to be submitted annually to the County Assembly, with a copy of the report provided to the CCD. The report is also informed by contributions from the private sector and public benefit organisations.

This second NCCAP implementation report covers the period July 2019 to June 2020 and builds on the 2018/19 progress report. [2] The report highlights key achievements made across the seven NCCAP strategic objectives; progress to implement the enabling actions in terms of policy and regulatory frameworks, technology and innovation, capacity development and knowledge management, climate finance and resource mobilization, and measurement, reporting and verification; and challenges experienced with implementation. Four case studies have been included to exemplify some of the best practices in addressing adaptation in Kenya.

Efforts to address climate change in 2019/2020 encountered several challenges. The coronavirus disease 2019 (Covid-19) pandemic led to a slowing down of the economy, loss of sources of livelihoods, and loss of human lives. An invasion by desert locusts affected 26 counties -15 being Arid and Semi-arid Lands (ASALs)-and led to a loss of crops and pasture thereby increasing the food insecurity situation. [3] Financial and technical resources intended for climate change action were diverted to deal with these emergent challenges.

On the positive side, the country updated and submitted her NDC that included enhanced ambition to abate greenhouse gas (GHG) emissions, increasing Kenya's intended contribution to reduce GHG emissions to 32% by 2030 relative to the business-as-usual scenario of 143 million tonnes of carbon dioxide equivalent (up from a 2016 intended contribution of 30%). The NDC commits Kenya to ensuring a climate resilient society by mainstreaming climate change into Medium-Term Plans and County Integrated Development Plans, and implementing adaptation actions. This enhanced ambition is in line with the sustainable development agenda, national circumstances, and aspirations to increase resilience to climate change by introducing programmes for adaptation actions across sectors in support of livelihoods, poverty eradication, and economic well-being of the Kenyan people while pursuing a low carbon development pathway. The updated NDC builds on the initial NDC, NAP 2015-2030 and NCCAP 2018-2022 together with new policies and plans.

1.2 Task objectives and scope of the report

This second annual implementation report mainly covers the actions of the two levels of government, reviewing the actions of 40 County Governments and 31 national Ministries, Departments and Agencies (MDAs) that submitted reports to the CCD on their implementation of the priority climate change actions set out in NCCAP 2018-2022. Information submitted by 10 universities and 4 private sector entities supplements the government reporting, with contributions from the private sector included as case studies in this report. The report also highlights key challenges and opportunities experienced during the reporting period.

The preparation of the report was coordinated by the CCD of the Ministry of Environment and Forestry (MEF), with the support of the NAP Global Network, International Institute for Sustainable Development (IISD)

Similar to the first report (2018-2019), this 2019-2020 report aims to:

- Consolidate data on climate change related activities and investments by all stakeholders at national and county levels.
- Highlight progress, challenges, opportunities, and lessons learnt.
- Enhance stakeholder awareness and involvement in climate change activities for improved action.

The report is organised into the following sections: Chapter one covers background and objectives; Chapter Two – Methodology and approach employed in the preparing the report; Chapter Three – Summary of results by strategic objectives and enablers; Chapter Four – Challenges and lessons learnt; and Chapter Five: Recommendations and way forward.

1.3 Overview of climate change impacts in Kenya in 2019-2020

NCCAP 2018-2022 identified major climate hazards in Kenya, including the increasing frequency and intensity of extreme climate events, heat waves, droughts, floods, and landslides. [4] The situation in 2019-2020 demonstrates that these climate hazards have real impacts at the household and societal level in Kenya.

Kenya has been affected by severe drought since 2016 that has been interrupted by several very heavy rainy seasons, including the short rains season (October-November-December) in 2019 and the long rains season (March-April-May) in 2020. The State of the Africa Climate 2019 reported that Kenya experienced two successive below-average rainfall seasons in 2018-2019 resulting in significant rainfall deficits, with totals for the 12 months ending June 2019 around 50% of average.[5]

A dramatic shift in conditions in late 2019 contributed to above average rainfall in Kenya, of at least double the average seasonal rainfall. The Kenya Meteorological Department (KMD) reported that rainfall performance in the 2020 long rains season was far above normal in most parts of the country, while the 2020 short rains season exhibited depressed rainfall over most of the country.[6] 2020 temperatures were higher than average, with the cold season (June-July-August) having the greatest deviation from normal compared to other months.

In 2019, the food security situation deteriorated in parts of Kenya due to the cumulative impact of the below-average short rains in 2018 followed by the poor 2019 long rains season. The number of people in Kenya affected by food insecurity increased between late 2018 and late 2019 from 0.7 to 3.1 million.[7] The 2019 aggregate cereal production declined by about 8% due to reduced first season harvests in Kenya on account of severe early season dryness.[8] Droughts typically impact the ASALs which receive low amounts of rainfall and have high temperatures for most of the year. ASALs account for 89% of Kenya's land area, 38% of the country's population, 75% of livestock, and 90% of wildlife.[9]

The heavy rains in the second half of 2019, and especially during the October-November-December short rains season, triggered widespread floods that resulted in loss of life, mass displacement, damage to crops, loss of livestock, and destruction of infrastructure (such as roads, bridges, and buildings) particularly in northern and eastern Kenya.

Torrential rains were experienced in the long rains season in April and May 2020. Flooding adversely impacted more than 800,000 Kenyans in 29 counties; including about 300 people that died and 100,000 people that were displaced.[10] The heavy rains impacted coastal areas with beaches being flooded and fish landing sites negatively impacted.[11] Landslides were reported in the Rift Valley and the central and coastal regions, according to the Government's National Disaster Operations Centre (NDOC).[12] The Masinga dam reached maximum water capacity for first time in its history.[13] The flooding situation in 2020 was exacerbated by the Covid-19 pandemic, which disproportionately affected those who lost their homes and livelihoods in the April and May 2020 flooding.[14] Coastal communities were particularly impacted by Covid-19 due to their high reliance on tourism and shipping, and on the fisheries trade that requires transport from fishing zones to markets.

The heavy rains in 2019 and 2020 created conditions conducive to the severe desert locust outbreaks, the worst in decades that affected Kenya and other countries in the East Africa region. These recent intense outbreaks of locusts can be linked to anthropogenic climate change and the increased frequency of extreme weather events.[15] Damage to the 2019 crops was minimal, but the insects caused substantial crop losses in 2020.[16] The desert locust outbreaks affected 26 counties (15 ASAL counties) and the Food Security and Nutrition Working Group reported that approximately one-third of cropping households and half of livestock-rearing households in East Africa experienced locust-related crop and pasture losses.[17] A total of 609,999 Ha (30,213 Ha of cropland and 579,786 Ha of pastureland) were lost as a result of the locust invasion in the 16 most affected counties.[18] The locust invasion led to hunger in both humans and livestock; cases of diarrhoea and even death of livestock after ingestion of the locust droppings which also affected open water sources carried by runoff water which caused stomach ailments in human beings; and displacement and conflicts as communities sought alternative food and feed for their livestock in the affected areas.[19]

The Western Indian Ocean (WIO) has warmed faster than the broader Indian Ocean and the global average, by about 1oC from 1900 to 2015. This is due to high warming rates during El Niños, a lack of cooling during La Niña conditions, and increasing frequency of El Niños.[20] This high rate of warming may explain why WIO coral reefs were among the worst-impacted globally in 1998 in the first global bleaching event. At present the impact on fisheries is hard to discern due to already high levels of fishing impacts, and reef regions around the WIO are rated as "Vulnerable to collapse" based on fishing impacts (mainly the continental coast) or "Endangered to Critically Endangered" based on climate warming (mainly the islands).[21]

1.4 Responding to climate change in Kenya

The National Climate Change Policy and the Climate Change Act put forward Kenya's driving philosophy in responding to climate change as moving 'towards a low carbon climate resilient development pathway.' The NCCAP 2018-2022, NAP and NDC state that adaptation is the country's priority and set out the actions that will help the country achieve this goal. These documents identify priority adaptation actions that help households and communities manage climate risks while prospering economically and socially under a changing climate while keeping emissions low. The strategic objectives of the NCCAP 2018-2022 are aligned with the government's Big Four Agenda (that prioritizes enhanced manufacturing; food and nutrition security; affordable housing; and universal health coverage) and Vision 2030 whose objective is 'to transform Kenya into a newly industrializing, middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment'.[22]

The country recognizes the important roles played by the national and county governments, private sector, civil society organizations (CSOs), research organizations, institutions of higher learning, and media, among others. Each of them is expected to contribute to the successful implementation of NCCAP priority actions that help achieve Kenya's contribution towards the Paris Agreement as captured in its NDC and NAP, the Big 4 agenda, and ultimately, Vision 2030.

CHAPTER TWO

METHODS AND APPROACH

The preparation of this report employed a combination of methods and approaches to generate relevant data and information as summarized below:

- **Desk review of policy documents and literature on climate change**: Review of relevant policy documents such as the Climate Change Act, 2016; NCCAP 2018-2022 together with the Adaptation Technical Analysis Report (ATAR) and Mitigation Technical Analysis Report (MTAR) reports, NAP 2015-2030, updated NDC (2020), and climate change literature on Kenya was carried out to obtain a better understanding of the policy environment and prevailing context. Annual reports of Semi-Autonomous Government Agencies (SAGAs, such as the National Drought Management Authority [NDMA]) and sectors (such as Transport) together with current publications on climate change in Kenya were reviewed to identify relevant information to inform this report.
- **Stakeholder mapping and engagement workshops.** A stakeholder mapping exercise was carried out to identify key stakeholders working on climate change in Kenya. Key groups or categories identified included national government MDAs; county governments; private sector entities; CSOs; and development partners that include UN and other international agencies. Subsequently, a sensitization exercise on the NCCAP and training on the online data collection tool Kobo were organized for each of the groups in April and May 2021. Additional training sessions were organized in mid-May for those who missed the initial sessions for their respective groups. 38 CSO representatives, 36 private sector representatives, 55 officials from MDAs, and 56 county government officials were trained in the first round. An additional 88 participants were trained during the make-up sessions bringing the total trained to 273 people. The trainings sensitized stakeholders on the importance of NCCAP reporting, and identified concerns that stakeholders had on the process including the online reporting tool, which were addressed before it was rolled out.
- **Key informant interviews.** Based on the training workshops and expert knowledge, a few stakeholders were identified for interviews for the purposes of preparing case studies. Those selected as key informants are individuals that were doing something innovative or transformative to address climate change that provided useful lessons and could be scaled out going forward.
- **Primary data collection using an online reporting tool.** The online reporting tool was sent to all ministries, state departments, agencies, and county governments. Private sector entities were approached through the Kenya Private Sector Alliance (KEPSA), and the Kenya Climate Change Working Group (KCCWG) and the Kenya Platform for Climate Governance (KPCG) facilitated access to CSOs. Potential respondents were requested to complete a form and submit online. The decision to use an online tool was informed by need to reach more people quickly and easily across the country, and became even more useful during the Covid-19 pandemic that restricted movement and face to face meetings. Passwords for logging into the online tool were provided to contact persons in the various institutions to ensure integrity of data being collected. The survey used the same tool as in year 1 after reviewing the tool for completeness and relevance based on feedback from stakeholders. Back up support was provided to stakeholders on a continuous basis as they filled information online.
- **Ninety (90) institutions submitted information through the online reporting tool;** which included 40 county governments, 34 MDAs, 11 research institutions and 5 private sector entities as summarized in Figure 1 below. Sixty Two respondents (62%) were reporting for the first time compared to thirty-eight (38%) who were reporting for the second time.

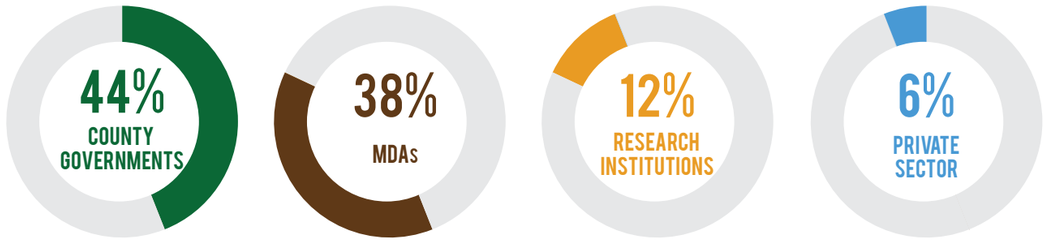


Figure 1: *Summary of respondents*

In terms of areas of focus, the majority of the respondents focused their actions on addressing climate risks such as drought, floods, changing rainfall patterns, and landslides which are consistent with the priorities in NCCAP, NAP and NDC (figure 2). Curiously missing was sea-level rise which affects large areas along the coastline. On the other hand, most of the institutions saw opportunities in carbon sequestration, resilience building (e.g., through livelihood diversification and water conservation), awareness creation, and capacity building (including early warning and preparedness).

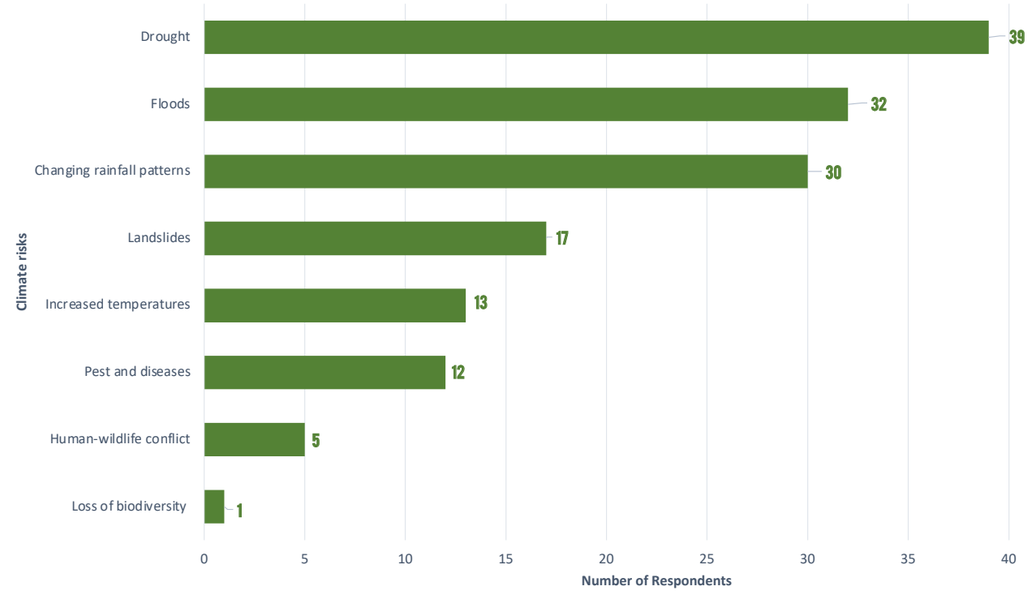


Figure 2: *Climate-related risks targeted by actions being implemented*

- **Data consolidation and analysis.** Data collected from the online reporting tool as well as from reports and the literature was collated and analysed to track progress over 2019-2020 in implementing the NCCAP. For each of the strategic objectives, an assessment of progress toward the expected results was undertaken where possible. For the enabling actions, a review of progress on the process indicators was completed. An Excel spreadsheet was used to undertake the analysis, with results presented in the form of high-level summaries. Where appropriate, infographics were prepared to show performance at a glance.
- **National Validation of draft report.** The draft progress report was presented to stakeholders at a national validation workshop held on the 30th November 2021. Over 138 stakeholders confirmed that the report was an accurate representation of their submissions; and comments provided at the validation exercise were incorporated in this final report.

CHAPTER THREE

RESULTS AND PROGRESS BY STRATEGIC OBJECTIVES

This section provides highlights of progress made and key activities implemented across the seven priority areas of NCCAP namely disaster (drought and flood) risk management; food and nutrition security; water and the blue economy; forestry, wildlife and tourism; health, sanitation and human settlements; manufacturing; and energy and transport. The tables in each section below set out the priority actions, expected results, and cumulative results achieved from July 2018 to June 2020. The results achieved in the 2019-2020 period are described in the written text.

3.1 Disaster Risk Management

The aim is to reduce risks that result from climate related disasters, such as droughts and floods, to communities and infrastructure. Pro-active management of these extreme events can ameliorate or reduce impacts on the society and economy.

Table 1: *Disaster Risk Management*

Actions	Expected Results by 30th June 2023	Results Achieved as of June 2020 (Cumulative)
1. Increase number of households and entities benefiting from devolved adaptive services	▪ No. of beneficiaries of social protection mechanisms and other safeguards (under the Hunger Safety Net Programme [HSNP]) increased from 100,000 to 150,000 households for regular beneficiaries; and from 90,000 to 130,000 for scalability beneficiaries. ▪ No. of households better able to cope with climate change because of receiving benefit from County Climate Change Funds from increased 300,000 households in 2018 to 800,000 households. Climate Change Funds address local adaptation priorities that are identified and monitored by community committees comprised of women and men. ▪ No. of beneficiaries under the National Safety Net Programme (NSNP) increased from 4,017,759 individual beneficiaries in 2017 to 4,280,000. *Note: No. of beneficiaries increases because the of expanded scope of programmes meaning more Kenyans are eligible for support* *Note: Average household size in Kenya was 3.9 members according to the 2019 census.*	▪ HSNP reached 100,532 households. ▪ Conditional (drought shock responsive) cash transfers reached 8,732 households. ▪ NSNP reached 1,263,000 households (4,925,700 individuals).
2. Improve ability of people to cope with drought	▪ Drought early warning systems improved, including the promotion of people-centred systems at the national and county levels. ▪ No. of recipients of climate information services that use the information in their risk management decisions increased from 1,000,000 to 2,000,000. ▪ Water harvesting and storage (*see expected results under Climate Action 3 – Water and the Blue Economy).* ▪ Operationalise the National Drought Emergency Fund	▪ 2,562,503 people received climate information services. ▪ 46 consolidated monthly national and 552 county monthly drought early warning bulletins produced. ▪ 17 coral bleaching alerts issued in the Kenyan seascape. ▪ 3,283 water tanks, dams, boreholes, pans, or earth dams were constructed or installed. ▪ Nyandarua County installed 15 roof harvesting systems in institutions. The Asset Creation Programme constructed rainwater harvesting structures in 1,000 sites across 14 ASAL counties. ▪ Draft National Drought Emergency Fund regulations developed
3. Improve ability of people to cope with, and infrastructure to withstand, floods	▪ Flood early warning systems improved, taking advantage of widespread access to mobile technology that provides an avenue for disseminating information. ▪ Implement the existing 11 integrated flood management plans; for example, water storage, drainage networks, reforestation and rehabilitation of riparian areas, construction of dams, land use restrictions. ▪ Dam Safety Control System established including a needs assessment, development of safety manuals and codes of practice. ▪ Capacity development of 50 Water Resources Users Associations, which are community-based organizations that are rights-based groups with	▪ 3,493 flood early warnings issued. ▪ Three counties (Taita Taveta, Kisumu and Kajiado) have taken action to reduce flooding, including drainage systems, storm water drains, and construction of dams. ▪ 60 km of blocked drainage channels opened in Nyando basin, Kisumu County under Adaptation project by NEMA to reduce the risk of flooding and protect local communities.

Actions	Expected Results by 30th June 2023	Results Achieved as of June 2020 (Cumulative)
	▪ Water and flood control including dams, dykes, drainage systems, water storage *(see expected results under Climate Action 3 – Water and the Blue Economy).*	
4. Improve coordination and delivery of disaster risk management	Improve the coordination of disaster risk management (including floods, droughts, disease outbreaks, landslides and others) by enacting and implementing the Disaster Risk Management Act that includes the establishment of: ▪ National Disaster Risk Management Authority to coordinate disaster response ▪ Engendered County Disaster Risk Management Committee to coordinate disaster response at the county level ▪ Disaster Risk Management Fund to provide funds for disaster preparedness, mitigation of disaster impacts, and disaster recovery measures, particularly for vulnerable groups.	▪ 8 counties developed county disaster management legislation, plans and coordinating units/committees. ▪ 23 ASAL counties have drought contingency plans. ▪ 2,620 people trained on risk of forest fires, disaster preparedness, response preparedness and environmental safety.

The priority actions identified in NCCAP 2018-2022 included increasing the number of people benefiting from devolved adaptive services; improving ability of households and infrastructure to cope with drought and floods and; improving coordination and delivery of disaster risk management.

Key achievements during the FY 2019-2020 reporting period are described below:

- Kenya Meteorological Department (KMD) reached an additional 1,011,583 users with climate information services in the form of daily, weekly, monthly, and seasonal forecasts and advisories bringing the cumulative total (FY 2018-19 and 2019-20) to 2,562,503 people. Additionally, 3,468 flood early warnings that included advisories on extreme weather were issued, which improved the ability of communities to cope with floods.
- The National Drought Management Authority (NDMA) produced and disseminated 23 monthly county drought early warning bulletins totalling 276 for the year. A further 12 consolidated monthly national drought early warning bulletins were also produced and disseminated.[23] CIS including early warnings contributes to better risk management and sustainability of investments.
- NDMA disbursed KES 3.3 billion under the HSNP through six regular cash transfer cycles to 100,532 households, out of which 60% of recipients were women in the four arid counties of Wajir, Mandera, Turkana, and Marsabit. The entire cash transfer caseload was fully financed by the government,[24] which also disbursed drought shock responsive cash transfers to 8,732 households as triggered by the drought severity index.[25]
- Over 3,074 water tanks, pans, or earth dams were constructed or installed, which enhanced water harvesting and storage for households and productive uses across the country. Nyandarua County had 15 roof harvesting systems installed in institutions. Enhanced water harvesting and storage eased the burden of water collection, particularly for women who often travel long distances and spend many hours fetching water for household use.
- County disaster management legislation, plans, and coordinating units/committees were established in six counties; namely Bungoma, Isiolo, Kakamega, Makueni, Nandi and Nyamira. These are expected to improve coordination and management of climate-related risks.

3.2 Food and nutrition security

Agriculture plays a key role in terms of food and nutritional security, rural livelihoods, and poverty alleviation. The NCCAP reported that the agriculture sector contributed 31.5% of GDP in 2017; provided around 75% of employment and supported over 80% of the rural population. Agriculture remains largely rain-fed making it highly susceptible to climate vagaries such as temperature increase, changes in precipitation, and extreme events.

Table 2: *Food and nutrition security*

Actions	Expected Results by 30th June 2023	Results Achieved as of June 2020 (Cumulative)
1. Improve crop productivity through implementation of CSA interventions	▪ No. of institutions /value chain actors and households harvesting water for agricultural use/production increased to 500,000. ▪ Agricultural pre- and post-harvest losses reduced from 40% to 15%. ▪ No. of beneficiaries accessing climate-oriented crop insurance increased from 280000 to 3500000 farmers. ▪ No. of farmers accessing subsidies for appropriate agricultural inputs increased from 239,000 to 311,300. ▪ No. of households and acreage under sustainable land management increased for agricultural production: o Support for the reclamation of 60,000 ha of degraded land; o Areas under integrated soil nutrient management increased by 250,000 acres. o Farm area under conservation agriculture increased to 250000 acres, incorporating minimum/no tillage. o Total area under agroforestry at farm level increased by 200000 acres.	▪ 196,391 actors harvested water. ▪ 8.12% reduction in pre- and post-harvest losses. ▪ 382,929 farmers accessed climate-oriented crop insurance. ▪ 134,808 farmers accessed appropriate agricultural inputs. ▪ 52,075 Ha of degraded lands reclaimed. ▪ Area under soil nutrient management increased by 10,286 acres ▪ Area under conservation. agriculture increased by 20,050 acres.
2. Increased crop productivity through improved irrigation	▪ Acreage under irrigation increased from 202,000 to 486,000 Ha. ▪ Production efficiency from irrigated fields increased from 50% to 90%.	• Area under irrigation increased by 5,013 Ha.
3. Improve productivity in the livestock sector through the implementation of CSA interventions	▪ Improved productivity of pastoralists: ▪ 10,000 Ha of rangelands reseeded in 23 ASAL counties; ▪ Annual ASAL's water harvesting and storage increased by 25%, from 16 to 20 Million M^3 via small dams and water pans, and 700M^3 through large multipurpose dams; and ▪ Animal disease control and surveillance improved. ▪ Number of customers/beneficiaries/farmers accessing climate-oriented livestock insurance increased from 18,000 to 105,750. ▪ Efficiency in dairy management improved for 267,000 households. ▪ Manure management improved through the adoption of biogas technology by 80,000 households and at least 200 abattoirs.	▪ 1,969 Ha of rangelands re-seeded. ▪ Annual ASALs water harvesting and storage capacity improved by 1,130,000 M^3 from the 38 water pans, 6 subsurface dams constructed and 73 bore holes and shallow wells in 11 ASAL counties. ▪ Over 10,086,752 head of cattle were vaccinated in 30 counties in 2019/2020. ▪ 13 million doses of vaccines completed in 2018-2019 ▪ 18,012 farmer households insured 90,060 head of cattle. ▪ 1,297 households adopted improved management of manure.
4. Improve productivity in the fisheries through implementation of CSA interventions	▪ Insurance packages piloted and developed for the fisheries sub-sector. ▪ Aquaculture production increased: ▪ No. of cages for fish farming increased from 3,450 to 8,000. ▪ No. of fishponds increased by 16,000. ▪ No. of farmers using low carbon (reticulating) aquaculture systems increased from 20 to 180.	▪ 41,496 fishers adopted Insurance products for the sector. ▪ 793 fish farming cages established. ▪ 11,300 fishponds established. ▪ No of farmers using low-carbon (recirculating) aquaculture systems increased by 140.
5. Diversify livelihoods to adjust to a changing climate	▪ At least 521,500 households supported to adopt diversified adaptive enterprises /value chains for sustained livelihoods and nutrition security.	▪ 292,106 households supported to adopt diversified adaptive enterprises.
6. Enabling Action – technology and knowledge management	▪ No. of counties developing and implementing climate information service (CIS) plans increased from 9 to 47. (Linked to Action 1 DRM)	▪ 15 counties have CIS plans (63% of the national target). ▪ 3 counties (Kwale, Narok and Siaya) developed Integrated Climate Risk Management Plans.

The focus under this priority area is to increase or maintain food and nutrition security under a changing climate through implementation of climate smart agriculture (CSA) strategies interventions in the crop, livestock and fisheries sub-sectors; increase crop productivity through improved irrigation; and diversify livelihoods to adjust to a changing climate.

The key achievements during 2019-2020 included:

Crops sub-sector

- 40,929 farmers accessed climate-oriented crop insurance (against an annual target of 644,000 farmers).
- 134,808 farmers accessed appropriate agricultural inputs such as certified seeds, fertilizers, and seedlings, representing 186% of the national target of 72,300 farmers. This is expected to contribute to increased crop productivity that may reduce poverty levels and food insecurity among farmers.
- Approximately 129 institutions and 196,262 households developed or strengthened water harvesting structures such as water pans, dam liners, and gutters for agricultural use. These interventions were meant to increase available water for agricultural use thereby increasing productivity and profitability of the sector.
- There was an 8.12% reduction in pre- and post-harvest losses against an annual target of 5%. Interventions that contributed to the reduction in losses included the over 10,000 hermitic bags distributed to farmers; and the construction of a grain storage facility and 3 grain storage warehouses in Trans Nzoia County. These are meant to help farmers graduate from recurrent food insecurity and move toward market-oriented commercial farming.
- The adoption of sustainable land management practices demonstrated mixed results. The reclamation of 52,075 Ha of degraded lands through soil and water conservation structures, establishment of demonstration farms, and use of modern conservation agriculture equipment was a success, representing 87% of the national target. Other interventions had less success. Only 10,286 Ha or 4% of the national target of 250,000 Ha were put under soil nutrient management; areas under conservation agriculture stood at 20,050 Ha or 8% of the national target of 250,000 Ha; and areas under irrigation increased by a paltry 2,035 Ha, or 0.71% of the national target.

Livestock sub-sector

- Over 369 Ha of rangelands were re-seeded in the 23 ASAL counties against an annual target of 2,000 Ha.
- Approximately 18,012 households (greater than the annual target of 17,552 households) were covered with livestock insurance and 90,060 head of cattle (tropical livestock units - TLUs) were insured in the 8 arid counties of Turkana, Wajir, Marsabit, Tana River, Mandera, Isiolo, Garissa, and Samburu.
- Over 10,086,752 head of cattle were vaccinated in 30 counties to ensure that the animals were healthy and could withstand/survive diseases associated with seasonal changes.
- The improved management of manure through the adoption of biogas technology reached 227 households, or less than 1% of the annual target of 16,000 households and 200 abattoirs.

Fisheries sub-sector:

- Over 451 (or about 10% of national target of 4,550) fish farming cages were established along with 7,300 fishponds representing 46% of the national target of 16,000 fishponds. Good progress was also noted in the number of farmers using low-carbon (recirculating) aquaculture systems which increased by 110 to reach 61% of the NCCAP target of 180.
- Over 41,496 fishers adopted Insurance products for the sector.

Across the agriculture sector, the number of households supported to adopt diversified adaptive enterprises for sustained livelihoods and nutrition security increased by 292,106 (or 56% of NCCAP target). Examples of such enterprises include indigenous poultry, dairy goats, dairy intensification, tissue culture in banana production, and pasture seeds, among others. Over 67,175 farmers, 90,000 pastoralists, and 250 fishers were supported to transition to specialized and market-oriented outputs in 13 priority value chains, including drought-tolerant value chains.

Enabling – capacity

Over 300 fish farmers from Siaya, Kisumu, Vihiga, and Kakamega were trained on best management practices and smart aquaculture strategies to increase production and productivity with minimal carbon footprints.

Enabling – policy

The National Agricultural (Crops, livestock and fisheries) Insurance Policy[26] was developed. Implementation of the policy will enhance the growth and development of agriculture insurance in the country including participation of the private sector. Agriculture insurance is one way to de-risk the agriculture sector and reduce the vulnerability of farmers.

CASE STUDY 1: Supporting adaptation among smallholder farmers through the promotion of sorghum-based beer

Kenya Breweries Limited (KBL) developed a low-cost beer made from sorghum, a drought tolerant crop. The move to a sorghum-based beverage created new market opportunities for KBL while providing a cash crop for smallholder farmers that helped to improve livelihoods, enhance food security, and increase climate resilience.

KBL introduced Senator Keg, a sorghum-based beer, into the local market in 2004. Senator Keg was targeted at low-income consumers as a cheap and safe alternative to illicit alcohol consumption that caused health risks and deaths to consumers. The move to a sorghum-based beverage provided the opportunity for smallholder farmers that struggled with unpredictable weather conditions to grow a drought-tolerant cash crop. The KBL sorghum program helps to achieve the goal of Kenya's National Climate Change Action Plan 2018-2022 to increase food and nutrition security by diversifying livelihoods and increasing production of drought-tolerant crops.

In 2021, KBL worked with 47,000 smallholder sorghum farmers in mainly poor and marginalized localities in Busia, Homabay, Kakamega, Kisumu, Migori, and Siaya. KBL's contracts with smallholder farmers under the sorghum program include technical support and the requirement to use appropriate seed varieties. Capacity building of farmers helped to ensure the production of sorghum that was suited to the local climatic zone while also being of a good quality for Senator Keg beer. KBL helped farmers to source appropriate seeds, and provided farmers with up-to-date information about sorghum varieties and the inputs required to produce optimum yields. KBL's increased demand for sorghum encouraged crop diversification and helped smallholder farmers transition from subsistence farming to sustainable commercial farming.

Benefits to the economy under a changing climate

The benefits of KBL's sorghum programme include:

- Enhanced household food security: The jilishe kisha uuze (feed yourself then sell) programme encourages that sorghum first be used as a household food, with the remainder being sold to KBL.
- Economic development: KBL paid farmer aggregators about KSh 1.1billion in 2020 for sorghum. These stable income flows for smallholder farmers help to bolster local economies and boost economic development in rural areas.
- Job creation: The supply chain for Senator Keg – including farm operations, post-harvest processing (threshing), transport, warehousing and other – employs over 100,000 people.
- Improved livelihoods for People living With Disability (PWD): KBL is implementing a pilot programme to better understand how to effectively engage farmers living with disability.

Adaptation benefits

The development of a value chain for a sorghum-based beer has increased the climate resilience of local communities. Sorghum is a drought-tolerant crop and production can be maintained in a changing climate. The improvements in household food security, incomes, and jobs help reduce vulnerability to the impacts of climate change.

The sorghum program provides an example of private sector engagement that delivers on the goal of Kenya's NAP to enhance the resilience of the agricultural value chain by promoting drought tolerant traditional high value crops. This win-win adaptation solution provides KBL with a local affordable raw material, while providing a reliable income for smallholder farmers.

3.3 Water and the blue economy

Kenya is a water scarce country with per capita water availability of 647 M^3 below the global benchmark of 1,000 M^3. Climate change is likely to contribute to a decline in access to quality water for both domestic and productive uses.

Table 3: *Water and the blue economy*

Actions	Expected Results by 30th June 2023	Results Achieved as of June 2020 (Cumulative)
1. Increase annual per capita water availability through the development of water infrastructure (mega dams, small dams, water pans, untapped aquifers)	▪ Increased annual per capita water availability (harvested, abstracted and stored) from 647 M^3 to 1,000 M^3achieved through: ○ Construction of 12 multipurpose dams (Thwake, Thiba, Radat, Gogo, Thuci, Kaiti, Lowaat, rupingazi, Thambana, Maara, Kithino, Kamunu) accounting for projected climate impacts (climate proofed infrastructure); ○ Undertaking national hydrogeological survey to identify major strategic aquifers; ○ Identifying two locations and mapping for direct artificial groundwater recharge to increase the supply of ground water; ○ Five ground water surveys to establish abstraction levels against recharge; and ○ 56 sub-catchment management plans implemented to assist local communities to protect wetlands, lakes and other water catchment areas.	▪ 89 hydro geological surveys done across 4 counties. ▪ 90 Water Resource Monitoring Stations constructed. ▪ 645 boreholes drilled. ▪ 3 medium sized dams constructed. ▪ In Kisii, 90 water springs protected; 90 water tanks purchased and distributed, 9 water schemes established; and 3 water schemes rehabilitated. ▪ Nyeri County increased the supply of clean water to improve the livelihoods of more than 300 households. ▪ 62 sub-catchment management plans developed.
2. Increase livelihoods system climate proofing, water harvesting and water storage infrastructure and improve flood control	▪ The annual number of climate-proofed water harvesting, flood control, and water storage infrastructure increased from 700 to 2,000 through: ○ Integrated catchment approach and ecosystem–based adaptation, structural/mechanical design, such as structural catchment protection, especially in the upper catchments; ○ Coastal sea walls; and ○ Development of flood early warning systems in areas susceptible to floods (Linked to Climate Action 1: DRM)	▪ 3,493 flood early warnings issued. ▪ 489 springs developed and protected.
3. Increase gender –responsive affordable water harvesting-based livelihood resilience programmes	▪ Enhanced household access to water, and food security through water harvesting, including: ▪ 300, 000 farm ponds installed ▪ Livelihood systems improved on 60,000 Ha of degraded land through the development of water pans and ponds; and ▪ Water utility creditworthiness index developed, and toolkits on commercial lending to the water and sanitation sector to attract Public-Private Partnerships designed	▪ 230 earth dams/pans constructed; 23 water supply schemes completed/ rehabilitated; and over 2,091 water tanks purchased and installed in institutions mostly schools for rainwater harvesting and storage
4. Promote water efficiency (monitor, reduce, re-use, recycle and modelling)	▪ Water wastage and non-revenue water reduced from the current 43% to 20% through for example: ▪ Innovation in water tracking and the identification and reporting of leakages; and ▪ Awareness programme for water efficiency.	▪ Kisii County recorded a decline in non-revenue water losses by 2%. ▪ Over 21,049 water meters installed in Kiambu, Taita Taveta, Marsabit, Kisumu and Nyandarua Counties.
5. Improve access to good quality water	▪ No. of people and entities accessing good quality water for domestic, agricultural and industrial use increased from 58 to 65% through ▪ Large scale installation of water meters; and ▪ Regular inspection of water quality.	▪ Taita Taveta sunk 6 boreholes and constructed 125.608 km of pipeline
6. Improve resilience of coastal communities	▪ Deep off-shore fishing fleet increases from 9 to 68 to improve coastal fisheries by: ▪ Addressing overcapacity of artisanal fishing vessels; ▪ Rehabilitating and restoring mangrove forests; and ▪ Conserving at least 15% of coastal and marine areas, especially areas of importance for biodiversity and ecosystem services.	▪ 559 Ha of mangrove forests planted or rehabilitated to protect coastline and sustain ecosystem services. ▪ 2 acres of corals rehabilitated in Wasini. ▪ Assessments of no-take zones completed. ▪ Survey of reefs and fisheries completed in 7 communities. ▪ National Coral Reef Rehabilitation Protocol published in English and Kiswahili. ▪ Community-based natural resource management includes marine area-based protection and climate smart practices in marine areas, such as no-take zones and gear restrictions (mesh size).

Actions	Expected Results by 30th June 2023	Results Achieved as of June 2020 (Cumulative)
7. Climate proof coastal infrastructure	▪ Implement the "Greening of the Mombasa port" plan, and build resilience and mitigate GHG emissions through: ▪ Installation of solar panels ▪ Waste management; and ▪ Rainwater harvesting	
8. Enabling actions (policies and regulations)	▪ Develop the Blue Economy Master Plan to provide a blueprint to guide the long-term holistic development of the Blue Economy; ▪ Implement the Water Act 2016 and enact relevant regulations and strategies to ensure universal access to clean drinking water; ▪ Zero rate taxes on water harvesting and storage equipment; ▪ Develop a water harvesting policy for institutions and households; ▪ Review by-laws that prohibit water harvesting in urban areas, such as Nairobi; and ▪ Formulate a policy for recycled water pricing and beneficiary sectors, such as construction, watering flower beds, and car washes.	▪ Kenya Maritime Authority developed and implemented a Blue Economy Master Plan. ▪ 9 counties (Kisumu, Kiambu, Kisii, Taita Taveta, Nakuru, Nandi, Makueni, Nyamira and Turkana) developed water policies/legislation. ▪ Makueni County required that all approved building plans have a water harvesting component.

The focus under this strategic area is to enhance the resilience of the blue economy and water sector by ensuring access to and efficient use of water for agriculture, manufacturing, domestic, wildlife, and other uses. The priority actions included: increasing annual per capita water availability through the development of water infrastructure (such as mega dams, small dams and water pans); climate proof water harvesting and storage infrastructure, and improve flood control; promote water efficiency; improve access to good quality water; and improve resilience of coastal communities.

Key achievements in 2019-2020 included:

- Over 55 hydrogeological surveys were undertaken across Makueni, Nyandarua, and Tana River counties as efforts towards sustainable ground water abstraction. The identification and mapping of locations for artificial ground water recharge to increase water supply took place in the Athi Basin. These actions helped to reduce flood risks by identifying areas for managed aquifer recharge to utilize storm water; reducing land subsidence associated with over abstraction of groundwater in Nairobi Aquifer; and banking excess surface runoff underground for utilization during drought periods.
- Over 630 boreholes were constructed to tap into groundwater resources in response to increased water scarcity resulting mainly from drought. Additionally, over 143 earth dams/pans were constructed, and 23 water supply schemes completed/rehabilitated. Over 2,091 water tanks were purchased and installed in institutions, mainly schools, for rainwater harvesting and storage mostly in arid counties such as Marsabit that has made significant investments in the water sector. Rainwater harvesting reduces water wastage and environmental degradation by storm water.
- De-siltation of existing dams, extending water pipelines, and protecting water catchment areas and sources such as springs enhanced the availability of safe water and reduced distances travelled to access water. Nyamira County reduced the distance of rural accessibility to water from 3 km to 1.3 km.
- Over 489 springs were developed and protected through, for example, the establishment of water collection points that delivered water through the installation of solar powered water pumps in Kericho County. This has the effect of reducing human encroachment and catchment degradation.
- A total of 559 Ha of mangrove forests were either planted or rehabilitated to protect the coastline and sustain ecosystem services for the coastal communities. The National Environment Management Authority (NEMA) through the Adaptation Fund project distributed 171,045 mangroves seedlings which were planted in both Gazi and Vanga mangrove ecosystems and supported rehabilitation of 2 acres of corals in Wasini. Moreover, the National Coral Reef Rehabilitation Protocol was completed and published in English and Kiswahili.
- Coastal Oceans Research and Development in the Indian Ocean-East Africa (CORDIO–EA) initiated Identification and description of locally-relevant climate smart practices in marine community-based natural resources management (CBNRM) programmes. This area-based protection included, for example, no-take zones and gear restrictions (mesh size). Community no-take zones have been identified as approaches used in fisheries management that also double up as climate smart practices. Scientific studies and surveys were undertaken, and community members were trained in coral reef and fisheries monitoring and management.
- As mentioned under the disaster risk management section, 3,468 flood early warnings were issued that helped to avoid loss of lives, property, and destruction of infrastructure by floods. Counties also developed disaster preparedness plans, mapped flood-prone areas and established disaster management committees. Information was disseminated to community members in flood-prone areas using innovative means such as bulk sms text messages to mobile phones. These actions helped communities relocate to higher grounds when warnings were given. The protection of riverbanks through the planting of trees is being carried out as part of the NCCAP.
- Over 15,049 water meters were installed in Kiambu, Taita Taveta, Marsabit, and Nyandarua counties as part of efforts to reduce water wastage and enhance accountability in water management.
- Awareness and sensitization programmes on water use efficiency continued to be implemented across counties for the purpose of enhancing water harvesting and conservation. Regular inspection of water quality in Nyeri and Kericho led to a reduction in waterborne diseases in communities.

In general, activities under this priority area - especially at the national level - were behind schedule. The major reasons were financial constraints and technological challenges. However, good progress was made at the county and community levels which calls for strengthening counties and decentralized institutions involved in water management.

There was an increased focus on groundwater abstraction, particularly during dry periods. To avoid risks such as land subsidence and increased costs of drilling boreholes associated with over-abstraction of groundwater going forward, increased hydrogeological surveys are needed to identify artificial areas of recharge as part of the adaptation strategy for the sector.

Enabling actions (policies and regulations)

Four counties - Nandi, Makueni, Nyamira, and Turkana - developed water policies and legislation that provide a framework for enhancing accessibility to clean and safe water. Nandi County developed a County Water Master Plan and Wetlands Conservation and Management Policy as part of the efforts to increase water access and conserve water sources.

3.4 Forestry, Wildlife and Tourism

The forestry sector is one of the biggest GHG emitters in Kenya mainly due to deforestation and forest degradation.[27] It is second only to agriculture and accounts for approximately 32% of Kenya's GHG emissions.[28] Planting trees, conservation, and rehabilitation of forests are key in improving the national forest cover and the continued provision of environmental goods and services. Additionally, these activities are critical in conserving the water towers which are the sources of major rivers; and reducing water runoff which ultimately reduces erosion and pollution in waterways and may reduce the effects of flooding.

This strategic objective focuses on increasing tree/forest cover to 10% of the total land area, rehabilitating degraded lands including rangelands, and increasing resilience of wildlife. Priority actions include afforestation and reforestation of degraded and deforested areas in counties; reduction of deforestation and forest degradation; restoration of degraded landscapes mostly in ASALs; promoting sustainable timber production on privately-owned land; and conserving land area for wildlife.

Most of the interventions in the forestry sector contribute to mitigation efforts, as well as support livelihoods and ecosystem sustainability.

Table 4: *Forestry, Wildlife and Tourism*

Actions	Expected Results by 30th June 2023	Results Achieved as of June 2020 (Cumulative)
1. Afforest and reforest degraded and deforested areas in counties	▪ An additional 100,000 Ha of land afforested or reforested, including via agroforestry. ▪ Planting of one Million trees per country per year through such initiatives such as: o Annual National Tree Planting Day; o Revived Green Schools Programme - 10% of school land areas planted with trees; o Increased tree nurseries and production and availability of seedlings; o Tree planting (with appropriate species, including indigenous species); o Forest management and planning; o Silviculture interventions; o Promotion of agroforestry – *linked to climate change priority 1: Food and nutrition security;* o Expansion and protection of mangrove forest cover (for coastal adaptation and blue carbon sequestration) including implementation of the National Mangrove Ecosystem Management Plan – *linked to Action 3: water and blue economy*; and o Fast-tracking the signing and implementation of respective Transition Implementation Plans (TIPs).	▪ 62,142.6 Ha of land afforested or reforested including through agroforestry. ▪ At least 2,292,327 tree seedlings planted. ▪ 7,565,355 bamboo seedlings planted. • 4 TIPs signed and 1 Woodland Management Plan signed.
2. Reduce deforestation and forest degradation	▪ Deforestation and forest degradation reduced through enhanced protection of an additional 100,000 Ha of natural forests through such initiatives as: o Community/participatory forest management o Limiting access to forests; o Preventing disturbances through improved enforcement and monitoring; o Developing alternative technologies to reduce demand for biomass, such as clean cooking, briquetting, and efficient charcoal production (linked to CC priority 6: sustainable charcoal production and 7: Promotion of clean cooking; o Carbon stock enhancement (enrichment planting) in existing forests; o Financial innovations, including payments through ecosystem services and carbon markets ; and o Development of the REDD+ architecture through multi-stakeholder engagements, including a national strategy and investment plan, safeguards information system, National Forest Monitoring System (NFMS) and Forest Reference Level (FRL) for improved forest monitoring and measurement.	▪ 20,252 Ha put under improved management including community management and carbon stock enhancement. ▪ Tharaka-Nithi County formed 8 community forest associations; fenced 15 km of Mt. Kenya forest; protected 6 hills awaiting gazettement; and trained 1,000 farmers on biogas and solar energy technology. ▪ 1,494 improved cooking stoves supplied and installed in households and institutions (linked to Energy and Transport outcome 6). ▪ FRL developed and submitted to UNFCCC.
3. Restore degraded forest landscapes (ASALs and rangelands)	▪ Restoration of up to 200,000 Ha of forest on degraded landscapes in ASALs and rangelands through such initiatives as the Green Climate Fund Dryland Resilience project, including: o Enhanced natural generation of degraded lands through conservation and sustainable management; o Ecosystem-based adaptation through rangeland and forest landscape restoration and sustainable management; o Initiation of restoration processes on 33% of land area in seven counties; o Analysis of priority landscapes and existing restoration successes; and o Economic analysis of restoration options, and identification of financing options to scale up land scape restoration.	▪ 47,327 Ha of degraded forests within rangelands restored.
4. Promote sustainable timber production on privately owned land	▪ Area under private sector-based commercial and industrial plantations increased from 71,000 Ha to at least 121,000 Ha.	▪ Area under private sector commercial and industrial plantations increased by 29,501.32 Ha to a total of 100,572.32 Ha.
5. Conserve land areas for wildlife	▪ At least 20% of terrestrial and inland water and 15% of coastal and marine areas especially areas of importance for biodiversity and ecosystem services conserved (linked to Water and the Blue economy). ▪ 30,000 Ha of wildlife habitats conserved to support a broad range of wildlife and plant species under changed climate conditions. ▪ Human wildlife conflict reduced by 50% from the 2018 baseline.	▪ 366,288 Ha of wildlife habitats conserved. ▪ 11,146 Ha of rangelands rehabilitated. ▪ Conservancies cover more than 11% of Kenya's territory. ▪ Kenya Wildlife Services (KWS) in collaboration with Kenya Wildlife Conservancies Association gazetted 6 conservancy management plans. ▪ 1 migratory corridor secured, and management plan developed.
6. Enabling Action (technology)	▪ MRV+ technologies including remote sensing and global positioning systems, and computer tagging and tracking systems adopted and used in all sectors.	▪ Forest Reference Level developed and submitted to UNFCCC.
7. Enabling action (policy and regulatory)	▪ Standards and regulations, including social and environmental safeguards, for sustainable forestry management (voluntary moving to regulated), developed. ▪ Guidelines and standards for establishment of green zones, as required by the Forest Act 2016, developed, which requires linkage with county physical planning and development control functions. ▪ An adaptation strategy for the tourism sector developed. ▪ A wildlife climate change strategy that included includes the impacts of climate change on wildlife, human–wildlife conflict, and locations suitable for harvesting flood waters and drilling boreholes, developed. ▪ Land use planning and zoning done to segregate and identify forest areas for conservation. ▪ Climate change mainstreamed into environmental audits, environmental impacts assessments and strategic environmental assessments.	▪ National strategy for accelerated achievement and maintenance of over 10% forest cover approved by Cabinet. ▪ Draft national Wildlife Climate Change Strategy developed. ▪ 3 county-level natural resource-based policies developed (Kiambu. Kisii, and Taita Taveta). ▪ Meru County gazetted 37 hills as forest and conservation areas. ▪ Turkana developed a tourism sector strategy.
8. Enabling action (capacity development)	▪ Build the capacity of county level institutions for the efficient transfer and implementation of the devolved function with respect to community forests.	▪ Kisii County environment staff officers trained on climate change and various environmental legislation.

Key achievements in 2019-2020 included:

Forests

- 3,699 Ha of land were afforested or reforested including through agroforestry, representing 4% of the NCCAP target of 100,000 Ha over five years. This low rate of achievement has been attributed to financial constraints, limited capacity, and inadequacy of seedlings, particularly indigenous species.
- 20,121 Ha were put under improved management including community management and carbon stock enhancement, about 20% of the NCCAP five-year target of 100,000 Ha.
- 47,117 Ha of degraded forests within rangelands were restored, or about 20% of the five-year NCCAP target of 200,000 Ha. This was achieved through enhanced natural regeneration of degraded lands.
- The area under private sector commercial and industrial plantations increased by 11,574 Ha. This is useful in meeting future demand for timber and other wood products as opposed to using indigenous forests which often take a very long time to regenerate or are almost impossible to replace.
- Over 1,494 improved cooking stoves were supplied and installed in households and institutions as part of efforts to reduce demand for biomass. The demand for fuel wood is one of the major drivers of deforestation.

Illegal activities taking place in forests included charcoal production, logging, livestock grazing, settlements, and cultivation. These need to be addressed in a manner that does not condemn forest-neighbouring communities who eke out their livelihoods from forests.

Wildlife

- A total of **2,071 Ha** of wildlife habitats were conserved, which represented 7% of the NCCAP target of 30,000 Ha. 80% of wildlife dispersal areas and migratory pathways were secured. The conservation of wildlife areas, including securing dispersal areas and migratory routes, is key in ensuring that migration of wildlife is not curtailed and minimizing human-wildlife conflicts.

Enabling (policy)

- The National Strategy for Achieving and Maintaining over 10% Tree Cover by 2022[29] for accelerated achievement and maintenance of over 10% forest cover was developed and approved by the cabinet. MEF carried out national campaigns to implement this strategy. A finance mobilization strategy was being finalized to mobilize funds through a multi-partner trust fund for tree planting campaigns. Additionally, the ministry is working on:
  - » Strengthening the Kenya Forestry Research Institute (KEFRI) to procure and process adequate seed supply for national tree planting campaigns.
  - » Enhancing KFS capacity for seedling production, planting and protection of available resources.
  - » Mobilizing private sector for stronger engagement in tree planting.
- A draft wildlife climate change strategy was developed that examined the impacts and possible adaptation strategies within the wildlife sector. It was awaiting validation by stakeholders before proceeding to publication and official launch.
- Nyamira County signed the Transition Implementation Plan (TIP) as part of efforts to improve management of community forests by county governments. TIPs allow counties to take up their devolved roles.
- Turkana developed a tourism sector strategy to promote tourism as an alternative source of income and livelihood for the county and local communities.
-

Enabling (capacity)

60 officers from environment and devolution departments increased their capacity on environmental and social safeguards.

CASE STUDY 2: Safaricom forests programme

Safaricom is working in partnership with the Kenya Forest Service (KFS) to increase Kenya's forest cover. These actions support the strategic objective of Kenya's NCCAP 2018-2022 to increase forest cover to 10% of total land area and to rehabilitate degraded lands. These actions increase the climate resilience of Kenya's forests and help Safaricom offset the company's greenhouse gas emissions.

The programme and its activities

Safaricom is cognizant of the far-reaching effects of human activities on climate change and the need to plant trees to offset the company's carbon dioxide emissions. Safaricom and KFS signed a partnership agreement in 2018 to implement a tree growing and forest conservation programme aimed at improving Kenya's forest cover. The long-term objective of the programme is to work in collaboration with KFS and Community Forest Associations (CFAs) to plant 5 million indigenous trees in 5 years, leading to the rehabilitation of 5,000 hectares of degraded forests. The tree planting will help to conserve water towers and their biodiversity, as well as offset Safaricom's carbon emissions. The programme will help to achieve the forestry objectives of Kenya's NCCAP 2018-2022 to increase forest cover and rehabilitate degraded lands.

Between October 2019 and July 2021, the three partners worked together to plant over 750,000 trees on 750 hectares of land in three sites – South Marmanet in Laikipia County, Kieni Forest in Kiambu County, and Kimondi in Nandi County. KFS allocated tree growing areas in these gazetted forests for the Safaricom programme, and provided technical support on suitable tree species and best planting and growing practices. CFAs are involved in the establishment of tree nurseries and the nurturing of seedlings in readiness for planting. CFAs also provide labour for site preparation, planting and maintenance that includes security to ensure the growth of the planted seedlings.

Benefits to the environment and communities

The project has positive environmental and economic impact for the communities that raise and maintain the seedlings. The benefits of Safaricom's tree growing programme include:

- ***Improved livelihoods for forest communities*** **-** Safaricom has paid almost KES 75 million to CFAs and local community associations for the purchase of tree seedlings, labour, security, and transport thus creating jobs and supporting livelihoods.
- ***Income generation*** **-** While tending the young seedlings, local communities can plant and harvest indigenous crops such as vegetables that can be sold to improve household income.
- ***Environmental benefits*** **-** Improved forest cover with indigenous species contributes to reduced water run-off and soil erosion, conservation of biodiversity, and enhancement of environmental services.
- ***Education and research*** **-** The project has provided a learning platform and furthered knowledge generation in such areas as ecological restoration, plant propagation, botanical identification, invasive species control, and carbon sequestration.
- ***Awareness raising*** **-** Communities have increased awareness of the importance of indigenous trees for local ecosystems, ecological restoration, and biodiversity conservation. Participating community members appreciate the large costs of rehabilitating degraded forests with indigenous trees and the need to conserve Kenya's dwindling forests.

Climate change benefits

The tree growing programme provides both adaptation and mitigation benefits. Tree growing increases the resilience of Kenya's forest to climate change impacts, and forest products can provide safety nets to local communities when climate change causes crop failures. In regard to mitigation, tree growing reduces the harmful effects of greenhouse gas emissions by creating carbon sinks, and will help to offset the carbon dioxide emissions from Safaricom operations.

The project highlights the importance of collaboration between the private sector, government, and communities in realising great milestones in regard to climate change, environmental conservation, and ecosystem restoration. Safaricom has integrated the Sustainable Development Goals (SDGs) into its wider business strategy, and has made a commitment to become a net zero company by 2050. Their tree-planting program will help the company to achieve this mitigation goal, as well as contribute to adaptation co-benefits for Kenyan forest communities.

Through participation in climate change processes such as NCCAP, NAP, and NDC, Safaricom has been able to integrate priority climate change actions as well as demonstrate private sector contribution to the climate change agenda in the country. Being a member of the Climate Business Information Network (CBIN)-Kenya has enabled the company to learn how private corporates can be engaged in climate initiatives and share good practices from like-minded organizations.

CASE STUDY 3: Kenya Forest Service: Green Zones Development Support Project II

The Green Zones Development Support Project Phase II (GZDSP II) helps the Government of Kenya deliver on the forestry objective of NCCAP 2018-2022 to increase forest cover and rehabilitate degraded lands. The project will increase forest cover in three water towers, which will help to increase the carbon sink potential and the climate resilience of these forests.

The programme and its activities

GZDSP II is a six-year project (2019-2025) that is implemented by KFS and supported by a sovereign loan provided by the African Development Bank. The project is focused on three of the five major Water Towers in Kenya; namely Mount Kenya, Aberdares, and Mau. The goal of the project is 'to improve forest conservation and livelihoods for sustainable forest management for climate change resilience in 15 counties in Kenya; namely, Baringo, Bomet, Embu, Kericho, Kiambu, Kirinyaga, Kisii, Machakos, Meru, Murang'a, Nakuru, Nyamira, Nyandarua, Nyeri, and Tharaka-Nithi.

The project has undertaken several actions to July 2021, including:

- Seedling Production - produced 1,078,219 tree seedlings of distinct species ranging from indigenous, exotic and bamboo for natural forest rehabilitation across the 15 counties.
- Rehabilitation of degraded natural forest - rehabilitated a total of 911.9 hectares working in collaboration with CFAs.
- Restoration of community and county hilltops - restored 30 hectares of community hilltops using assorted indigenous tree species; and engaged community scouts to enhance the protection of these restored hilltops.
- Agroforestry development - established agroforestry on 238 hectares of land.
- Fruit orchards establishment - worked with farmers to plant 73 hectares of fruit orchards, including grafted mango, orange, and avocado seedlings.
- Woodlot establishment - Established 145 hectares of woodlots using Eucalyptus and Grevillea robusta.
- Support to food security - Procured cereals and pulses to establish value chains for improved household incomes; and supported local communities to produce 584 tonnes of potatoes and 11 tonnes of beans.
- Training of farmers - Conducted 19 trainings for farmers on agroforestry, woodlot establishment, and livelihood options.
- Support to income-generating activities - Supported 5 income-generating activities including beekeeping, fruit processing, maize milling, and agro-processing crop by-products into animal feeds and supplementary livestock feed production.

Lessons Learnt

The project has identified lessons that can inform other initiatives that aim to rehabilitate, regenerate, and protect forests. These lessons include:

- The formulation of concrete project interventions requires early and active involvement of communities.
- Effective produce and marketing systems are necessary to help farmers sell surplus crops and increase their incomes.
- Project ownership by the beneficiaries, organized as CFAs and the local authorities is extremely critical for sustainability.
- Forest conservation initiatives, whose benefits are long-term and sometimes intangible, need to ensure community buy-in by including alternative livelihood initiatives - such as beekeeping, fish farming, dairy production, baking and fruit processing.
- A participatory model that embraces innovation, capacity building, value addition and ownership is critical for the efficient use of resources.

Outcomes and benefits

The project delivers a suite of benefits through increased forest cover; sustainably managed forests including improved public plantation forests; and improved agricultural production, which will subsequently enhance farmers' incomes and reduce poverty. The project intends to benefit 167,083 households, out of which 40% will be women-headed households. Indirectly, the project will benefit 501,249 people within the project area. The project aims to improve the role of both genders in natural resource management and to improve livelihoods for women through economic empowerment and increased involvement in decision-making.

Climate change benefits

The project aims to enhance forest conservation and livelihoods which will improve the climate resilience of the forests and communities. The project will also mitigate the impacts of climate change through increased forest/tree cover that will sequester about 2.2 gigatonnes of carbon dioxide equivalent per year.

This project helps KFS deliver on the priority forestry programmes included in NCCAP 2018-2022 and Kenya's updated NDC. KFS is a critical stakeholder in reaching the goal of 10% forest cover, and is a member of both the adaptation and mitigation working groups that oversaw the development of the NCCAP, NDC and NAP.

3.5 Health, sanitation and human settlements

The focus of activities under this priority area was to ensure sustainable human settlements, health services, and sanitation services. The densely populated informal settlements often found along riverbanks, hillsides, and slopes that lack basic infrastructure are particularly at risk of flooding, landslides and pollution during the heavy rains. Climate sensitive diseases like malaria, cholera, and Rift Valley Fever are likely to get worse with the changing climate.

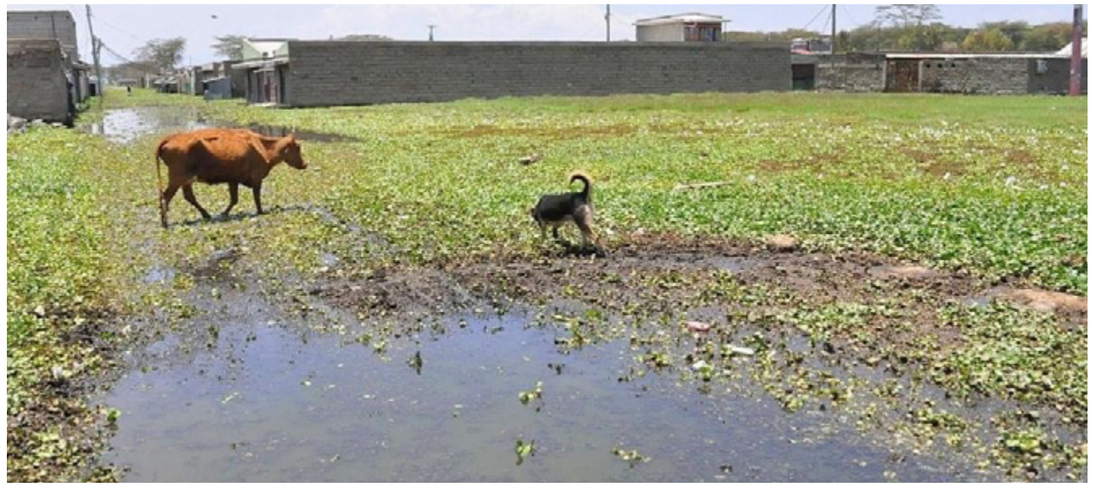


Table 5: *Health, sanitation and human settlements*

Actions	Expected Results by 30th June 2023	Results Achieved as of June 2020 (Cumulative)
1. Reduce the incidence of malaria and other vector-borne disease	▪ Community level interventions on malaria control scaled up country-wide with emphasis on women as community health workers. ▪ Uptake and utilization of malaria treatment services increased in new malaria areas to reduce the incidence of malaria.	▪ National malaria incidence reduced to 59 per 1000 population. ▪ Community-level interventions scaled up, including distribution of nets to expectant mothers and children, and indoor residual spraying. ▪ Over 2,787 community health workers engaged in Nyamira, Makueni, Kisii, and Trans Nzioa to raise awareness and support care for malaria. ▪ Ministry of Health has 2,000 Community Health Volunteers in all 47 counties.
2. Promote recycling to divert collected waste away from disposal sites	▪ A circular economy solid waste management approach that diverts at least 90% of collected waste away from disposal sites toward various recycling practices in Nairobi implemented. ▪ Options for methane capture and power generation as landfill sites such as in Eldoret and, waste incineration for energy generation.	▪ National public education and awareness campaigns and Green Expos on responsible use and disposal of PET bottles based on best practices conducted. ▪ Draft Extended Producer Responsibility Regulations, 2021 developed. ▪ 7,800 tonnes of PET diverted from the environment saving about 234,000 cubic yards of landfill. ▪ Installation of 8 medical waste microwaves and 5 medical waste autoclaves in high volume hospitals to move away from inefficient burning of waste to incineration. ▪ Waste recycling equipment acquired by Kajiado County. ▪ 17 Ha of land acquired in Kakamega for establishment of waste- to-energy plant. ▪ Meru County developed a gasification plant to convert organic waste into biochar for soil amendment. ▪ 5 implementing partners of KEPSA trained on Green and Circular Economy to help curtail the country's overall plastic waste.
3. **Climate proof landfill sites**	▪ Existing landfills in two major urban areas screened for vulnerability to climate change and develop plans that adapt to extreme climate patterns.	▪ Construction of Mitubiri sanitary landfill and solid waste facilities in Nairobi, Machakos and Naivasha Counties.
4. Control flooding in human settlements	▪ Floodways (man-made channels to divert flood water) constructed in select urban centres.	▪ Storm water drainage constructed in Narok and Kirinyaga Counties. ▪ 4.7 km of storm water drains constructed in Kakamega and Kericho. ▪ Flood-proofed market construction in Nairobi, Vihiga, and Nyeri Counties.
5. Enabling action (technology and capacity building)	▪ The surveillance and monitoring of climate related diseases improved. ▪ The health impacts of transition to clean cooking tracked with the aim of reducing the No. of household deaths related to biomass energy use from 21,560 annually (49% of total deaths to 20%).	▪ Household Air Pollution Training Manual developed by State Department of Health ▪ 2 health impact assessments for water projects carried out by the Ministry of Water, Sanitation and Irrigation.
6. Enabling action (capacity building)	▪ The awareness of community health workers and volunteers strengthened by developing materials on climate-related health risks, including disaster risk management, and the impacts on	▪ Household Air Pollution Manual and Curriculum for Community Health Workers and Volunteers developed. ▪ Regular compliance assistance to industry to transition to green production and control pollution and GHG emissions provided in

Actions	Expected Results by 30th June 2023	Results Achieved as of June 2020 (Cumulative)
	women, children and persons with disabilities.	Mombasa, Kisumu, and Nairobi Industrial regions. ▪ Capacity of 389 professionals of the built environment built on climate change mainstreaming and circular economy adoption.
7. Enabling action (policy and regulation	▪ Five county-based waste management plans and regulations that are consistent with the National Waste Management Strategy and other relevant policies developed. ▪ A national resettlement policy framework that sets out safeguard mechanisms against involuntary resettlement and forced evictions from homes when land is acquired for development projects developed and implemented where possible. ▪ Policy for green building; green building codes and regulations that account for climate information developed. ▪ A national framework for waste management developed. ▪ Laws on urban planning and storm water management in urban areas such as desilting of drainage and riparian protection enforced.	▪ National waste management public partnerships framework developed. ▪ Solid waste management systems improved in 5 urban centres and 3 counties. ▪ Makueni regulates that building plans have a water harvesting component.

Key achievements in 2019-2020 included:

- The distribution of over 467,251 long lasting Insecticide Treated Nets to households - particularly expectant mothers and children - in Kisumu, Kericho, and Marsabit Counties.
- Over 1,087 community health workers were engaged in Nyamira, Makueni, and Trans Nzoia to raise awareness and support care for malaria.
- A total of 7,800 tonnes of PET (polyethylene terephthalate - plastic) were diverted from the environment, saving about 234,000 cubic yards of landfill.
- A children's awareness and educational kit developed (Swahili and English versions) targeting school going children and focusing on impacts of solid waste pollution on marine environments and how best they can influence their peers and families.
- Kiambu County constructed a 16.5 km sewer line in Githurai and Thika, while Kakamega and Kericho constructed 4.7 km of stormwater drains.
- 5 implementing partners of KEPSA were trained in Green and Circular Economy as part of the New Plastics Economy Partnership Kenya initiative that aims to curtail the country's overall plastic waste by first improving how much waste is collected and then transforming waste materials into recycled products for commercial use.
- Private entities in Trans Nzoia County recycled organic waste into organic fertilizer.
- Kajiado County acquired waste recycling equipment that consisted of a shredder, bailer, and organic compost machine.
- Makueni County developed an integrated solid waste policy and a waste commercialization framework.
- Kakamega acquired 17 Ha of land to establish a waste to energy plant.
- The Kenya Urban Support Programme supported the construction of stormwater drains in Kakamega, Kericho, Turkana (Lodwar town), and Nyamira (Nyamira town). This reduced the risks of flooding, landslides, and gullies, and also enhanced food security where harvested water was used for agriculture.
- All approved building plans in Makueni require a water harvesting component, which contributes to increased water availability and reduces run-off together with related impacts.
- NEMA and the Kenya National Cleaner Production Centre undertook compliance assistance training programme for industry to control pollution and GHG emissions with a total of 100 industries in Mombasa, Kisumu, and Nairobi industrial regions.
- The Ministry of Health developed a Household Air Pollution Training Manual as part of its efforts to strengthen the capacity of community health workers on indoor air pollution prevention and reduction.
- NEMA serving as the National Designated Authority (NDA) for the Clean Development Mechanism reviewed and approved for implementation 5 Program of Activities for dissemination of energy efficient cook stoves, solar lighting devices, water purifying technologies and electric mobility by various project proponents.
- NEMA held several Green Expos in Kilifi, Samburu, Siaya and Homa Bay Counties to educate the public on the importance of Green Economy as a way of creating awareness on climate change. Topics covered included circular economy to waste management, energy efficient cooking, green buildings and environmental sustainability.
- Kakamega, Makueni and Nyandarua Counties developed waste management policies or plans for effective solid waste management. Once operational, they will contribute to a reduction in the amount of waste that is taken to landfills and subsequent emissions of GHGs from the handling of such wastes.

3.6 Manufacturing

The focus of the manufacturing sector is reducing the impacts of climate change on manufacturing activities as well as creating new economic and market opportunities through resource efficiency, sustainable production, and managing waste as a resource in the creation of new product lines from waste recovery and re-use.

Table 6: *Manufacturing*

Actions	Expected Results by 30th June 2023	Results Achieved as of June 2020 (Cumulative)
1. Increase energy efficiency	▪ No. of companies participating in energy efficiency initiatives doubled to 1000 (including 1000 energy audits). ▪ Minimum Energy Performance Standards developed for five more appliances, and existing testing facilities up scaled to include these five appliances.	▪ 36 investment-grade audits and 74 general energy audits undertaken.
2. Improve water use and resource efficiency	▪ No. of companies participating in water efficiency initiatives increased to 200 (including water audits).	▪ 5 water audits carried out for industries with intense water use.
3. Optimise manufacturing and production processes	▪ Optimisation of manufacturing processes promoted. ▪ Sustainable charcoal system promoted by encouraging the uptake of efficient kiln technologies to increase yields to 30-42% and establishment of a charcoal certification and labelling scheme.	▪ 110 energy audits that improve industrial resource optimization with focus on energy carried out. ▪ Cooperatives engaged in making energy-saving jikos supported in Makueni. ▪ Establishment and equipping of a development centre for fish leather processing completed with 4 staff trained on fish processing.
4. Promote industrial symbiosis in industrial zones	▪ Scale-up of industrial symbiosis and environmentally sound technologies and practices in existing and upcoming industrial zones in Nairobi, Machakos, Mombasa, Kilifi and Kwale Counties through waste diversion, and energy and transport efficiency measures, which will contribute to avoided GHG emissions and GHG emission reductions.	▪ Kenya Plastic Action Plan launched that seeks to enable a circular economy for the environmentally sustainable use and recycling of plastics. ▪ Greening of Isinya Blue triangle, Kitengela Bus park and Kajiado KCB park. ▪ At a national level, 200,000 green jobs created.
5. Enabling (Capacity development)	▪ Innovation promoted through a Sustainable Consumption and Production Networking Facility for Micro, Small and Medium Enterprises with emphasis on women and the youth ▪ Awareness raising undertaken to promote resource efficiency within the private sector	▪ Number of professionals trained in energy efficiency including: 21 Certified energy managers; 6 Certified measurement and verification professionals; 35 Boilers and steam professionals 15 Carbon footprint analysts; 79 Energy auditing professionals; 20 Solar PV installers; and 17 Compressed air and electrical systems assessors. 15 women were trained on the use of gasifier stoves in the cottage. ▪ Financial institutions' staff members trained on renewable energy and energy efficiency. ▪ The Ministry of Education increased innovation funding by 5% with support from the National Treasury.
6. Enabling (policy and regulator)	▪ Application of special economic zones legislation and planning laws that encourage clustering of industries into zones to enhance symbiosis and increase shared industrial efficiency measures enhanced. ▪ The regulatory framework governing treatment and management of industrial (trade) effluent reviewed and enhanced to encourage wastewater recycling, including through industrial symbiosis.	

Key achievements during the reporting period included:
- Greening of Isinya Blue triangle, Kitengela Bus park and Kajiado KCB park.

3.7 Energy and transport

Extreme climate events, such as flooding, damage transport infrastructure and disrupt transport services. NCCAP, NAP, and NDC highlight the need for climate proofing or adopting pro-active adaptation for energy and transport infrastructure to maximize potential development benefits. This requires factoring in additional costs associated with the burden of climate change in the design, implementation, and maintenance of infrastructure. Cutting emissions in the energy and transport sectors is expected to contribute to a reduction of close to 20 MtCO2e by 2022.

3.7.1 Energy

Priority actions under the energy sector include increasing renewable energy for electricity generation in a climate resilient manner; increasing generative capacity for captive renewable energy; improving energy efficiency and conservation; climate proofing energy infrastructure; transitioning to clean cooking with alternative fuels (such as liquified petroleum gas [LPG] and ethanol); and promoting uptake of clean biomass, cook stoves, briquettes, and other clean cooking alternatives.

Table 7: *Energy*

Actions	Expected Results by 30th June 2023	Results Achieved as of June 2020 (Cumulative)
1. Increased renewable energy for electricity generation, in a manner that is climate resilient and accounts for the needs of rural areas	▪ 2,405 MW new renewables developed, including: o Geothermal - prioritised as base load generation that is climate resilient; o Biomass/Co-generation; o Hydro; o Solar; and o Wind.	▪ Renewable energy power generation was 2,883 MW[1]. ▪ 10% of TVET institutions using solar and biomass and other non-fossil fuels, and energy saving cookers. ▪ 5 solar mini-grids installed (4 in Marsabit, 1 in Kisumu).
2. Increased generation capacity for captive renewable energy	▪ Captive renewable energy generation plants developed, where such electricity is used by the developers, such as direct use of geothermal resources to power various industrial applications like boilers and dryers.	▪ 5 feasibility studies informed investment of captive energy at industrial level and 19 proposals assessed. ▪ Meru County has 200 solar-powered boreholes operational under their captive energy goals. ▪ Geothermal Development Corporation (GDC) established geothermal heated milk pasteuriser.[2]
3. Improved energy efficiency and energy conservation	▪ Losses in electricity transmission and distribution reduced from 18% to 14%. ▪ 3.3 million Compact Fluorescent Light (CFL) distributed to households through CFL initiative. ▪ Energy efficiency and conservation projects delivered, which focus on: ▪ Efficient lighting; ▪ Energy efficiency in buildings; ▪ Minimum energy performance standards; and ▪ Distribution of clean lighting.	▪ 4.25 million CFLs distributed to 1.4 million households. ▪ Losses in electricity transmission increased from 18% to 23%. ▪ Energy audits carried out in public facilities. ▪ Energy Management Compliance Certificates awarded to six companies in recognition of efforts to comply with the Energy Management Regulations 2012 and to save energy in their operations.
4. Climate proof energy infrastructure	▪ Concrete poles replace wooden poles. ▪ Existing hydropower plants optimised, and water management and conservation improved. ▪ 1000 Ha of water catchment areas conserved and rehabilitated by protecting the areas feeding hydro-generation reservoirs. *Linked to climate change priority 3 – Forestry, wildlife and tourism*	▪ Kenya Power and Lighting Company (KPLC) poles usage: -Concrete poles -22,516 -Wooden poles -87,469 Total 109,985 -Percentage of poles that are concrete 20.47% ▪ Feasibility study carried out by Kengen on how to optimize hydro-power plants by increasing dam storage.
5. Transition to clean cooking with such alternative fuels as liquified petroleum gas (LPG), ethanol, and other clean fuels promoted in both rural and urban areas	▪ No. of households using LPG, ethanol or other cleaner fuels for cooking increased to 2 million, through a programme that promotes: o Development of a depot with LPG storage tanks, bottling machines, and stock cylinders of various sizes; o Loan programme through micro-finance institutions to assist with up-front costs of cookers and cylinders; o Local manufacture and servicing of clean cookers; o Tax-relief incentives for manufacturers; o Training and loans for local service; o Local businesses stocking and delivering LPG to consumers; o Engagement of women and youth groups to brand cooking cylinders procured by government; and o Increased production of such non-forest biomass fuel briquettes from agricultural waste, saw dust and human waste, with emphasis on women and youth. *Linked to CC Priority 3: Forestry, Wildlife and Tourism*	▪ The Energy and Petroleum Regulatory Authority (EPRA) gazetted Legal Notice 100/ 2019, the Energy (Liquefied Petroleum Gas) Regulations 2019, and revised the Kenya Pipeline Company pipeline tariffs to set a cost reflective tariff as mandated by Law in the Energy Act No. 1 of 2019. ▪ Kisii established one depot for LPG storage, bottling and distribution. ▪ Nakuru County completed the construction of the NAWASCOAL plant for generation of briquettes from faecal matter and sawdust.

Actions	Expected Results by 30th June 2023	Results Achieved as of June 2020 (Cumulative)
	and 5: Health, Sanitation and Human settlements and 6 Manufacturing	
6. Uptake of clean biomass (charcoal and wood) cook stoves, briquettes, and other clean cooking alternatives promoted in rural areas	▪ No. of households using improved biomass cookstoves increased by 4Million through a programme that promotes: - Loan [programme through micro-finance institutions to assist with the up-front cost of cookstoves; - Local manufacture and servicing of clean cookstoves, through tax relief incentives for manufacturers, and training and loans for local service providers; and - Local businesses that stock improved cookstoves, with an emphasis on women led businesses. ▪ Biogas technology scale-up to increase access to clean energy through construction of 6500 digesters for domestic use and 600 biogas systems in various schools and public facilities.	▪ 280 households adopted clean cookstoves.
7. Enabling actions (technology)	▪ Climate change resilient technologies, such as modern coolers and scrubbers promoted. ▪ Research undertaken on new and emerging technologies that would reduce GHG emissions in the energy sector.	▪ Renewable Energies Research Laboratory established. ▪ Energy efficiency research and testing facility established at the Kenya Industrial Research and Development Institute (KIRDI) and specialized training provided for KIRDI staff.
8. Enabling Actions (capacity development)	▪ Training and public awareness on climate change adaptation and mitigation mechanism. ▪ Working with CSOs to train jua kali artisan to produce improved cook stoves. ▪ Training of 100 students per year by Kenya Power International (Institute of Energy Studies and Research) on renewable energy technologies. ▪ Training of 60 participants per year at the United Nations University's Geothermal Training Programme.	▪ ▪ Cooperation Framework in place to help Kenya improve energy generation capacity. ▪ Instructors at TVET institutions trained on solar PV and solar water heating installation, maintenance and repair. ▪ Marsabit County trained county staff on solar technologies and 5 officers on renewable energy. ▪ KPLC trained 163 students on solar installation.
9. Enabling Action (Policy and regulations)	▪ Develop policy to guide in the management of vegetation, wayleaves acquisition, and corridors for energy infrastructure. ▪ Explore the use of fiscal and tax policies and regulations to encourage uptake of clean cooking.	▪ Reduction of import duty on complete efficient biomass stoves from 35% to 25%. ▪ Energy (Appliances' Energy Performance and Labelling) Regulations, 2016 approved.

Key achievements for 2019-2020 included:

- 102 MW of additional electricity was generated from renewable sources including the 100 MW Kipeto wind project in Kajiado County and the Solar Power Plant at KBL Kisumu.
- In order to promote the adoption of biogas technology, tenders were awarded for the construction of 177 domestic and 2 institutional biogas digesters. Biogas digesters help avoid deforestation and forest degradation by providing alternative source of energy to firewood/charcoal and methane emissions from manure.
- The Kenya electricity grid is now mostly renewable with more than 80% of the generation coming from renewable energy sources such as geothermal, hydropower, wind, and solar, which have a very low emission footprint.
- GDC established a geothermal heated milk pasteurizer; and a Resource Heat Park was under design.[30]
- A setback was witnessed in the area of energy efficiency and conservation where losses in electricity transmission increased from 18 to 23% due to:
  - » Technical losses which were occasioned by overloaded transmission lines, undersized conductors, unbalanced loading, line losses in the distribution equipment like transformers, long distribution feeders, and poor workmanship on the network.
  - » Commercial losses caused by faulty and tampered meters not identified and replaced promptly, wrong meter readings, direct theft through direct connection by customers, and meter errors.
- A number of interventions have been instituted to reverse this trend. For technical losses these include re-conductoring highly loaded lines, re-conductoring long feeders with the introduction of more primary substations near load centres, rehabilitation of the Low Voltage network and sub-stations, load balancing, and new feeders to deload the lines. For commercial losses, inspection of installations to identify and address metering anomalies, replacement of faulty meters promptly, smart metering to get alerts of any tampering of the metering, and data analytics to identify any deviations in consumption from normal consumption has been instituted.
- Kengen carried out a feasibility study on the optimization of existing hydro-power plants by increasing dam storage. This study informed Kengen's decision to raise the wall of the Masinga dam by 1.5M to enhance water storage capacity (see case study below).

Enabling –capacity

KPLC trained 163 students on solar installation, which was one of the examinable units by the Kenya National Exams Council in the year 2019/2020.

Enabling –policy

The Ministry of Energy with other stakeholders started the process of preparing the Kenya National Energy Efficiency and Conservation Strategy (KNEECS) and Bioenergy Strategy 2020-2027 to promote sustainable and clean production, distribution, and utilization of energy.

CASE STUDY 4: KenGen modifying hydropower stations to adapt to a changing climate

Changing rainfall patterns are a serious problem for hydropower production in Kenya. Climate change is altering the amounts of water available to drive the operation of dams and turbines. KenGen is increasing the climate resilience of its hydropower operations by increasing the number of turbines and the storage capacity of dams.

The Kenya Electricity Generating Company (KenGen) is modifying their hydropower projects to make them resilient to climate change. These modifications are needed to deal with unpredictable rainfall that impact the electricity generating capacity of their dams.

Hydropower is a renewable energy source that accounted for about 45 percent of KenGen's total installed capacity of 1,818 megawatts in 2021. The company is responsible for up to 75 per cent of electricity consumed in Kenya, a country that prioritizes access to modern energy to drive economic growth. Increasing renewable energy, including hydropower, and modifying hydropower projects to increase the climate resilience of the energy system are priority actions in Kenya's NCCAP 2018-2022.

Kenya, being located on the equator, experiences bimodal weather patterns comprised of two rainfall seasons and two dry seasons. The long rains typically occur from March to May and the short rains take place from October to December. In between the country experiences the hot dry season from January to February, and the cold dry season from June to September. These seasons dictate the operation of the hydropower plants, with the water collected in dams during the rainy seasons being used to run the turbines in the dry seasons.

NCCAP 2018-2022 reports that rainfall patterns have changed in Kenya. The long rainy seasons have become shorter and drier, and the short rainy seasons are longer and wetter. Heavy rainfall events causing floods and longer and more intense droughts have become more frequent in Kenya over the past 30 years. Willis Ochieng, KenGen's Chief Energy Planner, confirms these trends noting that "The rainfall patterns are becoming erratic. You may get rainfall for only a week or even two weeks, and they are gone; not like before when we could tell that the rains start from this time and end at this period."

The impact of unpredictable rains on hydro-generated electricity is well understood in Kenya. High intensity rainfall in a short period leads to surface runoff instead of percolation, which ultimately results in the catchment area becoming saturated and potentially full and overflowing dams. Low water levels in dams because of droughts can lead to increased use of diesel-powered generators (and its related greenhouse gas emissions) and hikes in the price of electricity.

KenGen is adapting to climate change by adjusting its hydropower projects to make the dams more resilient to the unpredictable rain patterns. These modifications include increasing the number of turbines or increasing the storage capacity of the dam, depending on the original design of the dam and water levels. KenGen collects data on water levels every 30 minutes and analyses the data on daily basis to identify opportunities for modifications.

KenGen's adaptation actions include a proposed project to increase the water storage capacity of the Masinga Dam by raising its wall by 1.5 metres. The dam will hold more water (around 180 million cubic metres), will be at full electricity generating capacity for a longer period, and will increase energy output despite longer and more frequent dry periods. Another adaptation action is adding turbines to allow the excess spill to generate power. An example is the Kindaruma dam that added a third turbine to increase its electricity generating capacity.

KenGen is a corporate leader on climate change in Kenya and internationally. KenGen was represented on the working group that oversaw the development of the NCCAP mitigation actions, and has joined the global coalition, "Business Ambition for 1.5°C." KenGen's actions help to achieve the goal of Kenya's NAP to increase the climate resilience of energy systems as a necessary action to ensure the country achieves development benefits.

3.7.2 Transport

The focus of climate action in the transport sector is the establishment of efficient, sustainable, world class transport systems and logistics services that withstand the projected impacts of climate change. This is expected to be realized through a number of actions including developing affordable, safe and efficient public transport systems; reducing fuel consumption and fuel overhead costs; encouraging low-carbon technologies in the aviation and maritime sectors; and climate proofing transportation infrastructure.

Table 8: *Transport*

Actions	Expected Results by 30th June 2023	Results Achieved as of June 2020 (Cumulative)
1. Develop an affordable, safe and efficient public transport	▪ 70 km of bus rapid transit (BRT) for Nairobi Metropolitan Area designed, constructed and implemented in 5 routes. ▪ Use of electric hybrid vehicles (buses) piloted and appropriate incentives provided for their use. ▪ Standard gauge railway (SGR) extended from Nairobi to Naivasha. ▪ Feeder public transport to BRT, commuter rail, and SGR developed and provided for the public. ▪ 150 km of non-motorised transport facilities constructed, including pedestrian and bicycle access within, and to town centres and transit stations.	▪ Construction of 70km of the BRT for Nairobi. ▪ Extension of SGR from Nairobi to Naivasha completed and the passenger and freight services launched. ▪ Construction of a total of 33 km non-motorised transport facilities.
2. Reduce fuel consumption and fuel overhead costs	▪ SGR from Nairobi to Mombasa electrified. ▪ 30% of freight from Mombasa to Nairobi shifted from road to rail. ▪ Roadmap for the improvement of heavy – duty truck efficiency developed, including increased use of low-rolling distance tyres, super structure fittings and development of vehicle standards. ▪ Light-duty vehicle fuel economy improved through labelling, promotion of fuel-efficient driving and improved traffic management.	▪ 4,678,000 tonnes of freight from Mombasa to Nairobi shifted from road to rail. ▪ Road vehicle inspection standards adopted. ▪ Implementation of functional traffic light systems at key junctions and intelligent transportation systems.
3. Encourage low carbon technologies in the aviation and maritime sectors	▪ Shore power infrastructure for four berths installed to provide power to ships while at berth instead of using their engines. ▪ 2 new aircraft (b787) which have fuel efficient engines purchased. ▪ Service Charter on Sustainable Aviation Fuels (certification and use of biodiesel production for captive use at airports) implemented by 2020. ▪ 0.5 MW solar power plant installed at Moi international Airport and commissioned by 2018.	▪ Feasibility studies undertaken on the installation of shore power infrastructure for four berths. ▪ Purchase of 2 new fuel-efficient aircraft (b787). ▪ Feasibility study on Service Charter on Sustainable Aviation Fuels (certification and use of biodiesel production for captive use at the airports) undertaken. • 0.5 MW solar power plant constructed at Moi International Airport.
4. Climate proof transportation infrastructure	▪ Climate information used in infrastructure planning and transport resilience plans developed. ▪ Feasibility study on constructing roads that systematically harvest water and mitigate floods undertaken. ▪ 4,500 km of roads climate proofed.	▪ 3,098 km of roads climate proofed - 1,570.4 km by Kenya National Highways Authority [KeNHA] and 1,539.23 km by county governments.
5. Enabling technology	▪ Domestic technology development for electric modes of transport encouraged. ▪ Research on the use of renewable energy for powering different modes of transport undertaken.	▪ A study on electrification of 2 and 3 wheelers conducted and recommendations implemented to enable switch to electricity.
6. Enabling (capacity development)	▪ Awareness built on the fuel economy and electric mobility options, including exploring infrastructure needs for electric mobility.	▪ 15 climate change focal points from the transport agencies trained on climate change planning and budgeting, and

Actions	Expected Results by 30th June 2023	Results Achieved as of June 2020 (Cumulative)
		advancing transport and climate strategies. ▪ 300 people participated in webinars on fuel economy and electric mobility options.
7. Enabling (policy and regulation)	▪ The integrated National Transport Policy (2021) reviewed and implemented. ▪ The international standards on aviation and maritime transport domesticated and implemented by 2021 and 2020 respectively. ▪ Standards for electric cars and two wheelers developed and implemented by 2019. ▪ Standards for climate proofing of transport infrastructure developed. ▪ Planning and building control regulations to encourage compact development, mixed use and reduced provision of parking near Mass Rapid Transit stations updated and implemented.	▪ Integrated National Transport Policy reviewed to include climate change and other sustainability elements.

Key achievements in the transport sector in 2019-2020 included:

- Construction of a total of **33** km of non-motorised transport facilities including pedestrian and bicycle access within and to town centers and transit stations to complement BRT. This represented 22% of the NCCAP target and would benefit society in terms of reduced pollution, enhanced mobility, and increased safety within the city.
- **4,678,000** tonnes of freight from Mombasa to Nairobi shifted from road to rail. This represents 17% of the NCCAP target. Additionally, 1.6 million passengers were also transported during the year. These activities are meant to reduce congestion and reduce time limit for cargo transportation.
- As part of efforts to reduce fuel consumption and fuel overhead costs, the State Department of Transport adopted the KS1515 road vehicle inspection standards; and implemented functional traffic light systems at key junctions and intelligent transportation systems. A study on the electrification of 2 and 3 wheelers was conducted and recommendations will be implemented to enable the switch to electricity.
- Efforts to climate proof transport infrastructure included training of 15 climate change focal points from the transport agencies on climate change planning and budgeting, and advancing transport and climate strategies. This training was expected to enable agencies in the sector - particularly KeNHA and Kenya Urban Roads Authority (KURA) - to assess climate change risks and develop targeted adaptation actions.[31] As a result of these trainings, KeNHA carried out a climate vulnerability assessment of one of the largest road projects in Kenya – the Horn of Africa Gateway Development Project (HOAGDP) which is 740 km long and connects the towns of Isiolo and Mandera.[32] The assessment informed the drainage structure designs and other interventions.
- A total of 1,570.4 km of roads were climate proofed by KeNHA[33] while county governments did 1,528 km (34% of the NCCAP target). The government has deliberately decided to do this after realizing that climate change is affecting the huge investments in road infrastructure. While initial costs for climate proofed roads is higher per kilometre by approximately 0.5 to 1%, it results in better flood control (i.e., the road is not prone to overtopping, the structure can withstand abnormal weather conditions such as flooding, and normal traffic flow not interrupted during floods) and less destruction of roads. Other benefits include extending the lifespan of roads thereby safeguarding the huge investments in road infrastructure in the long run, reduction in travel time and reduction in vehicle operating costs.
- The State Department of Transport reviewed the Integrated National Transport Policy to integrate climate change and other sustainability elements in the revised policy report. The review process was finalized, and the policy document is awaiting stakeholder validation. The policy encourages the tracking of all climate change-related activities in the transport sector.

Of concern is the delay in the launch of the process to electrify the SGR between Nairobi and Mombasa, which was supposed to be completed by 2022.

Enabling – capacity development

Capacity building efforts on fuel economy and electric mobility options included 3 webinars with an average of 100 participants. Work also included the validation of the electric mobility statutory study report and development of a brochure on electric mobility.

CLIMATE PROOFING KENYAN ROADS ENTAILS:

- *Use of heat-resistant pavement materials in road projects located in Arid and Semi-arid areas- climate-resilient pavement that withstands high temperatures.*
- *Increasing capacity (width and height) and frequency of drainage structures like culverts to take care of abnormal weather conditions like flooding which leads to overtopping.*
- *Raising road surface levels above expected flood elevations to take care of flooding effects.*
- *Reduction of gradient of slopes during design. This is to reduce gullies formation.*
- *Use of erosion control measures like (check dams, miter drains, etc.) and slope protection works.*
- *Increasing the frequency of sediment dredging of rivers and channels to provide adequate drainage conveyance capacity during road maintenance.*
- *Tree planting and road beautification programs (carbon sinks).*

Source: KeNHA

CASE STUDY 5: Roads for Water Harvesting project

The Roads for Water Harvesting project is being piloted on the Kitui-Mwingi road in Kitui County with support of the NGO Metameta. The basic idea of "roads for water" is to make roads instruments of beneficial water management and resilience.

The Kitui-Mwingi pilot road project contributes to water management through harvesting runoff water which is then used as a water source for livestock and other productive uses. This benefits local communities and safeguards investments.

Roads make a major imprint on hydrology. They block and guide water, concentrate runoff, interfere with subsurface flows, and change flooding patterns. This happens in areas where most people live and where economic activities are concentrated; and hence presents harvesting runoff water presents an opportunity to contribute to greater water security.

KeNHA, in collaboration with Kenya Roads Board, is using lessons from the pilot to develop water harvesting guidelines that will inform up-scaling of the initiative to other areas.

CHAPTER FOUR

ENABLERS

The five overarching enablers - policy and regulatory framework; technology and innovation; capacity development and knowledge management; climate finance and resource mobilization; and transparency, Measurement, Reporting and Verification Plus (MRV+) - are meant to enhance delivery of the actions set out under the seven priority areas. The enablers promote climate change mitigation and adaptation action by providing the necessary policy and legislation frameworks, knowledge, technologies, capacity and finance.

4.1 Enabling policy and Regulatory frameworks

NCCAP 2018-2022 included two priority enabling actions to establish the policy and regulatory framework required to incentivize action on climate change. The actions, expected results, and results achieved by 2020-21 are included in the table below. The results for 2019-2020 are discussed in detail in this section.

Table 9: *Enabling Policy and Regulatory Framework - Results Achieved by June 2020*

	Enabling Actions	Expected Results (Process Indicator)	Results Achieved by June 2020 (cumulative)
P1	Prioritise, develop and implement the needed regulations to effectively implement the Climate Change Act, 2016 through a multi-stakeholder process that includes women, youth and marginalised and minority groups.	**By 30th December 2020** – Assessment of needed regulations complete. **By 30th June 2023** – Two regulations developed and operationalised.	• Two draft regulations to implement the Climate Change Act developed at the national level in 2021. • Draft National Wildlife Climate Change Adaptation Strategy developed in 2021.
P2	Support alignment of County legislation to the Climate Change Act, 2016. Assist county governments to develop County climate change fund regulations that are linked to the National Climate Change Fund.	**By 30th December 2020** – Five county governments have developed climate change fund regulations. **By 30th June 2023** – An additional ten county governments have developed climate change fund regulations.	• 24 counties developed county climate change policies. • Model County Climate Change Act and County Climate Change Fund (CCCF) regulations developed and shared. • 29[1] counties have developed CCCFs with 9 making budgetary allocations to their CCCFs. • 23 counties have climate change action plans. • 42 counties designated County Executive Committee (CEC) members in charge of climate change. • Three counties domesticated the Kenya Climate Smart Agriculture Strategy (2017-2026) and Kenya Climate Smart Agriculture Implementation Framework (2018-2027).

Kenya reviewed and updated its NDC, and developed a number of policies and legislations at the national and county levels that aimed to operationalize the *Climate Change Act, 2016* and support implementation of priority climate actions.

Key achievements under this enabler in 2019-2020 included:

- Two draft regulations were developed at the national level. *The Climate Change (Duties and Incentives) Regulations, 2021* outlined duties for both public and private sector institutions as well as incentives for the promotion of climate change initiatives. Among other things, it defined how climate change duties and responsibilities may be imposed on entities; set out incentives (both fiscal and non-fiscal) that may be provided to private entities and made reporting mandatory. *The Climate Change (Monitoring, reporting and verification) Regulations, 2021* are meant to streamline the monitoring and reporting of adaptation and mitigation, both nationally and internationally.
- An additional eleven (11) counties[34] enacted climate change-specific policies and legislation that created *County Climate Change Funds (CCCFs)*. This brings the total number of counties with CCCFs to seventeen (17). Through CCCFs, counties allocate a minimum percentage of their development budget to finance climate change interventions on a more sustainable basis. These counties also stand a good chance of benefiting from *The National Treasury / World Bank Financing Locally Led Climate Change Action (FLLoCA)* project that began in 2021. A CCCF is one of the conditions of accessing FLLoCA funding.
- The Ministry of Agriculture, Livestock, Fisheries and Cooperatives disseminated and built capacity of three counties to domesticate the Kenya Climate Smart Agriculture Strategy (2017-2026) and Kenya Climate Smart Agriculture Implementation Framework (2018-2027). The Ministry developed a monitoring and evaluation (M&E) framework on the same and established a multi-stakeholder platform to exchange ideas and lessons. The county CSA strategies are expected to result in a sustainable increase in agricultural productivity and incomes; increased resilience to climate change, and reduced GHG emissions in line with the country's NDC.
- KWS developed a National Wildlife Climate Change Adaptation Strategy to address impacts of climate change on wildlife. The draft is to be taken through stakeholder validation and board approval before being officially launched. The strategy is critical in that the sector is the backbone of Kenya's tourism but faces many threats from climate change. Human–wildlife conflicts, for example, often worsen with droughts that are associated with the changing climate.

4.2 Technology and Innovation

The overall objective is to support the various sectors to promote appropriate technologies and innovations in support of adaptation and mitigation actions.

Table 10: *Technology and innovation*

	Enabling Actions	Expected Results (Process Indicator)	Results Achieved by June 2020 (cumulative)
T1	Improve the capacity of KIRDI to coordinate the activities and services that it delivers as the National Designated Entity for the Climate Technology Centre and Network, the operational arm of the UNFCCC Technology Mechanism, including the promotion, upscaling and dissemination of endogenous technologies that meet the needs of women and marginalised groups.	**By 30th December 2020** Request to the Climate Technology Centre and Network for technical assistance on gender-responsive climate technologies is approved for KES 25 million. **By 30th June 2023** Information on five endogenous climate technologies disseminated to stakeholders.	
T2	Provide Climate Information Services (CIS), including information to help farmers manage risk, inform early warning systems, and inform decision making for organisations, businesses and households.	**By 30th December 2020** 24 County Climate Information Service Plans developed, including the 5 pilot counties (Wajir, Isiolo, Kitui, Makueni, and Garissa) that had CIS service plans in place when the NCCAP 2018-2022 was developed. **By 30th June 2023** At least 100 clients (organisations, businesses and households) access CIS provided by KMD.	• 15 counties have CIS plans (63% of the national target). • 3 counties (Kwale, Narok and Siaya) have developed Integrated Climate Risk Management Plans.
T3	Establish a Sustainable Consumption and Production Networking facility for Micro, Small and Medium Enterprises (MSMEs) with an emphasis on women and youth.	**By 30th December 2020** 50 MSMEs, half of which are led by the youth, and women, trained in sustainable consumption in production. **By 2022** Trained MSMEs to reduce resource (energy and water) use by 10%.	
T4	▪ Promote gender-responsive climate technologies and innovations in the private sector through the provision of financing, capacity building, and start-up/scale-up of services. ▪ Encourage youth innovation through outreach programmes with schools, universities, and organisations of the youth.	**By 30th December 2020** 10 clients, half of who are women and youth, supported to commercialise their clean technology businesses. **By 30th June 2023** Clean technology businesses reach 1,000 customers.	• 27 counties adopted gender responsive technologies.
T5	Identify policy and fiscal incentives to promote the uptake of climate-friendly technology (such as tax incentives, reduced energy tariffs, low interest loans, and public-private partnerships). Action continues from NCCAP 2013-2017: Finance 7.	**By 30th December 2020** Options identified and analysed, including the development of baseline information and expected climate results. **By 30th June 2023** Two policies and fiscal incentives launched.	• Reduction of import duty on complete efficient biomass stoves from 35% to 25%.

Key achievements include:

- Development of 4[35] county CIS plans to guide the provision of climate information to users for informed decision making and better risk management. This brings the cumulative total to 15 CIS plans (or 63% of the NCCAP target). Services provided to users include seasonal forecasts; 10-day, 7-day, and daily forecasts and advisories on adverse weather conditions.
- Kiambu County installed 1,550 integrated solar streetlights in six municipalities, and installed solar-powered pumps in many of boreholes thereby displacing the diesel engines that were used to pump water.

The switch to renewable energy, such as solar for lighting and pumping water from thousands of boreholes across the county, is a move in the right direction that should be strengthened. Apart from the reduction in GHG emissions, solar technology is particularly important in enhancing access to energy in areas not connected to the national grid.

4.3 Capacity development and knowledge management

Capacity development is concerned with enhancing the ability of institutions and communities to effectively carry out climate change actions, while knowledge management is concerned with curating and sharing of climate change knowledge. Activities under this enabler are expected to facilitate implementation of the Climate Change Act, National Climate Change Policy 2018, and Kenya's NDC and NAP.

Table 11: *Capacity development and knowledge management*

	Enabling Actions	Expected Results (Process Indicator)	Results Achieved by June 2020 (cumulative)
C1	▪ Operate a publicly accessible National Climate Change Resource Centre (NCCRC) that includes a robust and up-to date climate change knowledge management system, and an updated climate change information portal with platforms for children, the youth, women, and marginalised and minority communities; and ▪ Use Knowledge Harvesting techniques to capture and share information, including on climate change-based traditional knowledge, especially from women and the elderly. Action continues from NCCAP 2013-2017: Knowledge Management and Capacity Development 1, 2, and 5.	**By 30th December 2020** Business plan for NCCRC developed. **By 30th June 2023** NCCRC refitted to enable access for persons with disabilities.	• NCCRC is operational.
C2	Establish Community Education, Business and Information Centres in select counties, building on the model established in Samburu County, to improve access to information and reduce climate vulnerability. The Centres will be managed by engendered local management committees, and will provide focused services for women, the youth, minority, and other marginalised groups.	**By 30th December 2020** Samburu Community Education, Business and Information Centre established. **By 30th June 2023** Two additional Community, Education, Business and Information Centres established.	• Samburu Community, Education, Business and Information Centre established. • Bioenergy centre in Kisumu County under construction.
C3	Strengthen the capacity of National Government institutions to implement the Climate Change Act including: •Training of staff of climate change units on reporting and climate finance; •Support to the National Climate Change Council; •Training on the climate change-gender nexus; and •Supporting CCD in its coordination. *Action continues from NCCAP 2013-2017: Knowledge Management and Capacity Development 3 and 4, and Enabling Policy and Legal Framework 5.*	**By 30th December 2020** Climate change is mainstreamed in sector Medium Term Plans. **By 30th June 2023** All state departments provide annual reports with gender disaggregated information.	• Ministry of Public Service Youth and Gender state departments trained on Implementing Climate Change Act. • Climate Change Focal points from Transport agencies trained on climate change planning and budgeting. • Training for national and country government officials at the Kenya School of Government on mainstreaming climate change into national and county policy, planning & budgetary processes.
C4	Build the capacity of County Governments, including: •Strengthening of Climate Change Units (CCUs); •Setting up functional County Climate Change Funds, and gazettement of engendered County Environment Committees and other supportive structures; • Coordination of climate change programmes across counties; •Mobilisation and tracking of climate finance using gender disaggregated data, including County Climate Change Fund allocations; and	**By 30th December 2020** Five County Governments reporting on a pilot basis. **By 30th June 2023** All County Governments providing annual reports on climate change with gender-disaggregated Information.	• 29 counties established CCUs with 15 having office facilities and 11 had budgetary allocations. • 27 counties approved policies to address and engage marginalised groups. • 34 counties established county steering committees on the climate change response. • 29 counties carried out participatory climate change risk assessments. • 16 counties developed resource mobilisation strategies developed

	Enabling Actions	Expected Results (Process Indicator)	Results Achieved by June 2020 (cumulative)
	• Monitoring and reporting on the impact of climate change programmes.		while 10 had climate action financing strategies. • 44 counties mainstreamed climate change in the planning process. • 23 counties established climate change action plans. • 9 counties allocated budget to their County Climate Change Fund. • 34 counties trained officers on climate change reporting.
C5	Strengthen the capacity to NEMA to implement the Climate Change Act, including integrating climate change in impact assessments and GHG emissions control, regulation, and enforcement.	**By 30th December 2020** Climate change integrated in impact assessment guidelines. **By 30th June 2023** Role of NEMA in compliance and enforcement defined and its capacity built.	NEMA revised the Environmental Impact Assessment and Strategic Environmental Assessment to include climate change.
C6	Build the capacity of stakeholders, including: •Vulnerable groups, such as women, the youth, marginalised and minority communities, and persons with disabilities, to participate in, attract funding for, and report on climate change actions. • The private sector and civil society to implement and report on climate actions.	**By 30th December 2020** Ten (10) awareness sessions held. **By 30th June 2023** Twenty (20) awareness sessions held.	• 40 counties had coordination with local communities on indigenous knowledge on climate change. • 22 counties have policies/programs to incentivize the private sector to engage on climate change. • Kisumu County used Ksh 700,000 of their county budget for training to build stakeholder capacities in the area of climate change.
C7	▪ Develop a national gender and inter-generational responsive awareness plan and build capacity for effective gender integration in NCCAP 2018-2022, and in the implementation of NDC. ▪ Incorporate a knowledge harvesting approach to develop the strategy for capturing knowledge and insights from the local level. ▪ Engage women and the youth in the development of the gender and intergenerational responsive awareness plan.	**By 30th December 2020** National gender and inter-generational plan delivered to the National Climate Change Council. **By 2022** Gender integration guidelines and training toolkits developed. Twenty institutions sensitised on integration of gender into NDC planning and implementation.	• MEF conducted an in-depth gender analysis on the Agriculture, Energy and Water sectors of the NCCAP to facilitate gender considerations.
C8	▪ Develop and operationalise a public awareness and engagement strategy that highlights outreach to politicians and media.	**By 30th December 2020** Public awareness and	• Draft NCCAP Engagement and Awareness Strategy developed by CCD.

	Enabling Actions	Expected Results (Process Indicator)	Results Achieved by June 2020 (cumulative)
	▪ Engage vulnerable groups, including women, older members of society, children, youth, persons with disabilities, and members of minority and marginalised communities, in the development of the strategy.	engagement strategy delivered to the National Climate Change Council. **By 30th June 2023** Strategy operationalised at the national and county levels.	• Training for journalists on reporting on climate-related disasters.
C9	Develop a national vulnerability assessment to identify and prioritise adaptation actions. The assessment to include the identification and compilation of existing vulnerability assessments at the national and county levels.	**By 30th December 2020** National vulnerability Assessment completed**.** **By 30th June 2023** National vulnerability assessment informs up-dating of NCCAP.	• 29 counties conducted climate risk assessments. • Assessment of the climate vulnerability of ecoregional coral reefs (Kenya with Northern Tanzania) completed. • Coral bleaching observations point data published online • An open-source data portal developed to provide access to marine data and information.
C10	Integrate climate change in the education system, emphasising integration in existing curriculum for lower secondary grades 7, 8 and 9. Action continues from NCCAP 2013-2017 – Knowledge Management and Capacity Development 6.	**By 30th December 2020** Draft climate change curriculum developed and piloted for lower secondary grades. **By 30th June 2023** Climate change curriculum introduced for lower secondary grades.	• Draft climate change mainstreaming guideline developed by MEF. • Climate change curriculum and training materials developed and used to train national and county officials at the Kenya School of Government (KSG). Over 380 county technical officers trained. • NDMA collaborated with KSG to develop CCCF curriculum for middle and senior level county officials. • NAP readiness training provided for county technical officers.

Highlights for the 2019-2020 fiscal year included:

- CCD equipped the Samburu Community Education, Business and Information Centre and continue to populate and operate the National Climate Change Resource Centre. It also led the development of the Kenya Climate Change Learning Strategy and guidelines for mainstreaming climate change in curriculum at all levels of education.
- Kisumu County is in the process of developing a community, education, business, and information centre with the construction of an administration block in progress. Once completed, the centre will act as a one-stop shop for climate change information.
- Kisumu and Trans Nzoia Counties have commenced the process of carrying out climate vulnerability risk assessments which will inform their climate change adaptation plans. Other counties are expected to follow suit and a national level vulnerability assessment report collating county information and enriching it further will guide the updating of the NAP in the near future.
- CORDIO carried out assessment of climate vulnerability of eco-regional coral reefs (Kenya with Northern Tanzania) and initiated planning for national coral reef assessments in Kenya (see case study 6 below). Additionally, a coral bleaching observations point data was published online (available at: https://cordioea.net/coral-bleaching/io-coral-bleaching-alert/).[36] An open-source data portal provides access to marine data and information for the Western Indian Ocean (available at: http://maspawio.net).
- NDMA collaborated with KSG to develop a CCCF curriculum for middle and senior level county officials who are involved in decision making on policy and budget matters as well as other stakeholders interested or working on climate change at the county level.[37]
- CCD carried out NAP readiness training for county technical officers from the sectors most affected by climate change such agriculture, water, environment, health, livestock, wildlife, and tourism. A total of 186 technical staff (124M; 62F) from 31 counties were trained on the NAP and supportive topics for implementation of the NAP such as the NCCAP; Climate Change Act, 2016; monitoring and evaluation (M&E) of climate change adaptation; gender inclusion; and climate finance.

CASE STUDY 6: National coral reef vulnerability assessment – red list of ecosystems

Vulnerability assessments are key in the identification and prioritization of adaptation actions in various sectors and ecosystems. Interventions informed by robust assessments are likely to be effective in addressing both the climatic and non-climate drivers of vulnerability. Interventions in sensitive ecosystems like coral reefs need to be informed by the latest knowledge and practices to ensure sustainability.

The IUCN Red List of Ecosystems provides a standard for measuring risks of ecosystem collapse, providing critical information to inform policy. The approach assesses ecosystem area and integrity, meeting the need for both metrics in national, regional and global policies for biodiversity and sustainability. CORDIO working with KWS applied this approach to assess risks of ecosystem collapse at regional and eco-regional scales across coral reefs in the Western Indian Ocean (WIO). Kenya comprised one of these eco-regions (with part of northern Tanzania).

The vulnerability assessment identified climate change and fishing as the two main threats for coral reefs in the region, with climate change as a more severe threat in the Indian Ocean islands. On the mainland, fishing scored more highly as the dominant threat.

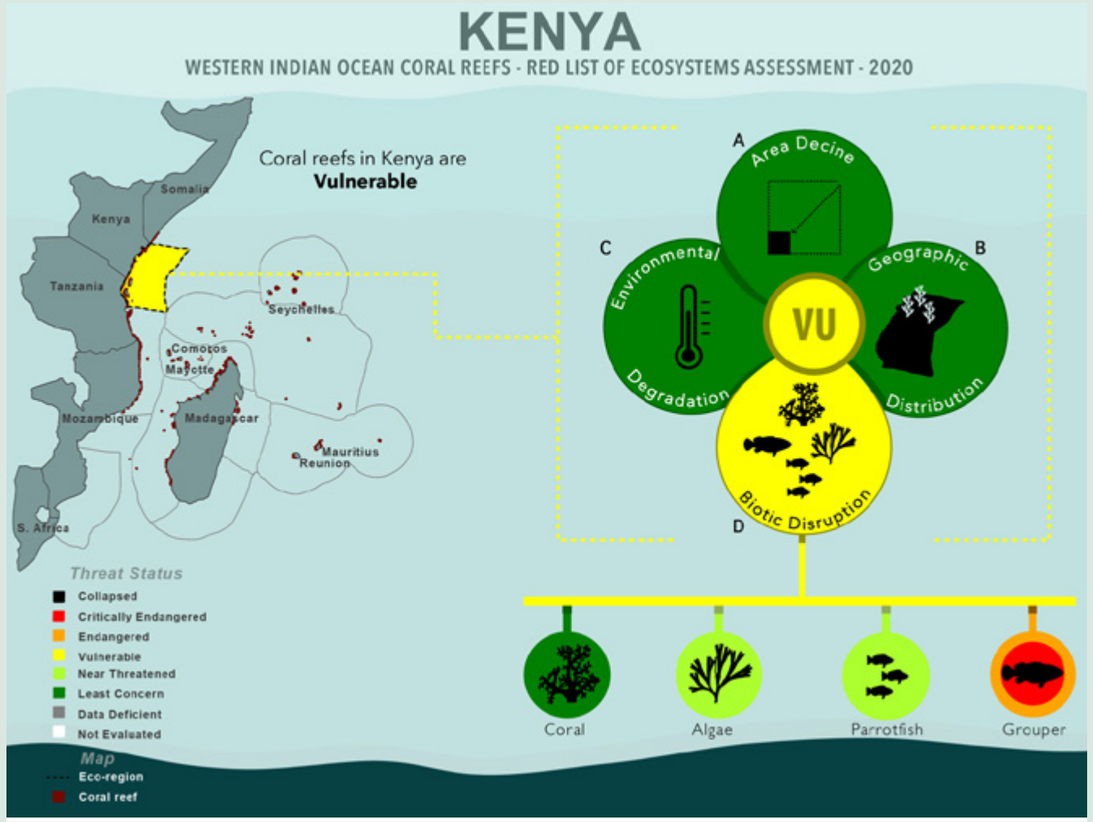


Figure 3: *Western Indian Ocean coral reefs – red list of ecosystem assessment 2020*

Kenyan reefs were assessed as being Vulnerable to collapse. Four criteria were assessed for risk of collapse. Decline in area of reefs, restricted geographic distribution and environmental degradation were assessed as 'Least Concern'; while biotic disruption was considered vulnerable (see illustration). Fish predators (groupers) were at very low levels scoring Critically Endangered; algae and parrotfish (herbivores) were considered near threatened, and coral was of least concern. Overall, coral reefs in Kenya are considered vulnerable.

Management responses to fishing and climate threats are very different. To respond effectively to these threats, higher resolution National Coral Reef Assessments are being undertaken by working closely with coral reef and fishery managers (KWS, State Department of Fisheries, fishing communities) in 2021 and 2022 to identify relevant responses from the national to local levels. These outcomes will be reported in June 2023.

4.4 Climate finance and resource mobilization

The priority of this enabling action is to operationalize the National Climate Change Fund and link it with CCCFs and mobilize additional resources for the implementation of priority climate actions set out in the NCCAP. This will be partly achieved through capacity building of the National Treasury's Climate Finance and Green Economy Unit, which is the National Designated Authority (NDA) of the Green Climate Fund (GCF) among other activities.

Table 12: *Climate finance and resource mobilization*

	Enabling Actions	Expected Results (Process Indicator)	Results Achieved by June 2020 (cumulative)
F1	Operationalise the National Climate Change Fund (NCCF), including establishing the management and oversight of the Fund; annual budgeting and reporting; development of policies, guidelines and procedures; and capitalising the Fund through GCF, development partners, and other contributions.	**By 30th December 2020** NCCF is operationalized, secretariat and management board in place, as set out in the Climate Fund regulations. **By 30th June 2023** Climate finance being disbursed through identified funding windows; and NCCF is linked with CCCFs.	• Climate Finance Unit established at the National Treasury. • Draft Climate Change Fund Regulations developed and awaiting submission to the Cabinet for approval.
F2	▪ Enhance the capacity of the NDA to mobilise and manage climate finance, including the management of, access to, and tracking of international climate finance; and development of funding proposals. ▪ Build the capacity of national institutions to gain accreditation for international finance mechanisms, and to develop bankable proposals. ▪ Develop a climate finance resource mobilisation strategy that includes domestic allocations, international climate finance, access to carbon credits and markets, allocations from the private sector, and Public-Private Partnerships for climate friendly investments). *Action continued from NCCAP 2013- 2017 – Finance 1.*	**By 30th December 2020** Climate resource mobilisation strategy developed. **By 30th June 2023** Climate resource mobilisation strategy cascaded to the counties (five counties have developed strategies).	• Financing Locally Led Climate Action (FLLoCA) Program developed to finance priority interventions over the next 5 years. • Kenya Commercial Bank (KCB) and NEMA accredited as National Implementing Entities of the GCF. • 12 proposals were successfully developed and funded by GCF for a total of USD 170 million. • The NDA received GCF readiness funds of USD 3M for capacity strengthening.
F3	Report on domestic and international climate finance flows through an improved tracking system (including building capacity of government to track climate finance),and supported through improved coordination with development partners. *Action continued from NCCAP 2013-2017 – Finance 2 and 3.*	**By 30th December 2020** A climate finance tracking system established at the National level. **By 30th June 2023** Climate finance tracking system reporting on domestic and international climate finance flows.	• Climate finance coding and tracking tool developed and integrated within the government's Integrated Financial Management System (IFMIS). • A training handbook on climate finance including tracking and reporting developed. • The Landscape of Climate Finance in Kenya Report, 2021 established baseline information on climate finance in Kenya.
F4	Build the capacity of the private sector and civil society to develop bankable projects and build the in-house capacity of financial institutions to assess climate risk and develop climate-related schemes.	**By 2022** Three financial institutions have developed climate related lending schemes.	3 local banks (Diamond Trust Bank, Commercial Bank of Africa, and Cooperative Bank) received support from the Kenya Association of Manufacturers (KAM) including the training of 200 bank staff to develop green credit lines aimed at financing renewable energy and energy efficiency projects in Kenya. • KCB was accredited with the GCF as the first financial intermediary for the implementation of green financing in East Africa. • Cooperative Bank of Kenya nominated by the NDA for GCF accreditation. • Climate Business Information Network (CBIN) Kenya established by KEPSA through the NAP Readiness support program funded by the GCF.
F5	Pilot the issuance of Green Bonds. Through these bonds the funds will be earmarked for green projects, many of which will have climate change benefits.	**By 30th December 2020** Pilot the issuance of two green bonds. **By 30th June 2023** Assessment of the green bonds' impact on climate change.	• The National Treasury developed the Sovereign Green Bond Framework. • Green Bond Listing Rules approved by the Capital Markets Authority. • First Corporate Green Bond of USD 40 million issued by Acorn Holdings. • Green Asset Register developed. • Sovereign Green Bond Committees established. • Draft Green Fiscal Incentive Policy Framework developed.
F6	▪ Participate in the design and implementation of market-based mechanisms. ▪ Promote investor confidence and participation in market-based and results-based mechanisms. ▪ Enhance Kenya's capacity to engage in carbon asset activities. ▪ Strengthen the viability of domestic carbon asset production; and ▪ Increase access to international carbon markets. *Action continued from NCCAP 2013-2017 – Finance 4 and 6.*	**By 30th December 2020** Submission to the UNFCCC on market-based mechanisms. **By 30th June 2023** Unit established to promote project responsible for generation of carbon credits.	▪ Article 6 on carbon markets has been finalized at COP 26 outlining the modalities, procedures and guidance on carbon markets paving the way for commencement of carbon markets under the Paris Agreement.
F7	Update the Climate Public Expenditure and Budget Review (CPEBR).	**By 30th December 2020** Updated CPEBR complete. **By 30th June 2023** Implementation of recommendations of CPEBR.	• Second CPEBR report renamed the Landscape of Climate Finance Report of 2021 that was developed, validated and published in 2020 and 2021.

Key achievements during 2019-2020 included:

- Accreditation of Kenya Commercial Bank Ltd (KCB) with the GCF as the first financial intermediary for the implementation of green financing in East Africa. This paves the way for KCB to receive funds from GCF for on-lending to beneficiary institutions involved in the development of climate resilient investment assets/ projects in Kenya as well as in the region where the bank operates as an implementing entity. It has been accredited under the medium to large private sector category and is therefore capable of fronting projects of between USD 50 million (KES 5 billion) and USD 250 million (KES 25 billion). KCB becomes the first lender and private entity in Kenya to receive such accreditation and it is expected to facilitate access to GCF financing by private sector players. KCB joins NEMA and Acumen Inc. as accredited Direct Access Entities in Kenya. NEMA is accredited as a national entity, while Acumen Inc. is accredited as a regional entity. Acumen is currently implementing three GCF projects and programmes.
- The first Corporate Green Bond of USD 40 million was issued by Acorn Holdings. This was cross listed in the London and Nairobi Stock Exchanges.
- The Climate Business Information Network (CBIN) Kenya was established by KEPSA through the NAP Readiness support programme. The platform is useful in awareness creation and sensitisation of the private sector on climate change issues and opportunities. It is expected to contribute to enhanced private sector participation in the climate change activities going forward.
- The second CPEBR report was developed and renamed the Landscape of Climate Finance Report of 2021. The report was validated and published in 2021.

4.5 Transparency, Measurement, Reporting and Verification (MRV+)

The MRV+ system is meant is to generate information to support domestic and international level reporting requirements. At the domestic level, MRV helps to assess and track the implementation of planned actions including the status of implementation and progress achieved toward the attainment of national climate change goals. Internationally, the MRV+ system supports the country to meet its reporting requirements under the Convention. The MRV+ system was thus designed to enable tracking and reporting on the GHG inventory, adaptation action, mitigation action, and finance. It also provides for reporting on linkages of climate action and the Sustainable Development Goals (SDGs).

The design of the MRV+ system has been supported by UNDP through its NDC Support project which has facilitated building of national capacities and ensures sustainability of reporting processes. The online system is cloud-based and will be managed by the CCD that has a dedicated MRV+ Coordinator. The MRV+ system is also aligned to the Paris Agreement's Enhanced Transparency Framework.

Table 13: *Transparency, Measurement, Reporting and Verification (MRV+)*

	Enabling Actions	Expected Results (Process Indicator)	Results Achieved by June 2020 (cumulative)
M1	Establish the M&E component of the MRV+ system to report on adaptation actions and benefits, including the identification and measurement of such adaptation indicators as collected baseline data, gender-disaggregated data, and gender indicators. *Action continued from NCCAP 2012-2017: NPBM 1,2,3,4, 6, 7, 8.*	**By 30th December 2020** Climate registry for adaptation actions established, with information publicly available. **By 30th June 2023** The adaptation M&E system fully functional, setting out institutional structures and role of stakeholders in reporting.	• Short-list of county level adaptation indicators identified.
M2	▪ Establish a functional system to develop Kenya's GHG inventory, and an MRV system for tracking mitigation for NDC reporting. ▪ Strengthen capacity for carbon management and verification. *Action continued from NCCAP 2013-2017: NPBM 5.*	**By 30th December 2020** Third National Communication submitted to the UNFCCC, including the third National GHG Inventory. **By 30th June 2023** CCD has established systems to collate, track, analyse, and report on GHG data, including a climate registry for mitigation actions.	• Third National GHG Inventory completed.
M3	▪ Establish a system to track and report on land-based emissions; and ▪ Develop a monitoring and reporting system for transparent accounting of emissions and removals in the forestry and land-use sectors. *Action continued from NCCAP 2013 – 2017: Mitigation 8.*	**By 30th December 2020** Six working groups under the System for Land Based Emissions Estimations in Kenya (SLEEK) established to provide data and information to the national GHG inventory and MRV systems. **By 30th June 2023** Reporting on land-based emissions fully integrated in GHG inventory.	• SLEEK program operationalized and used by KFS and Directorate of Resource Surveys and Remote Sensing to compute land cover changes.
M4	Establish a Climate Business Platform to support reporting requirements of private entities.	**By 30th December 2020** Framework for large emitter reporting established. **By 30th June 2023** Private sector large emitters reporting to CCD on a voluntary basis.	Draft MRV regulations developed

Key achievements in 2019-2020 towards the establishment and operationalization of the MRV+ system included:

- Capacity built on the use of the MRV+ system with sixty (60) individuals across the adaptation and mitigation sectors trained. The MRV+ system was tested by sectors that identified areas for improvement in terms of usability and accuracy. In 2020, UNDP was supporting the updating of the system to improve accuracy and usability. The system will also have a publicly accessible dashboard that will allow members of the public to interact with the progress on various projects being implemented.
- MRV coordinator identified at CCD to coordinate the MRV+ system updates and oversee implementation of the MRV+ system.[38]

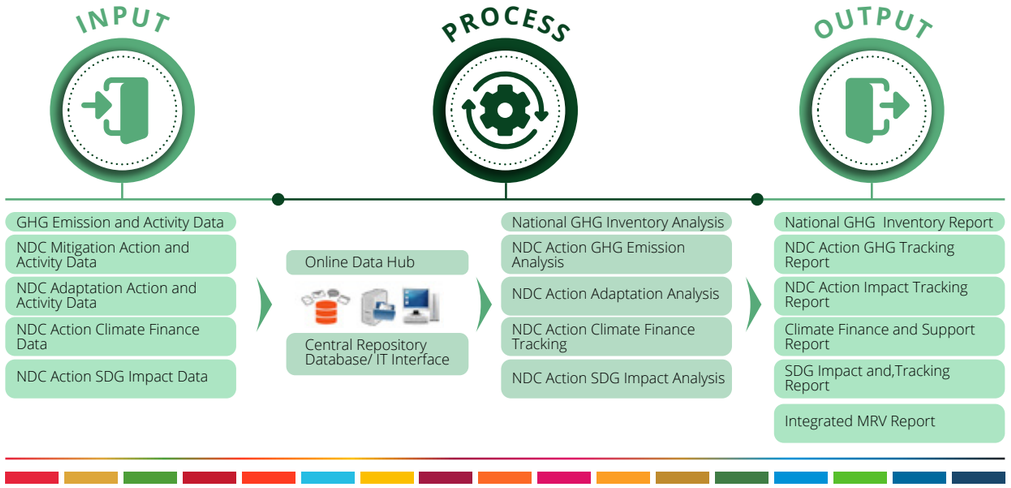


Figure 4: *Structure of Kenya's Integrated MRV System*

CHAPTER FIVE

CHALLENGES AND LESSONS LEARNT

5.1 Challenges

a. **Weak or non-existent climate change coordinating units in the reporting institutions.** Technical capacity to report on the implementation of climate change action is still weak, especially at the county level. This was partly explained by the limited awareness of roles and responsibilities regarding NCCAP II priorities, and disjointed implementation and consolidation of data. Very few institutions provided information on outcomes and gender-disaggregated data despite this being clearly asked for in the questionnaire. At the national level, some MDAs highlighted the lack of a structure or mechanism for disseminating and transmitting data to CCUs for compilation and reporting.

b. **Poor coordination among the different actors leading to duplication of efforts and risk of double counting.** A good number of national government institutions and county governments did not clearly indicate whether the results being reported were as a result of their own efforts or a joint effort with other actors including another level of government, the private sector and CSOs. This may act as a disincentive for non-state actors going forward.

c. **NCCAP implementation and reporting process not fully streamlined.** There is lack of clarity among stakeholders on the roles and responsibilities for particular NCCAP II priority actions and targets which hinders effective implementation and reporting. Additionally, many institutions, especially county governments, complained of multiple requirements/ assessments by national government institutions that request the submission of the same information.

d. **Inadequate financial resources to support implementation and reporting.** Many institutions did not allocate or mobilise adequate resources for climate change activities. But even for those who allocated resources for 2019-2020, the delayed release of funds by the National Treasury led to delays in the implementation of climate change activities planned for the year. Moreover, the majority of MDAs and country governments neither requested nor received any support for climate change action due to lack of awareness on sources and the modalities for accessing the same.

e. **Low level of response from private sector entities and CSOs during the reporting process vis-à-vis those who participated in the training on NCCAP reporting.** The very low response among the private sector and zero response from CSOs points to a lack of appreciation of the importance of reporting on activities implemented.

f. **The locust invasion and Covid-19 pandemic led to a diversion of resources to deal with the emergent challenges.** The urgent and devastating nature of the Covid-19 pandemic and the desert locust invasion meant that budgets, including those for climate change work, were re-allocated to deal with these emergencies. Support from development partners for climate change was also reduced drastically in 2019-2020. This partly explains the low achievements in some areas during the 2019-2020 reporting period.

5.2 Lessons learnt

a. Awareness creation and further sensitization on the NCCAP priority actions is required to improve the buy-in and ownership of the priority climate change actions by stakeholders including private sector entities and CSOs.

b. Institutions with functional climate change units or focal points are coordinating implementation and reporting better as they are able to access relevant information and support as necessary. National MDAs and county governments that have established CCUs do not view work on climate change as an additional load.

c. Both government institutions and non-state actors need to be supported to mobilise additional financial resources for implementation of priority climate actions. Institutions that have low levels of implementation of climate action are reluctant to report.

CHAPTER SIX

RECOMMENDATIONS

To address the challenges and act on the lessons learnt, it is therefore recommended that CCD carry out the following actions:

a. Sensitize and build capacity of all relevant units within ministries, departments, agencies, county governments, private sector entities, and CSOs that are responsible for coordinating climate change actions so that monitoring and reporting can be more streamlined. This will help to address the slow and poor reporting rate, and create awareness about the NCCAP II and importance of reporting. In particular, more work is needed to:
   - Strengthen the climate change units at both national and county levels as they are critical for effective coordination and reporting of climate change activities.
   - Revamp the inter-ministerial committee for the coordination of the NCCAP which played a key role in the first NCCAP reporting cycle but was not active during development of this second report.
   - Encourage counties to develop relevant climate change policies and legislations including resource mobilisation strategies for enhanced implementation of climate actions.

b. Focus the progress report on the actions taken by government, and use case studies to provide examples of climate action implemented by the private sector and civil society.

c. Consider adopting a biennial reporting cycle. As impacts and outcomes of climate change actions can only be realized after a period of time, the government may consider adopting biennial reporting on climate action. This would be consistent with Section 13(7) of the Climate Change Act, 2016 that requires that CCD undertake a biennial review of the implementation of the NCCAP and report to the National Climate Change Council. This timeline would lessen the demand on the part of those expected to report and on CCD in leading the exercise. In addition, it would be more cost-effective on the part of CCD in carrying out the exercise. A two-year reporting timeframe also has the advantage of being aligned with international requirements of submitting biennial updates. Nationally, the 2nd biennial report in the 5-year planning cycle could be used as a baseline in the preparation of the next NCCAP.

d. Invest in a data management system with higher functionality and capabilities. The open-source Kobo software that has been used in the last two years has limitations in terms of what users can do.

e. Explore options to work with the State Department of Planning on joint requests for and reporting of data that pertains to the monitoring of progress on climate change priority actions and achievement of the SDGs.

f. Ring-fence climate finance so that implementation of priority climate activities are not disrupted. This also implies that government and other institutions plan for emergent challenges.

CHAPTER SEVEN

ANNEXES

7.1 Annex 1: List of respondents

Ministries, Departments and Agencies

1. Ministry of Public Service and Gender Affairs: Women Enterprise Fund
2. Ministry of Lands and Physical Planning: State Department of Planning
3. Ministry of Interior: National Crime Research Centre, State Department for Interior and Citizen Services*2
4. Ministry of Health: National Aids Control Council, State Department for Health, Kenyatta National Hospital
5. Ministry of Tourism and Wildlife: Kenya Wildlife Service
6. Ministry of Education: University Education and Research
   - Egerton University
   - Laikipia University
   - Jaramogi University
   - Eldoret University
   - Universities Fund
   - Co-operative University of Kenya
   - Pwani University
   - Bomet University College*2
   - KUCCPS
   - JKUAT
7. Ministry of Environment and Forestry: Kenya Meteorological Department, Climate Change Directorate, Kenya Forest Service, Kenya Marine and Fisheries Research Institute, National Environment Management Authority
8. Ministry of Agriculture: State Dept for Co-operatives, State Dept for Fisheries, Aquaculture and Blue Economy, State Department for Crop Development and Agricultural Research, State Department for Livestock
9. Ministry of ICT: Kenya Institute of Mass Communication
10. Ministry of Water: Regional Centre on Groundwater Resources Research, Training and Education
11. Ministry of Industrialization: Numerical Machining Complex Limited, Kenya Accreditation Service (KENAS)
12. National Treasury and Planning: State Department for Planning, National Government Constituency Development Fund Board (NG-CDFB), The National Treasury
13. Ministry of Devolution and ASALs: National Drought Management Authority
14. Ministry of Energy: KENGEN, State Department of Energy
15. Ministry of Labour and Social Protection: National Employment Authority
16. Ministry of Transport: State Department for Transport

Counties

1. County 4 Tana River
2. County 26 Trans Nzoia*2
3. County 10 Marsabit*2
4. County 39 Bungoma
5. County 34 Kajiado
6. County 32 Nakuru
7. County 37 Kakamega
8. County 11 Isiolo
9. County 35 Kericho
10. County 36 Bomet
11. County 19 Nyeri
12. County 18 Nyandarua
13. County 17 Makueni
14. County 5 Lamu
15. County 9 Mandera
16. County 45 Kisii
17. County 12 Meru
18. County 7 Garissa
19. County 46 Nyamira
20. County 44 Migori
21. County 28 Elgeyo-Marakwet
22. County 29 Nandi*2
23. County 47 Nairobi
24. County 43 Homa Bay
25. County 27 Uasin Gishu
26. County 2 Kwale
27. County 22 Kiambu
28. County 8 Wajir
29. County 23 Turkana
30. County 21 Murang'a
31. County 38 Vihiga
32. County 31 Laikipia
33. County 3 Kilifi
34. County 30 Baringo
35. County 41 Siaya
36. County 42 Kisumu
37. County 13 Tharaka-Nithi

Private Sector & CSOs

- KEPSA: Livingwood Consultants Ltd
- James Finlay (Kenya) Limited
- MESPT
- KEPSA
- CORDIO East Africa

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REPUBLIC OF KENYA

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