



**MINISTRY OF ENVIRONMENT
AND FORESTRY**



**Sixth National Report to the
Convention on Biological Diversity**



MINISTRY OF ENVIRONMENT AND FORESTRY

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Convention on
Biological Diversity

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LIST OF ACRONYMS

ABS	Access and Benefit Sharing	CMS	Convention on the Conservation of Migratory Species of Wild Animals
ABT	Aichi Biodiversity Target	COD	Chemical Oxygen Demand
ACA	Anti-Counterfeit Authority	COP	Conference of the Parties
ACC	African Conservation Centre	CORDIO	Coastal Oceans Research and Development – Indian Ocean
AEWA	African Eurasian Water Birds Agreement	CPBER	Climate Public Expenditure and Budget Review
AFR100	Africa Forest Landscape Initiative	CPER	Comprehensive Public Expenditure Review
AOO	Area of Occupancy	CRE	Climate Relevant Expenditure
ASAL	Arid and Semi-Arid Lands	CRTF	Regional Coral Reef Task Force
ASTGS	Agriculture Sector Transformation and Growth Strategy	CSR	Corporate Social Responsibility
ATAR	Adaptation Technical Analysis Report	CWU	Consumptive Wildlife Utilization
ATVET	Advanced Technical and Vocational Education Training	DANIDA	Danish International Development Aid
BCH	Biosafety Clearing House	DLDD	Desertification, Land Degradation and Drought
BCR	Benefits Cost Ratio	DMC	Domestic Material Consumption
BMU	Beach Management Unit	DRR	Disaster Risk Reduction
BOD	Biological Oxygen Demand	EAC	East African Community
BRAHMS	Botanical Research and Herbarium Management System	EDE	Ending Drought Emergencies
CAIS	Central Artificial Insemination Station (EEZ	Economic Exclusion Zone
CAS	Catch Assessment Survey	EIA	Environmental Impact Assessment
CBD	Convention on Biological Diversity	EMCA	Environment Management and Coordination Act
CBO	Community Based Organization	ENNDA	Ewaso Ng'iro North Development Authority
CCA	Community Conserved Areas	ENSDA	Ewaso Ng'iro South Development Authority
CCA	Climate Change Adaptation	EOO	Extent of Occurrence
CCD	Climate Change Directorate	ESD	Education for Sustainable Development
CCEE	Climate Change Enabling Environment	ESIA	Environmental Strategic Impact Assessment
CCF	Conservation Connectivity Framework	ESV	Ecosystem Service Valuation
CCM	Climate Change Mitigation	EYE	Early Years Education
CDA	Coast Development Authority	FAO	UN Food and Agriculture Organization
CDM	Clean Development Mechanism	FCMA	Forest Conservation Management Act
CFA	The 2010 Nile Basin Cooperative Framework Agreement	FLR	Forest Landscape Restoration
CFA	Community Forest Association	FSD	Financial Sector Deepening
CHM	Clearing House Mechanism	GBIF	Global Biodiversity Information Facility
CHM	Clearing House Mechanism	GCRMN	Global Coral Monitoring Network
CIDP	County Integrated Development Plan	GDP	Gross Domestic Product
CIMES	County Integrated Monitoring and Evaluation System	GERRI	Genetic Resources Research Institute
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	GESIP	Green Economy Strategy and Implementation Plan

GHG	Green House Gases
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH - German Development Agency
GMO	Genetically Modified Organism
GOE	Government Owned Entity
GOK	Government of Kenya
GPA	Global Plan of Action
GRFA	Genetic Resources for Food and Agriculture
ICRI	International Coral Reef Initiative
ICZM	Integrated Coastal Zone Management
ICZM	Integrated Coastal Zone Management
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IFMIS	Integrated Financial Management Information Service
IGAD	Intergovernmental Authority on Drought
ILC	International Law Commission
ILRI	International Livestock Research Institute
IPCC	Intergovernmental Panel on Climate Change
IPOK	Intellectual Property Office of Kenya
IPPC	International Plant Protection Convention
IUCN	The World Conservation Union
KAGRC	Kenya Animal Genetic Resources Centre
KALR	Kenya Agricultural and Livestock Research
KALRO	Kenya Agriculture and Livestock Research Organization
KAM	Kenya Association for Manufacturers
KAM	Kenya Association for Manufacturers
KAPSLMP	Kenya Agricultural Productivity and Sustainable Land Management Project
KBA	Kenya Bankers Association
KCDP	Kenya Coast Development Project
KCSAP	Kenya Climate Smart Agriculture Project
KECOBO	Kenya Copyright Board
KEFRI	Kenya Forestry Research Institute
KEMRI	Kenya Medical Research Institute
KEPHIS	Kenya Plant Health Inspectorate Service

KES	Kenya Shilling
KFS	Kenya Forest Service
KIPI	Kenya Industrial Property Institute
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KIRDI	Kenya Industry Research and Development Institute
KLRC	Kenya Law Reform Commission
KMD	Kenya Meteorological Department
KMFRI	Kenya Marine and Fisheries Research Institute
KNBS	Kenya National Bureau of Statistics
KSIF	Kenya Strategic Investment Framework
KSTCIE	Kenya Standing Technical Committee on Imports and Exports
KTDA MS	Kenya Tea Development Agency Management Service
KVDA	Kerio Valley Development Authority
KWS	Kenya Wildlife Service
KWTA	Kenya Water Towers Agency
LA	Lusaka Agreement
LADA	Land Degradation Assessment
LAPPSET	Lamu Port Southern Sudan - Ethiopia Transport (LAPSSET) Corridor Flagship Project
LBDA	Lake Basin Development Authority
LCDA	LAPSSET Corridor Development Authority
LDN	Land Degradation Neutrality
LECRD	Low Emission and Climate Resilient Carbon Development Project
LMMA	Locally Managed Marine Areas
LMO	Living Modified Organism
LULC	Land Use, Land Use Change
LULUCF	Land Use, Land Use Change and Forestry.
LVBC	Lake Victoria Basin Commission
LVEMP	Lake Victoria Environmental Management Programme
LVFO	Lake Victoria Fisheries Organization
LVWATSAN	Lake Victoria Water and Sanitation
MASMA	Marine for Science Management Program
MAT	Mutually Agreed Terms
MCDA	Ministries, Counties, Departments and Agencies

MCS	Monitoring, Control and Surveillance
MEA	Multilateral Environmental Agreement
MEF	Ministry of Environment and Forestry
MEWNR	Ministry of Environment, Water and Natural Resources
MMMB	Miti Mingi Maisha Bora Project
MoALF	Ministry of Agriculture, Livestock and Fisheries
MoDP	Ministry of Devolution and Planning
MPA	Marine Protected Areas
MTA	Material Transfer Agreement
MTAR	Mitigation Technical Analysis Report
MTEF	Medium Term Expenditure Framework
MTP	Medium Term Plan
NACOSTI	National Council for Science, Technology and Innovation
NAMA	Nationally Appropriate Mitigation Action
NBC	Kenya National Biosafety Committee
NCA	Natural Capital Accounting
NCCAP	National Climate Change Action Plan
NCCC	National Climate Change Council
NCCRC	National Climate Change Resource Centre
NCRRP	National Coral Reef Restoration Protocol
NDC	Nationally Determined Contribution
NDMA	National Drought Management Authority
NDVI	
NEMA	National Environment Management Authority
NFP	National Forest Programme
NIE	National Implementing Entity
NIMES	National Integrated Monitoring and Evaluation System
NLC	National Land Commission
NMK	National Museums of Kenya
NSE	Nairobi Securities Exchange
NTTCC	National Technical Coordination Committee
NTV	Nation Television Network
NWF	Nakuru Wildlife Forum
PA	Protected Areas
PCPB	Pest Control and Poisons Board

PELIS	Plantation Establishment and Livelihood Improvement Scheme
PES	Payment for Ecosystem Services
PFM	Participatory Forest Management
PIC	Prior Informed Consent
POPs	Persistent Organic Pollutants
RAS	Recirculation Aquaculture Systems
RDA	Regional Development Authorities
REDD+	Reducing Emissions from Deforestation and Forest Degradation and enhancing conservation, sustainable management and carbon stocks in Developing Countries.
ROAM	Restoration Opportunities Assessment Methodology
SA	Stock Assessment
SCP	Sustainable Consumption and Production
SDG	Sustainable Development Goal
SEA	Strategic Environmental Assessment
SEA	Strategic Environmental Assessments
SEEA	Strategic Environmental Economic Accounting
SLEEK	System for Land Based Emissions Estimation in Kenya
SLM	Sustainable Land Management
SoE	State of Environment
SPS	WTO Agreement on Sanitary and Phytosanitary Services
STARCK	Strengthening Adaptation and Resilience to Climate Change in Kenya
STI	Science, Technology and Innovation
TARDA	Tana and Athi Rivers Development Authority
TDN	Total Dissolved Nitrogen
TED	Turtle Exclusion Device
TEV	Total Economic Value
TNC	The Nature Conservancy
TRB	Tana River Basin
UNCCD	United National Convention to Combat Desertification
UNDP	United National Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change

UNOPs	United Nations Office for Project Services
USAID	United States Aid for International Development
VANTAGE	Valuation and Accounting of Natural Capital for Green Economy
WARA	Water Resources Authority
WASH	Water, Sanitation and Health

WDPA	World Database on Protected Areas
WIOMSA	Western Indian Ocean Marine Science Association
WIOSAP	Western Indian Ocean Strategic Action Program
WTO	World Trade Organization
WWF	WorldWide Fund for Nature

FOREWORD



**Keriako Tobiko, CBS, SC
Cabinet Secretary**

Kenya is home to an array of bio-geographical zones spread along altitudinal gradients from the coast to the snow-capped peaks of Mt. Kenya, reaching over 5000m above sea level. Globally Kenya is classified among the ten mega-biodiverse nations. The foundation for Kenya's vertebrate and invertebrate diversity is in the richness and abundance of its plant life and bio-geographic spread.

The biodiversity range of plants, animals, and microorganisms provides for the enormous diversity of genes in these species found in the country's ecosystems ranging from deserts, rainforests and coral reefs, all part of a biologically diverse Earth. This biodiversity is of immense socio-economic and cultural value to Kenyans and the world at large.

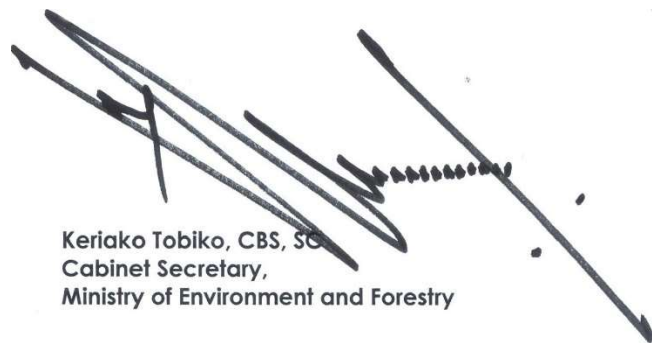
While many of our communities have strived to use biological diversity sustainably and lived in harmony with nature, the intensity of exploitation has increased resulting in negative impact on ecosystems. Despite government efforts to improve the management and conservation of environment and natural resources, key challenges such as increased urbanization, impacts of climate change, increasing population, expansion of agriculture and settlements into fragile water towers ecosystems have led to biodiversity loss and unsustainable land-use practices thereby posing serious threats to the attainment of a sustainable, clean and secure environment.

At the thirteenth meeting of the Conference of the Parties (COP 13) to the CBD, the Sixth National Report (6NR) guidelines and reporting templates (Decision XIII/27) were adopted. Based on the guidance and available resources, Kenya has prepared its' 6NR using global and national indicators and the best available data to monitor the indicators on biodiversity status and trends. This report provides an up-to-date reflection on the current biodiversity status and trends; the progress in achieving the biodiversity targets; and contribution of the country's actions to achieving the global ABTs and implementing the CBD Strategic Plan. Kenya adopted the global targets in relevant sectors by undertaking actions that contributed to the achievement of the Aichi biodiversity targets in plant and animal diversity conservation and habitat restoration. The Constitution of Kenya (2010) gives a lot of emphasis on environmental conservation and sustainable development. Various measures are in place to support the implementation of the

CBD Strategic Plan through Environment, Water and Sanitation Sector Plan; SDGs in Kenya; adoption Natural Capital Report; the 10% Tree Cover Target, Blue Economy and Climate Change.

The report highlights the importance of financial resource mobilization to support the implementation of various biodiversity initiatives and programs. The government has provided budgetary support for funding of all sectors and creation of specialized funds such as the Ministry of Environment and Forestry's Net fund, a Resource mobilization of priority investment area linked to Biodiversity. The government has taken steps to take stock of the contribution by development partners towards biodiversity.

The Ministry has adopted Integrated approach towards GEF programming targeting biodiversity, climate change and land degradation. This report also provides information relevant to assessment of progress in addressing aspects of other international commitments, including the U.N. Sustainable Development Goals (SDGs) reporting and other biodiversity-related conventions. Biodiversity loss threatens loss of livelihoods and must be addressed for sustainability. The government will continue to implement enabling policies and provide requisite resources to support conservation efforts. The country commits to meet its obligations to protect, conserve and sustainably use its biodiversity while ensuring fair and equitable sharing of the benefits accrued.



Keriako Tobiko, CBS, SC
Cabinet Secretary,
Ministry of Environment and Forestry

ACKNOWLEDGEMENT



**Dr. Chris Kiptoo, CBS
Principal Secretary**

The Ministry of Environment and Forestry acknowledges the enormous contribution from various institutions and experts involved in the preparation of the 6th National report to the Convention on Biological Diversity (CBD). The report takes stock of the achievements, assesses progress on implementation of the Aichi targets and identifies the challenges and gaps in implementation of the CBD in Kenya.

The 6th National report was developed through a consultative process that involved government ministries, departments and agencies, Council of governors, non-governmental organizations, development partners and the private sector. Contributions from these institutions provided policy guidance, technical and logistical support towards the preparation of this report.

The report was prepared with financial and technical support from GEF through UNEP. Additional support provided by the Nature Conservancy and other stakeholders is highly appreciated.

The multi-sectoral/ agencies technical committee that spearheaded the development of this report coordinated by the department of Multilateral Environmental Agreements (MEAs) is duly acknowledged. Your commitment was unmatched and your effort is highly appreciated.

A handwritten signature in blue ink, appearing to read 'Dr. Kiptoo', written over a horizontal line.

**Dr. Chris Kiptoo, CBS
Principal Secretary
MINISTRY OF ENVIRONMENT AND FORESTRY**

EXECUTIVE SUMMARY

Kenya has submitted all National Reports to the CBD, the last one being the 5th National Report detailing the progress and achievements made in implementing the Aichi Biodiversity Targets (ABTs). While the report captured many success stories and improvements made in biodiversity protection and restoration there were equally many areas of concern raised and recommendations made. It was for instance noted that while significant progress had been made in the implementation of the Convention, CBD Strategic Plan and the Aichi targets, the speed of implementation was rather low, heavily affected by the country's inadequate capacity with respect to its financial, human, scientific, technical and technological needs. However, on a positive note, the report indicated that Kenya has ratified the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits arising from their Utilization.

This time round, Kenya has prepared the sixth National Report using global and national indicators and available data to monitor the indicators on biodiversity status and trends. The report preparation process effectively engaged key stakeholders to develop reports on progress towards achieving each Aichi Biodiversity Target. This report seeks to provide an up-to-date reflection on the current biodiversity status and trends; the progress in achieving the national targets; the contribution of the country's actions to achieving the global Aichi Biodiversity Targets (ABTs) and implementing the CBD Strategic Plan for 2011-2020; as well as assessment of progress in addressing aspects of other international commitments, including the U.N. Sustainable Development Goals (SDGs).

The report acknowledges that Kenya has an array of bio-geographical zones spread along latitudinal placement and altitudinal gradients from the coast to the snow-capped peaks of Mt. Kenya, reaching over 5000m above sea level. Globally Kenya is classified in the second group of mega-biodiverse nations world Conservation Union and adopted by the CBD. The country marine habitat as well as fresh water and saline lakes which further enhances its biodiversity. The foundation for Kenya's vertebrate, invertebrate and microorganism diversity is the richness and abundance of its plant life and bio-geographic spread. The country is endowed with diverse ecosystems and habitats that are home to unique and diverse flora, fauna and microbes. The effects of climate change, increase in human population and the high dependence on the natural capital exert pressure on the ecosystems, leading to over-exploitation and degradation.

Despite the efforts put in place by the Government, land degradation and ecosystem destruction continue to be a major concern. This is manifested in the increasing siltation of water bodies and rivers. Further, waste management, air and water pollution remain major challenges in most of our urban centers. Rapid population growth and urbanization has continued to increase waste generation leading to unsustainable disposal. Efforts to improve the management and conservation of environment and natural resources face several key challenges including impacts of climate change, increasing population, as well as expansion of agriculture and settlements into fragile and water towers ecosystems. These are causing unprecedented biodiversity loss and unsustainable land-use practices thereby posing serious threats to attainment of a clean and secure environment.

Kenya has various measures in place to support the implementation of the CBD Strategic Plan. These include the Constitution of Kenya 2010; Vision 2030 and Medium-Term Plans II and III; the Environment, Water and Sanitation Sector Plan; strategies to implement SDGs in Kenya; Biodiversity Related Convention ratification and implementation; policy on 10% Tree Cover Target and establishment of a Blue Economy (BE) sector.

The 2010 Kenyan constitution gave a lot of emphasis on environmental conservation and sustainable development. The Kenya Constitution 2010 paved the way for Strengthening Environmental Governance and mainstreaming key elements of the CBD Strategic Plan into the national legal framework. This led to the review and amendment of the Environmental Management and Coordination Act 1999, and enactment of the Wildlife Conservation and Management Act 2013, the Forest Conservation and Management Act, 2016, Natural Resources (Classes of Transactions Subject to Ratification) Act 2016, Water Act 2016, amendment of the Seeds and Plant Varieties Act 2016 and Climate Change Act, 2016. Other instruments developed include National Climate Change Action Plan, Green Economy Strategy and Implementation Plan, National Adaptation Plan, National Water Master Plan 2030, National Forest Programme 2016-2030 and the Kenya Strategic Implementation Framework for Sustainable Land Management 2017-2027, among others. The National Land Use Policy 2017 was developed to provide for legal, administrative, institutional and

technological framework that ensure optimal utilization and enhanced productivity of land related resources in a sustainable and desirable manner; at national, county and community levels. The Policy is premised on the philosophy of economic productivity, social responsibility, environmental sustainability and cultural conservation.

Kenya's Vision 2030 and the MTPs provide the overarching policy framework for the implementation of the CBD Strategic Plan and its Aichi Biodiversity Targets for Kenya. Kenya's Vision 2030 aims to deliver a "newly industrializing, upper middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment". This long-term national development plan is being implemented through five (5), medium term plans and 25 annual budgets. The current Medium-Term Plan (MTP III) 2018-2022 succeeds the Second MTP (MTP II) 2013-2017 and the First MTP (2008-2012). The Social Pillar of Kenya Vision 2030 demands development in a clean secure environment for all citizens as essentially guaranteed by the National Constitution 2010 and the Environmental Management and Coordination Act (EMCA) and its 2015 revision- the Environmental Management and Coordination (Amendment) Act.

In establishing the extent to which the SDGs converge with Kenya's development objectives as set out in the Vision 2030 Kenya mapped each of the 17 goals with Vision 2030 during the second Medium Term Plan. The mapping did indicate that the Kenya Vision 2030 is well aligned to the global development framework and its implementation is directly linked towards achieving both the Vision and SDGs, with the timeframe for the Vision 2030 coinciding with that of the SDGs. This was an opportunity for Kenya as progress towards the national priorities as spelt out in the Vision are matched with progress towards the SDGs. Since vision 2030 is implemented at both the national and sub national levels through five-year Medium-Term Plans and County Integrated Development Plans respectively, the SDGs have thus been mainstreamed at these two levels. This is further augmented by the Kenya Constitution 2010 which requires that any treaty ratified by Kenya will form part of national law. As a result, implementation of the constitution fast tracks the achievement of the SDGs.

Under all the three MTPS, the Sector has focused efforts to conserve and manage forests, wildlife resources, water catchments, and wetlands; achieve land degradation neutrality besides promoting green economy and strengthen waste management and pollution control measures as well as enhancing the *ex situ* facility for the conservation of Kenya's genetic resources, among other Programmes. Sustainable management of water resources has continued to be critical to the realization of objectives of the social pillar in Kenya Vision 2030. In this regard, water resources management, and sanitation as well as management of trans-boundary water resources have been enhanced. Further, the Sector has aligned activities in response to the climate change Act 2016.

As signatory to various biodiversity related conventions Kenya has developed Instruments to effect their implementation. For example, Kenya has developed the National Action Plan (NAP) to the UNCCD and the "National Climate Change Action Plan" (NCCAP) 2013–2017 and 2018–2022. These address key priorities and elements of the CBD Strategic Plan. In line with the NCCAP, Kenya has further developed the Climate Smart Agriculture Strategy and Kenya Climate Smart Agriculture Implementation Framework, on which basis the Kenya Climate Smart Agriculture Project (KCSAP) is being implemented. In regard to the implementation of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), the country through Articles 11: 3b and 69: 1c Kenya Constitution 2010, has recognised farmers' rights to produce, save, exchange and sell farm saved seed, as provided for in the

In Kenya, forest restoration has been of high priority on its agenda as reflected in a number of legislations and policy documents. In addition, the Government of Kenya has put in place several high-level initiatives and Subsidiary legislation that are strongly linked to restoring lands and their associated ecosystem services. Further, the Government through Executive Order No. 1 of 2018 expanded the mandate of the State Department for Irrigation to include the function of Land Reclamation to reverse Land Degradation and ensure Land Degradation Neutrality. In November 2018, the Government committed 5.1 Million Hectares of land under afforestation to reclaim degraded forested land under the Pan African Action Agenda on Eco-system restoration. In June 2018, the Head of Public Service issued a circular to all ministries on the inclusion of tree planting in Corporate Social Responsibility (CSR) activities.

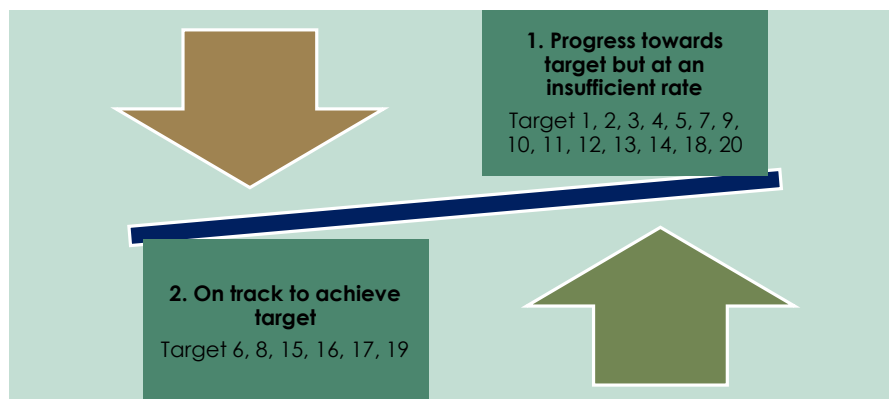
Further, the government has developed the Strategy to Increase the Country's Tree Cover to 10%. The strategy provides for a series of interventions towards achieving and maintaining the 10% tree cover by 2022. The strategy presents an opportunity among others to achieve national and global commitments with respect to climate change, biodiversity conservation, and land degradation. The 5.1 million Ha referred to

above will also contribute to the Africa Forest Landscape Initiative (AFR100), 50% reduction of green-house gases from the forest sector by 2030 as part of its Nationally Determined Contribution (NDC) to climate change, and to achieve land degradation neutrality by 2030 as a commitment to United Nations Convention to Combat Desertification (UNCCD),

The Blue Economy (BE) sector is one of the emerging economic frontiers that is expected to significantly contribute to Kenya's economic growth. In recognition of the sector's potential during the Third Medium Term Plan, 2018-2022, the Blue Economy has been added as the eighth priority sector under the Economic Pillar. The President established a Blue Economy Task Force in 2017 to implement Blue Economy objectives in sectors such as fisheries and aquaculture, maritime transport, culture and tourism, environmental conservation and oil and mining. Underscoring how much the BE has become a priority for Kenya, the government hosted the first-ever global 'Sustainable Blue Economy' conference on 26 to 28 November 2018 with Japan and Canada. Over 16,000 participants from 184 countries attended the conference, which resulted in the Nairobi Statement of Intent on Advancing a Sustainable Blue Economy. The Fisheries Management and Development Act 2016 provides for the conservation, management and development of fisheries and other aquatic resources to enhance the livelihood of communities that depend on fishing. It gives guidance on the import and export trade of fish and fish products, fish quality and safety among other provisions that support sustainable utilization of marine products in Kenya.

In MTP III, the Climate Change Thematic Plan 2018-2022 addresses the country's vulnerability to climate variability and change, supports efforts towards the achievement of Kenya Vision 2030, the Paris Agreement, the Sustainable Development Goals and Africa's Agenda 2063. The adaptation actions identified by the sectors for the 2018–2022 planning period focus on Land degradation – terrestrial (forests, wetlands, rangelands, agricultural land); and Marine and Coastal ecosystem degradation – e.g. mangrove forests, coral reefs, sea grass beds, beaches, deltas, sea water intrusion, and coastal erosion.

Kenya is on track to achieving six Aichi Targets while progress is being made for on 14 targets though at an insufficient rate as illustrated below. Further details are provided in the report summary section and section II of the template.



Based on the progress made in implementing the Aichi target described in Section III, the contribution of Kenya in achieving the global Aichi Targets is presented for each target based on the template provided. Further, the relevant SDG Goals, targets and indicators have been elaborated for each target. Reference has been made to Kenya's National SDG reports and Vision 2030 reports, amongst other sources to enhance coherence in reporting.

In regard to the Plant Conservation Strategy, many Programmes and projects have been undertaken by key institutions such as the National Museums of Kenya, Kenya Forest Service, Kenya Wildlife Service, Kenya Agriculture Livestock Research Organization and Kenya Forest Research Institute, among others address Target 1-16. A summary is presented on some of the relevant actions under this section. Additional information has been provided for section six which is optional.

The Updated Profile for Kenya has been prepared by the MEAs Directorate based on this report and will be refined by the CHM at NEMA for updating the Kenyan Country Profile as approved.

RECOMMENDATIONS:

1. **OPTIMISE IMPLEMENTATION:** Based on the CBD Strategic Plan 2011-2020, Kenya has made progress in the adoption and implementation of the Aichi targets as exemplified in the implementation of the Environment, Agriculture, Water and Sanitation Sector Plans. However, there is need to plan, track, measure progress and evaluate impact from a CBD perspective.
2. **ALIGN AND MAINSTREAM:** The Vision 2030 and SDG implementation processes have mainstreamed various aspects of the CBD Strategic Plan 2011-2020. There is a need to align and anchor the NBSAP with these implementation frameworks and in turn mainstream it at county level, monitoring and evaluation and resource mobilization. At national level and county level, there is need to link CBD reporting to the national frameworks and process especially linked to the SDG reporting.
3. **TAKE ADVANTAGE OF ENABLING CONTEXT:** Kenya has focused in the 2011-2020 decade on reviewing the policy and legal framework to align with the New Kenya constitution 2010. This has provided a good opportunity to address the three objectives of the CBD within the legal and policy framework in Kenya. Kenya now has an opportunity in the decade 2021-2030 to fast track implementation based on this new foundation.
4. **PARTNER, COORDINATE AND COMMUNICATE:** There is a wide range of actors and stakeholders in Kenya addressing various aspects of the CBD Strategic Plan. However there has been inadequate coordination, communication and information sharing. There is an opportunity to create a biodiversity forum to enable improved and effective implementation and enhance efficient use of resources. This will ease monitoring and reporting.
5. **UPDATE NBSAP 2021-2030:** This report provides a good baseline for reviewing the NBSAP in line with the Post 2020 framework. It also provides a good basis for refining the NBSAP 2020-2030 aligned to the Vision 2030 planning process, the SDG implementation and many other policy frameworks in Kenya which have a 2030 timeline.
6. **ENHANCE RESOURCE MOBILIZATION FOR BIODIVERSITY:** A Biodiversity Budget and Expenditure Review is recommended to define the resources available, identify gaps and opportunities and enhance resource mobilization.
7. **DEVELOP A BIODIVERSITY POLICY:** The stakeholders in preparing this report noted that the absence of a Biodiversity Policy may have limited the effective implementation of the various biodiversity related legislations. Hence, to build on gains made in implementing the Strategic Plan 2020 and embark on the Post 2020 Global Biodiversity Framework, the timing may just be right to develop a Biodiversity Policy for Kenya.

SUMMARY VERSION OF THE MAIN REPORT PRESENTING KEY HIGHLIGHTS.

At the thirteenth meeting of the Conference of the Parties (COP 13) to the CBD, the Sixth National Report (6NR) guidelines and reporting templates (Decision XIII/27) were adopted. Based on the guidance and available resources, Kenya has prepared its' 6NR using global and national indicators and the best available data to monitor the indicators on biodiversity status and trends. The process effectively engaged key stakeholders to develop reports on progress towards achieving each Aichi Biodiversity Target. This included stakeholder consultations, stakeholder write shops, key expert consultations, literature review and peer review. The Kenya 6NR seeks to provide an accurate and up-to-date reflection on the current biodiversity status and trends; the progress in achieving the national targets; and contribution of the country's actions to achieving the global ABTs and implementing the CBD Strategic Plan for 2011-2020. This report also provides information relevant to assessment of progress in addressing aspects of other international commitments, including the U.N. Sustainable Development Goals (SDGs) reporting and other biodiversity-related conventions. The report is structured using the following outline provided by the CBD:

- i. Information on the targets being pursued at the national level,
- ii. Implementation measures taken, assessment of their effectiveness, associated obstacles and scientific and technical needs to achieve national targets,
- iii. Assessment of progress towards each national target,
- iv. Description of the national contribution to the achievement of each global ABT,
- v. Description of the national contribution to the achievement of the targets of the Global Strategy for Plant Conservation (this section is optional),
- vi. Additional information on the contribution of indigenous peoples and local communities to the achievement of the ABT if not captured in the sections above (this section is optional); and
- vii. Updated biodiversity country profiles.

The key highlights of the report are presented below.

INTRODUCTION

Kenya has an array of bio-geographical zones spread along altitudinal gradients from the coast to the snow-capped peaks of Mt. Kenya, reaching over 5000m above sea level. Globally Kenya is classified in the second group of mega-biodiverse nations. The foundation for Kenya's vertebrate and invertebrate diversity is the richness and abundance of its plant life and bio-geographic spread. The country is endowed with diverse ecosystems and habitats that are home to unique and diverse flora, fauna and microbes. The effects of climate change, increase in human population and the high dependence on the natural capital exert pressure on the ecosystems, leading to over-exploitation and degradation. Despite the efforts put in place by the Government, land degradation and ecosystem destruction continue to be a major concern. This is manifested in the increasing siltation of water bodies and rivers. Further, waste management, air and water pollution remain major challenges in most of our urban centers. Rapid population growth and urbanization has continued to increase waste generation leading to unsustainable disposal. Despite the efforts to improve the management and conservation of environment and natural resources, key challenges include impacts of climate change, increasing population, expansion of agriculture and settlements into fragile water towers ecosystems. This leads to biodiversity loss and unsustainable land-use practices thereby posing serious threats to the attainment of a clean and secure environment.

SECTION I. INFORMATION ON THE TARGETS BEING PURSUED AT THE NATIONAL LEVEL

Kenya has not adopted national biodiversity targets and is reporting progress using the Aichi Biodiversity Targets for reference.

SECTION II. IMPLEMENTATION MEASURES TAKEN, ASSESSMENT OF THEIR EFFECTIVENESS, ASSOCIATED OBSTACLES AND SCIENTIFIC AND TECHNICAL NEEDS TO ACHIEVE NATIONAL TARGETS.

While Kenya has not established national targets, various measures are in place to support the implementation of the CBD Strategic Plan. These include the Vision 2030 and Medium-Term Plans II and III; the Constitution of Kenya 2010; Environment, Water and Sanitation Sector Plan; SDGs in Kenya; Biodiversity Related Convention; the 10% Tree Cover Target, Blue Economy and Climate Change. Their contribution is summarized below.

(i) The Kenyan Constitution 2010

The 2010 Kenya constitution gave a lot of emphasis to environmental conservation and sustainable development. The Preamble is emphatic and states that "We, the people of Kenya –Respectful of the environment, which is our heritage, and determined to sustain it for the benefit of future generations. Article 2(5) states that the general rules of international law shall form part of the law of Kenya. For the purposes of protection of the environment several principles of international environmental law which act as a guide on development of environmental legislation have been identified. Among the said principles are the polluter pays principle; public participation; sustainability; inter & intra- generational equity; prevention; and precautionary principle.

Chapter 5 on Land and Environment emphasizes that the state has an obligation to protect the environment as well as protect the rights of the people regarding their dependence on and use of the environment. Article 42 under Chapter 4 on the Bill of Rights guarantees every person a right to a clean and healthy environment, which includes the right to (a) to have the environment protected for the benefit of present and future generations through legislative and other measures, particularly those contemplated in Article 69; and (b) to have obligations relating to the environment fulfilled under Article 70.

Article 69 of the Kenyan constitution outlines the obligations of the state in protecting the environment. These include ensuring sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits, aim to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya, protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities, encourage public participation in the management, protection and conservation of the environment, protect genetic resources and biological diversity, establish systems of environmental impact assessment, environmental audit and monitoring of the environment, and eliminate processes and activities that are likely to endanger the environment; and utilize the environment and natural resources for the benefit of the people of Kenya.

The Constitution paved the way for Strengthening Environmental Governance and mainstreaming key elements of the CBD Strategic Plan into the national legal framework. This led to the review and amendment of the Environmental Management and Coordination Act 1999, enactment of the Wildlife Conservation and Management Act 2013, the Forest Conservation and Management Act, 2016, Natural Resources (Classes of Transactions Subject to Ratification) Act 2016, Water Act 2016, the Seeds and Plant Varieties amendment Act 2016, and Climate Change Act, 2016. Other instruments developed include National Climate Change Action Plan, Green Economy Strategy and Implementation Plan, National Adaptation Plan, National Water Master Plan 2030, and National Forest Programme 2016-2030 and the Kenya Strategic Implementation Framework for Sustainable Land Management 2017-2027, among others. During the review period, the National Environment Management Authority (NEMA) was accredited as a National Implementing Entity for the Green Climate Fund. The National Land Use Policy 2017 was developed to provides for legal, administrative, institutional and technological framework for that ensure optimal utilization and enhanced productivity of land related resources in a sustainable and desirable manner; at national, county and community levels. The Policy is premised on the philosophy of economic productivity, social responsibility, environmental sustainability and cultural conservation.

(ii) Vision 2030

Kenya's Vision 2030 and the MTPs provide the overarching policy framework for the implementation of the CBD Strategic Plan and its Aichi Biodiversity Targets for Kenya. Kenya's Vision 2030 aims to deliver a "newly industrializing, upper middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment". This long-term national plan is being implemented through five (5), medium term plans and 25 annual budgets. The current Medium-Term Plan (MTP III) 2018-2022 succeeds the Second MTP

(MTP II) 2013-2017 and the First MTP (2008-2012). The Social Pillar of Kenya Vision 2030 demands development in a clean secure environment for all citizens as essentially guaranteed by the National Constitution 2010 and the Environmental Management and Coordination Act (EMCA) and its 2015 revision-the Environmental Management and Coordination (Amendment) Act.

One of the key achievements of the MTP II was the successful implementation of the devolved system of government. This saw the establishment of 47 County Governments with the relevant enabling laws in place and the transfer of devolved functions which give mandate to county governments to manage and conserve their natural resources. The key objective of MTP III is to implement policies, Programmes and projects that facilitate attainment of the Sustainable Development Goals (SDGs), including SDG 15 on environmental sustainability. All Ministries, Counties, Departments and Agencies (MCDAs) report on the relevant monitoring indicators identified by the Kenya National Bureau of Statistics (KNBS).

Noting that 42% of Kenya's GDP and 70% of the employment is derived from natural capital, mainly in the sectors of agriculture, forestry, mining, fisheries and tourism, the development of a national green economy strategy was identified as a priority under the MTP II to support implementation of Vision 2030. A Green Economy Assessment was undertaken in 2014 which proposed the alignment of the Green Economy across the social, economic and environmental spheres of society. The Green Economy Strategy and Implementation Plan (GESIP) notes that integrating natural capital into economic growth poses a challenge towards transitioning to Green Economy. Kenyan prices and policy regime do not fully account for the external costs associated with technologies, products and practices that are environmentally friendly. As such, the thematic area 3 on Sustainable Natural Resource Management focuses on the economy-environment nexus to optimize contribution of Kenya's natural resource to the economy, industrialization and livelihoods. It encompasses agriculture, forestry, water, wildlife, land use and extractive industries. GESIP seeks to address the drivers of change in both biological and physical aspects of natural resources emphasizing the need for decoupling development from natural resources management and conservation of Kenya's natural capital. In order to address the degradation and loss of natural resources, the tools under this thematic area include spatial planning and targeted periodic valuation of natural capital, payment for ecosystem services and environmental accounting to be scaled up.

In order to realize the aspirations of Vision 2030 goals, the government has made efforts to mainstream gender into government policies, plans, budgets and Programmes as an approach geared at achieving gender equity in all aspects of society. Moreover, the government has sought to increase the participation of women through the affirmative action policy of at least 30 per cent representation in all economic, social and political decision-making processes and platforms as well as through economic empowerment. In addition, the government is seeking to ensure that the country upholds the basic rights of children in line with internationally recognised standards; and produces a globally competitive labour force inclusive of young people at all levels, through youth empowerment Programmes and policies.

(iii) SDG Implementation:

Kenya found necessary to establish the extent to which the SDGs converge with Kenya's own development objectives as set out in the Kenya Vision 2030 and therefore identify which SDGs are relevant to Kenya's development context. This was done by mapping each of the 17 goals with Vision 2030 within the second Medium Term Plan. The mapping indicated that the Kenya Vision 2030 is well aligned to the global development framework and its implementation is directly linked towards achieving both the Vision and SDGs.

The timeframe for the Vision 2030 coincides with the timeframe for the SDGs. This was an opportunity for Kenya as progress towards the national priorities as spelt out in the Vision are matched with progress towards the SDGs. Since vision is implemented at both the national and sub national levels through five-year Medium-Term Plans and County Integrated Development Plans respectively, the SDGs have been mainstreamed at these two levels. Further, the Constitution also establishes that any treaty ratified by Kenya will form part of national law. As a result, the implementation of the new constitution fast tracks the achievement of the SDGs.

The government is responsible for tracking and reviewing of the SDGs. This is ~~be~~ done both at the national and sub national levels. At the national level, monitoring and evaluation of policies, projects and Programmes outlined in MTP is done through National Integrated Monitoring and Evaluation System (NIMES)

which was established in 2004. It employs a result-based monitoring framework and provides important feedback to policy makers and the general public on the national government's performance.

The Kenya National Bureau of Statistics (KNBS) has mapped out 128 out of the 230 SDG Global Indicators, whose data can be available within the short term and work is going on to increase the number of indicators within the next five years. The KNBS has identified the period 2009-2014 as the base period for the SDGs. This is based on data availability and the priorities of the country. The indicators will be used to track and report on the process and progress of the implementation.

The National Treasury and Planning has strengthened the National Integrated Monitoring and Evaluation Systems (NIMES) and County Integrated Monitoring and Evaluation Systems (CIMES), including preparation of regular progress reports on the Plan implementation. The County Integrated Development Plans (CIDPs), County Spatial Plans and Ministries, Departments and Agencies (MDAs) Strategic Plans (2018-2022) have been aligned to the MTP III and the National Spatial Plan.

(iv) Implementation of Biodiversity related Conventions

Kenya is a signatory to and is implementing various biodiversity related conventions. For example, Kenya has developed the National Action Plan (NAP) to the UNCCD and the "National Climate Change Action Plan" (NCCAP) 2013–2017 and 2018–2022. These address key priorities and elements of the CBD Strategic Plan. The Climate Change Act, No. 11 of 2016, requires the Government to develop an Action Plan to guide the mainstreaming of climate change into sector functions. In line with the NCCAP, Kenya developed the Climate Smart Agriculture Strategy and Kenya Climate Smart Agriculture Implementation Framework on which basis the Kenya Climate Smart Agriculture Project (KCSAP) is being implemented. The Climate Change Act, 2016, establishes the National Climate Change Council which is chaired by the President. The Council provides an overarching National Climate Change Coordination Mechanism among other functions.

Kenya is implementing the CITES and has designated the Kenya Wildlife Service (KWS) as CITES Management Authority and the National Museums of Kenya as the CITES Scientific Authority as required by the Convention. The Wildlife Conservation and Management Act, 2013; the East African Customs and Management Act, 2004 (Rev. 2008); EMCA, 2015; are among the key legislations giving guidance on penalties, seizures and confiscation, and permitting with respect to wildlife conservation. In 2014, the Government enhanced the penalties under the Wildlife Conservation and Management Act, 2013, to curb the illegal trade in endangered species.

Kenya has made various proposals at the CITES COP such as on issues of engagement of rural communities in CITES processes and how issues of CITES and livelihoods should be considered under the CITES framework. Kenya has enhanced law enforcement to protect species such as the East African Sandalwood, Pangolin and Cheetah whose populations continue to decline as a result of Illegal Wildlife Trade.

(v) Environment, Water and Sanitation Sector Plans

The overall goal of the Environment, Water, Sanitation and Regional development Sector is to enhance "development in a clean, safe and sustainable environment, natural resources and access to water and sanitation services for all Kenyans". This sector consists of Environment, Natural Resources, Water, Irrigation and Regional Development sub-sectors. In the Medium-Term Planning process, national priorities related to biodiversity are primarily addressed through this sector.

Under all the three MTPS, the Sector has focused efforts to conserve and manage forests, wildlife resources, water catchments, and wetlands; achieve land degradation neutrality besides promoting green economy and strengthen waste management and pollution control measures among other Programmes. Sustainable management of water resources has continued to be critical to the realization of objectives of the social pillar of Kenya Vision 2030. In this regard, water resources management, and sanitation as well as management of trans-boundary water resources have been enhanced. Further, the Sector has aligned activities in response to the climate change Act of 2016.

The Sector Plan has target six strategic thrusts namely: Improved Environment Management and Conservation, Sustainable management and development of Water resources, Improved access to safely managed water and sanitation, Forest Conservation & Management, Wildlife Conservation & Management and Improved land productivity for enhanced food security in the Sector.

(vi) Meeting the 10% tree cover target

The Kenya constitution 2010 requires that the country maintains a minimum of 10% forest cover. In its reporting to the UNFCCC as part of REDD+, the Ministry of Environment and Forestry in 2019 reported a loss of 103,368ha in 2018. To reverse this trend, forest restoration has been of high priority on the government's agenda as reflected in a number of different legislations and policies. In addition, the Government of Kenya has put in place several high-level initiatives and subsidiary legislations that are strongly linked to restoring lands and their associated ecosystem services. For instance, the Government through Executive Order No. 1 of 2018 expanded the mandate of the State Department for Irrigation to include the function of Land Reclamation so as to reverse Land Degradation and ensure Land Degradation Neutrality. Similarly, in November 2018, the Government committed 5.1 Million Hectares of land under afforestation to reclaim degraded forested land under the Pan African Action Agenda on Eco-system restoration. Another notable initiative is the circular issued in June 2018, by the Head of Public Service to all ministries on the inclusion of tree planting in Corporate Social Responsibility (CSR) activities.

The Forest Conservation and Management Act 2016; Section 6(3)(a)(iii), highlights the need to develop "Programmes for achieving and maintenance of a tree cover of at least 10% of the of Kenya's land area". Section 37(1) requires every County Government to establish and maintain arboreta and green zones or recreational parks for use by persons residing within its area of jurisdiction. In this regard, every County shall cause housing estate developers within its jurisdiction to make provision for the establishment of green zones at the rate of at least 5% of the total land area of any housing estate intended to be developed.

The National Forest Programme (2016–2030) builds on the constitutional values and principles of the Kenya Vision 2030, and advances forest development to 2030. It seeks to Increase tree cover and reverse forest degradation through sustainable forest management and enhance forest-based economic, social and environmental benefits including, improving the livelihoods of forest-dependent people.

Further, the government has developed the Strategy to Increase the Country's Tree Cover to 10%. The Strategy stipulates a series of interventions towards achieving and maintaining 10% tree cover by 2022. The strategy presents an opportunity among others to achieve national and global commitments with respect to climate change, biodiversity conservation, and land degradation. As earlier indicated, the government has committed to restore 5.1 million Ha of degraded landscapes as a contribution to the Africa Forest Landscape Initiative (AFR100), 50% reduction of green-house gases from the forest sector by 2030 as part of its Nationally Determined Contribution (NDC) to climate change, and to achieve land degradation neutrality by 2030 as a commitment to United Nations Convention to Combat Desertification (UNCCD),

(vii) Enhancing the Blue Economy:

The Blue Economy sector is one of the emerging economic frontiers that is expected to significantly contribute to Kenya's economic growth. In recognition of the sector's potential during the Third Medium Term Plan, 2018-2022, the Blue Economy has been added as the eighth priority sector under the Economic Pillar.

The Kenyan government created a Presidential Blue Economy Task Force in 2017. The Task Force oversees interventions to achieve the Blue Economy objectives in sectors such as fisheries and aquaculture, maritime transport, culture and tourism, environmental conservation and, oil and mining. Underscoring how much the BE has become a priority for Kenya, the government hosted the first-ever global 'Sustainable Blue Economy' conference on 26 to 28 November 2018 with Japan and Canada. Over 16,000 participants from 184 countries attended the conference, which resulted in the Nairobi Statement of Intent on Advancing a Sustainable Blue Economy. The Fisheries Management and Development Act 2016 provides for the conservation, management and development of fisheries and other aquatic resources to enhance the livelihood of communities that depend on fishing. It gives guidance on the import and export trade of fish and fish products, fish quality and safety among other provisions that support sustainable utilization of marine products in Kenya.

(viii) Addressing Climate Change

Kenya's economy is dependent on its natural resource base and climate-sensitive sectors, making it highly vulnerable to climate variability and change. Towards this end, the Government has put in place an enabling

environment to respond to challenges of climate change as well as to take opportunities associated with it. These include the Climate Change Act 2016, National Climate Change Action Plan (2013-2017 and 2018-2022) and National Adaptation Plan (2015-2030).

Sectoral initiatives such as the expansion of renewable energy resources, ecosystem and habitat restoration, and climate smart agriculture have also contributed to building resilience of communities and systems to climate variability and change. In ratifying the Paris Agreement, Kenya submitted its' Nationally Determined Contribution (NDC) in December 2016. The NDC set out an adaptation contribution as mainstreaming adaptation into Medium Term Plans (MTPs) and implementing adaptation actions. The NCCAP represents the national mechanism through which Kenya's NDC is implemented, in accordance with the Act.

Actions in the six mitigation sectors set out in the United Nations Framework Convention on Climate Change (UNFCCC) agriculture, energy, forestry, industry, transport, and waste; lead to lower emissions than in the projected baseline; and could help meet Kenya's mitigation Nationally Determined Contribution (NDC) goal of abating the emissions by 30% by 2030, relative to business as usual. The forestry sector has large potential to reduce GHG emissions in Kenya, because forests act as "sinks" through carbon sequestration.

County Governments are enacting regulations to allocate a portion of their development budgets to support climate change action. A number of National, County, and sectoral policies and plans have been developed. They include the National Climate Change Response Strategy (2010), the Kenya Climate Smart Agriculture Strategy (2017-2026) and the National Climate Finance Policy (2017). It is important to note that the National Climate Change Policy (2018) was approved by Parliament, the Climate Change Directorate (CCD) put in place, and the National Climate Change Resource Centre (NCCRC) established. Addressing adaptation priorities is largely based on biodiversity and ecosystem services.

Under MTP III of Vision 2030, the Climate Change Thematic Plan 2018-2022 addresses the country's vulnerability to climate variability and change, supports efforts towards the achievement of Kenya Vision 2030, the Paris Agreement, the Sustainable Development Goals and Africa's Agenda 2063. The adaptation actions identified by the sectors for the 2018–2022 planning period focus on Land degradation – terrestrial (forests, wetlands, rangelands, agricultural land); as well as Marine and Coastal ecosystem degradation (mangrove forests, coral reefs, sea grass beds, beaches, deltas, sea water intrusion, and coastal erosion).

SECTION III. ASSESSMENT OF PROGRESS TOWARDS EACH NATIONAL TARGET

The overall progress in implementation of the 20 Aichi Global Targets is illustrated below and the highlights for each target presented in the subsequent table.

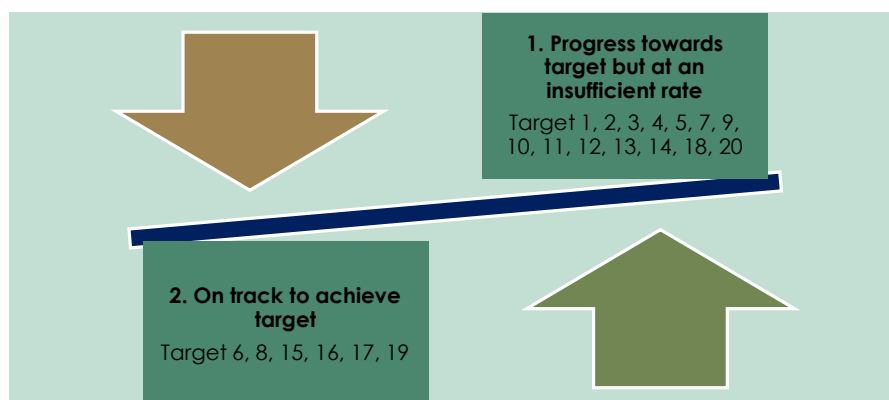


Table 1: Summary Progress in achieving Aichi Global Targets in Kenya

Target	Progress	Progress In National Implementation
1: Awareness increased	Insufficient Rate	<ul style="list-style-type: none"> • Publication, launch and dissemination of the Biodiversity Atlas of Kenya and Portal • Use of Popular Media and Programmes • Two key national events supported by the Presidency to enhance awareness of the value of biodiversity in Kenya and send a strong conservation message to the general public. These are: National Tree Planting Day, with Kenya Forest Service and Ivory Burn, with Kenya Wildlife Service. • Commemoration of annual international environment days • Mainstreaming environmental education into the National Curriculum • IMPLEMENTATION OF THE NATIONAL EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD) POLICY
2: Biodiversity values integrated	Insufficient Rate	<ul style="list-style-type: none"> • Strengthening environmental governance: <u>The Environment Policy 2013, EMCA 2015 - The Environmental Management and Co-ordination (Amendment) Act, 2015 (Amendment Act 2015).</u> • Land use Planning - The National Land Use Policy 2017, Physical and Land Use Planning Act, 2019 • BIODIVERSITY VALUES ARE BEING INCORPORATED INTO NATIONAL ACCOUNTING, AS APPROPRIATE, AND REPORTING SYSTEM - Green Economy Strategy and Implementation Plan – Kenya 2016-2030, implementing Gaborone Declaration for Sustainability in Africa and resolutions from African Ministerial Conference on the Environment • Natural Capital Accounting in Kenya e.g. SEEA accounting for water, forests and energy e.g. National Carbon Accounting System Project and Forest Resources Accounts. • PES for watershed services in Lake Naivasha as well as for wildlife habitat in the Mara ecosystems. In addition, the Kenya Nairobi Water Fund and the Sasumua Water Treatment Plans are examples of different types of watershed PES projects in Kenya as well. • Various Valuation Studies: e.g. Economic valuation of the Mau Forest Complex and Economic analysis of mangrove forests.
3: Incentives reformed	Insufficient Rate	<ul style="list-style-type: none"> • <u>Negative Subsidies:</u> Subsidies on importation and purchase chemical Fertilizers for use in agriculture have negative impacts on conservation of biodiversity. Kenya introduced its national fertilizer subsidy in 2009 in line with its Vision 2030. Soil acidity is a major problem affecting 13% of land area, covering ~7.5 million hectares under maize, legume, tea and coffee crops, grown by over 5 million smallholder farmers. Further, one of the flagship projects under Vision 2030 is to increase the land under irrigation, while the ASTGS has prioritized large scale farming as one of the strategies to transform Agriculture in Kenya. • <u>Positive incentives</u> <ul style="list-style-type: none"> • Legal Instruments e.g. The Land Act (2012): Ban on plastics: EMCA ACT 2015, The 10% Forest Cover Target, Logging Bans, Charcoal rules, Wildlife management and conservation Act 2013, Green Economy Strategy and Action Plan by 2016-2030 • Economic Instruments: e.g. NEMA – e.g. Pollution taxes Discharge licences and permits, KFS Forest taxes, permits and fees, KWS taxes, permits, fees • There are various PES Schemes such as Nairobi Water Fund, 25 REDD Projects, 20 registered CDM projects in Kenya, which have been issued 0.4 Mt of CERs and Sustainable financing under the Green Economy mainly through the Kenya Green Bond Programme

4: Sustainable Consumption and Production	Insufficient Rate	<ul style="list-style-type: none"> • Kenya has adopted several green economy-related approaches and policies, which include implementing renewable energy feed-in tariffs in 2008, embedding sustainable natural resource utilization into its 2010 Constitution and mainstreaming green economy in its Second Medium Term Plan (2013-2017) • In order to enhance efficiency in the use of natural resources and energy, the industrial sector has embraced cleaner production technologies through technical assistance by the Kenya National Cleaner Production Centre. • The Minerals and Mining Policy 2016, and Mining Act have put sustainable mining at the core of all extractive industries. • The private sector in Kenya is also championing sustainable consumption and production under the SWITCH Africa Green Project. Several companies have mainstreamed use of biodegradable materials in their production and consumption. • The Green Economy Strategy 2016-2030 seeks to enable Kenya to attain higher economic growth rate consistent with Vision 2030 while promoting economic resilience and resource efficiency, sustainable management of natural resources, development of sustainable infrastructure and support for social inclusion.
5: Habitat loss halved or reduced	Insufficient Rate	<ul style="list-style-type: none"> • Kenya's watersheds, agricultural, rangelands and settled areas continued to face extensive land degradation. • The Land Degradation Assessment (LADA) was carried out in 2015 to assess the causes, extent and types of land degradation in Kenya. In the last 20 years, agricultural/cultivated areas increased by 7.3% and bare lands increased by 2.6%. The lower levels of land degradation in the since 2000 also coincides with the policy change. At least 61% the total area of Kenya is at high risk of land degradation, while very high degradation affects 27% of the land. Land degradation is especially severe in the arid and semi-arid lands (ASALs). • The Kenya Strategic Investment Framework (KSIF) for sustainable land management (SLM) 2017-2027 addresses land management issues through effective multi-sectoral, multi-stakeholder partnerships and collaboration. • Three of the flagship projects implemented under the Vision 2030 and critical to biodiversity conservation are: <ul style="list-style-type: none"> ◦ Securing wildlife migratory routes and corridors (especially those impacted by human activities) and reclaiming them as a basis for revenue generation in the tourism sector, ◦ Land cover and land-use mapping (conducting accurate and continually updated land-use maps, and undertaking both livestock and wildlife censuses); and ◦ Water catchment management (rehabilitation of five water towers – the Mau Escarpment, Mt. Kenya, the Aberdare Range, the Cherangani Hills, and Mt. Elgon). • Wetlands: Wetlands Conservation and Management Policy 2015 enacted and the Kenya Wetlands Atlas (2012) which maps the country's wetland resources developed. • Mangroves: The National Mangrove Ecosystem Management Plan covers all gazetted mangrove forest reserves in Kenya and is implemented over 10-year period (2017 – 2027). • Marine and Coastal Ecosystems: The Integrated Coastal Zone Management Policy, 2015 covers the restoration of the degraded areas and the protection of the resources, the development a legal framework for the purpose of ensuring sustainable conservation and management of the deltas and estuaries; and development of comprehensive research information to aid in the proper conservation and management of said ecosystems

		<ul style="list-style-type: none"> • Forests: Kenya's constitution 2010 requires that the country should maintain a minimum of 10% forest cover. Between 1990 and 2010, Kenya lost an average of 12,050 ha or 0.32% per year. In total, between 1990 and 2010, Kenya lost 6.5% of its forest cover, or around 241,000 ha. In its reporting to the UNFCCC as part of REDD+, the Ministry of Environment and Forestry in 2019 reported a loss of 103,368ha in 2018. Reforestation efforts have been in place at the rate of 90,477ha per year. Forest and tree cover increased to an estimated 7.24 per cent in 2016 from an estimated 4.4 per cent reported in 2012. The sector increased the state managed forests from 1.2 million hectares to 2.4 million hectares, developed 115 Forest Management plans, facilitated production of 222,124 bamboo seedlings and 800 million tree seedlings and availed these for planting 500,000 hectares on farmlands for livelihood improvement. <p>Key policy actions include the following:</p> <ul style="list-style-type: none"> • Enactment of Forest Conservation and Management Act 2016, review of the Environmental Management and Coordination Act 2015 and development of the National Forest Programme (2016-2030). • Imposition of a moratorium by the Government of Kenya on logging in public and community forests in February 2018. • National commitment to restore 5.1 million ha of degraded forest and other landscapes. • Review of Charcoal Rules and Regulations (2009), development of Private Forests and Gums & Resins Rules & Regulations. • Development of a Strategy to Increase the Country's Tree Cover to 10%. • Development of REDD+ Strategy and Action Plan. • Development of Commercial Forestry Policy to provide alternative source of wood products and increase vegetation cover thus reducing the direct pressure on natural habitats (forest, wetlands, wood lands, shrub lands, among others).
6: Sustainable management of marine living resources	On Track	<ul style="list-style-type: none"> • The sub - sector overall performance in terms of fish production dropped by 21.3 per cent from 163,389 Metric Tonnes (MT) in 2013 to 128,645 MT in 2016. • Fish production in the freshwater dropped by 22.5 per cent from 154,253 MT in 2013 to 119,550 MT in 2016. • Lake Victoria continued to make the highest contribution of the freshwater fish production of 82 per cent on average since 2013. • The marine fish landed also declined by 0.45 per cent from 9,136 MT in 2013 to 9,095 MT in 2016. • Fish production from fish farming declined by 36.4 per cent from 23,501 MT in 2013 to 14,952 MT in 2016. • The total value of fish landed during the period under review also declined by 13 per cent from Ksh. 21.281 billion in 2013 to Ksh. 18.517 billion in 2016. • The inshore waters, which are fishing grounds for artisanal fishermen, are over-exploited and degraded due to demand created by the increasing population pressure and reliance on the fisheries for both food and incomes. The artisanal fishermen have limited fishing capacities for semi-industrial and industrial fisheries in deep waters. • The Government during the MTP II period, the key achievements in the maritime and fisheries sub-sectors included: development of Fisheries Management Plans; Kenya Tuna Fisheries Development and Management Strategy 2013 -2018, enactment of the Fisheries Management and Development Act No. 35 of 2016, procurement of an Offshore Patrol Vessel (OPV Doria) for surveillance of deep-sea fishing and two patrol boats one for Lake Victoria and another for Lake Turkana; acquisition of an Offshore Research Vessel (R.V Mtafiti), reflagging of four foreign deep-sea fishing vessels (with the Kenyan flag), and establishment of a Monitoring, Control

		<p>and Surveillance (MCS) Centre in Mombasa and installation of a Vessel Monitoring System (VMS).</p> <ul style="list-style-type: none"> • Other achievements realized during the period include: restocking of 135 dams, 11 rivers and 3 lakes with a total of 4,881,663 assorted fish fingerlings to increase productivity, mapping and delineation of thirteen (13) critical fish habitats, 5 in Lake Naivasha, 3 in Lake Baringo and 5 in Lake Turkana to protect the breeding areas and thus increase in-situ stock recruitment.
<p>7: Sustainable agriculture, aquaculture and forestry</p>	<p>Insufficient Rate</p>	<ul style="list-style-type: none"> • According to the baseline analysis of <i>NCCAP 2013- 2017</i> and <i>SNC</i> the <i>LULUCF</i> sector is the second largest contributor to Kenya's GHG emissions after agriculture, accounting for 32.5% of emissions in 2015, largely as a result of deforestation through clearing of forested lands for agriculture; wood harvesting, for fuelwood, charcoal and other wood products; and urban development or settlement. • The Key Policy actions include the National Strategy to achieve the 10% tree cover target, The Green Economy Strategy (GESIP), National Climate Change Action Plan (NCCAP) 2013-2017 and 2018-2022, MTP II and MTP III sector Plans, and various Acts, Policies and Plans for Water for Water, Agriculture and Environment respectively. • GESIP provide the policy push under Thematic area 3 on Sustainable Natural Resource Management which encompasses agriculture, forestry, water, wildlife, land use and extractive industries. • In order to address the degradation and loss of natural resources, the tools under this thematic area include spatial planning and targeted periodic valuation of natural capital, payment for ecosystem services and environmental accounting. • The Forest Conservation and Management Act, 2016 (Section 42) indicates that indigenous forests and woodlands are to be managed on a sustainable basis for, inter alia, carbon sequestration. Section 8 indicates that KFS is to manage water catchment areas in relation to soil and water conservation, carbon sequestration, and other environmental services; and Section 21 notes that County Governments are to promote afforestation activities. • The National Forest Programme 2016-2030 defines the national forest framework which is premised on sustainable forest management. The overall goal: "To develop and sustainably manage, conserve, restore and utilize forests and allied resources for socio-economic growth and climate resilience." The first strategic objectives is to increase tree cover and reverse forest degradation through sustainable forest management. • Forests: The Forest Conservation and Management Act (FCMA 2016) provides for the development and sustainable management including conservation and rational utilization of all forest resources. • The country banned logging in government forests and also embarked on ambitious tree planting activities, restoration of gazetted forests and water towers, and promotion of efficient/alternative energy sources and technologies to relieve pressure on forests. • Other priorities include: <ul style="list-style-type: none"> ◦ 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 function. ◦ A sustainable charcoal system promoted by encouraging the uptake of efficient kiln technologies to increase yields to 30-42% and, the establishment of a charcoal certification and eco labelling. • Agriculture: The <i>Kenya Climate Smart Agriculture Strategy 2017-2026</i>, elaborates efforts mainstream sustainable natural resource management

		<p>into production systems to minimize emissions in agricultural production systems and enhance resilience of agriculture systems to climate change impacts. This involves promotion of agroforestry/farm forestry and adoption of practices that encourage inclusion of trees in the farming systems e.g. conservation agriculture with trees for reduction of emissions from deforestation and forest degradation.</p> <ul style="list-style-type: none"> • The Kenya Climate Smart Agriculture Project (KCSAP) focuses on improving water/soil management, especially within smallholder maize systems in the marginal rainfall zones. These efforts have immensely contributed to increasing the area under sustainable agricultural practices. Area under organic farming has increased from 78,438 Hectares in 2009 to 150,479 hectares in 2019. • Aquaculture: has grown rapidly in Kenya over the last one decade and plays an increasingly important role in national fish supply. Kenya is actually ranked the fourth major producer of aquaculture in Africa with production from aquaculture systems recording a growth from 4,218 metric tonnes (MT) in 2006 to peak at 24,096 MT in 2014, representing 15% of total national fish production. • Commercial intensive culture of Nile tilapia (<i>O. niloticus</i>) in cages in Lake Victoria has grown significantly in the last five years with a production of 12 million kg of fish every cycle (about 8 months). Recirculation aquaculture system (RAS) is also gaining popularity mainly in intensive hatcheries. The freshwater cages have been marred by increasing frequencies of fish kills with obvious financial and environmental implications.
<p>8: Pollution reduced</p>	<p>On Track</p>	<ul style="list-style-type: none"> • Article 43 of the Constitution, 2010 gives every person the right to clean and safe water in adequate quantities and reasonable standards of sanitation. Provision of these rights is a shared responsibility between the National and County Governments. • There are various Policies and Acts that aim at regulating or reducing a pollution and bringing it to levels that are not detrimental to ecosystem function and biodiversity. These include EMCA ACT 2015, Agriculture Act 2013, Polluter pays principle, Water Act 2016, Fisheries Management and Development Act, 2016 (No. 35 of 2016), Wetlands policy 2013, Kenya Agricultural and Livestock Research Act, 2013 (No. 17 of 2013), Agriculture, Fisheries and Food Authority Act, 2013 (No. 13 of 2013), Kenya 10% tree cover strategy, Forest Conservation and Management Act, 2016 (No. 34 of 2016) and Wildlife Conservation and Management Act, 2013 (No. 47 of 2013). • Under Vision 2030, the following were achieved: <ul style="list-style-type: none"> • National Solid Waste Management Strategy in 2015 developed. • Action plans on waste management and pollution levels for Mombasa, Thika, Nakuru, Eldoret and Kisumu established. • Plastic Bags Initiative vide Gazette notice No. 2334 of March 2017 implemented • Municipal and Industrial effluent standards within the Lake Victoria Basin harmonized. • Sewerage treatment plants in Kisumu, Homa Bay, and Bomet Towns constructed. • System to monitor Nutrient and Sediment Losses from Land Use and Covers in the Nyando Basin developed. • Urban rivers in Kenya remain highly polluted from dumping of solid and liquid waste including toxic chemicals. • Air pollution: Laws related to air pollution include Environmental Policy , 2013, Air Quality Regulations, 2014 , Kenya Standards Act, Cap 496, Kenya Standard(KS 1515): Code of Practice on Inspection of Occupational

		<p>Health and Safety Act, 2007, Public Health Act, cap 242, National Transport and Safety Act, 2012 and Energy Act, 2006</p> <ul style="list-style-type: none"> • Water Pollution: LVEMP is a regional project under EAC implemented in phases by partner states and coordinated by the LVBC. It seeks to improve environmental management of targeted pollution hotspots and selected degraded sub-catchments for the benefit of communities that depend on the natural resources of the Lake Victoria Basin. LVEMP I and II are complete whereas preparations for LVEMP III are on-going. • Plastics: The Kenyan government banned “the use, manufacture and importation of all plastic bags used for commercial and household packaging” in February 2017. • Marine: Different organizations both government (Kenya Wildlife Service and Kenya Marine and Fisheries Research Institute) and Non-governmental organizations (Watamu Marine Association) are working on marine debris projects aimed at understanding the sources and effects of marine litter, the effects of policies and other actions and enhancing public awareness on marine litter pollution on the coastal area. • Soils/Land: It is estimated that one-sixth of total arable land in Kenya has been polluted by contaminants. Kenya's demand for agrochemicals has been increasing as the result of a rapid expansion of the agricultural sector. The Pest Control Products Board (PCPB) reports the number of registered and banned pesticides in Kenya based on the international conventions signed by the Kenyan Government. At least 400 tonnes of pesticides and fertilizers are released every year to the environment from farming activities. These include Agricultural activities (use of organic fertilizers) and Flower Farm and Influx of municipal effluents.
<p>9: Invasive alien species prevented and controlled</p>	<p>Insufficient Rate</p>	<ul style="list-style-type: none"> • Kenya has developed and enacted several policy and legal instruments related to prevention and control of invasive alien species. These include: National Environment Policy 2013 (Pg. 36), National Strategy and Action Plan for the Management of Invasive Species in Kenya, The Plant Health Protection Act Cap 324, Agriculture, Fisheries and Food Authority Act. No. 13 of 2013, Environmental Management and Coordination Act 1999 (amendment 2015), Wildlife Conservation and Management Act 2013, and Forest Conservation and Management Act 2016, and Fisheries Management and Development Act 2016. Further, NEMA has prepared guidelines on Prevention of Invasive Alien Species; Early Detection, Rapid Response and Eradication; Control and Control strategies • The Wildlife Conservation and Management Act (WCMA, 2013). The seventh schedule on invasive species lists 1 mammal, 7 reptiles and amphibians, 17 birds, 10 plants and 1 invertebrate. Not listed in the schedule is the now fast spreading noxious weed <i>Parthenium hysterophorus</i> that has been documented to threaten biodiversity because of its aggressive dominance. Also missing is the top-level predator Nile Perch (<i>Lates niloticus</i>) which has caused extinction or near extinction of several hundreds of native fish species in Lake Victoria. It was introduced in the lake in the late 1950' • A total of 97 invasive species are documented for Kenya on the Global Invasive Species Database. Further CABI has documented the invasive alien species in Kenya and the East African region, with database and descriptions available on the GBIF website as well as Publication of the Guide to the naturalized and invasive plants of Eastern Africa. • Prevention and detection: The Kenya Plant Health Inspectorate Service (KEPHIS) ensures that the introduction of plant pests, diseases and noxious weed into Kenya is prevented or delayed. All phytosanitary measures are based on international standards as in International Plant Protection Convention (IPPC) and World Trade Organisation (WTO) Agreement on

		<p>Sanitary and Phytosanitary (SPS) regulations and guidelines. The Plant Protection Act (CAP 324), the suppression of Noxious weeds (Cap 325) and the Agricultural produce (Export) Act (Cap 319) provide the legal framework through which the authority carries out phytosanitary regulation service.</p> <ul style="list-style-type: none"> • Control: Key players include the Kenya Agriculture and Livestock Research Organization (KALRO), Ministry of Agriculture, Kenya Wildlife Service and the National Museums of Kenya. Kenya Wildlife Services have also identified invasive alien species in protected areas and developed a strategy on IAS management and control. CABI working with key stakeholders have developed a guide to the naturalized and invasive species of Laikipia. There have been various projects especially on point source pollution and eradication of the water hyacinth in Lake Victoria through the three phases of the Lake Victoria Environment Management Programme (LVEMP) among others
<p>10: Pressures on vulnerable ecosystems reduced</p>	<p>Insufficient Rate</p>	<ul style="list-style-type: none"> • A survey in 2012 showed 239 species in southern reefs, 203 in Lamu and 177 in Kiunga in the north. • Long-term monitoring has been pursued by Kenyan institutions since 1998/99, to follow the trends and status of corals and fish populations at a country level. • Kenya has a wide variety of national coastal and marine environmental legislation. These includes the Fisheries Act has recently been updated (2016), EMCA Act 2015, Agriculture, Fisheries and Food Authority Act, 2013 (No. 13 of 2013), Water Act 2016, Fisheries Management and Development Act, 2016 (No. 35 of 2016), Wetlands Policy 2013, Forest Conservation and Management Act, 2016 (No. 34 of 2016 and Wildlife Conservation and Management Act, 2013 (No. 47 of 2013). • Kenyan coral reefs have an average hard coral cover of 18%, with fleshy algae at 34%, across a range of healthy and degraded reefs. Fully protected reef lagoons have higher hard coral cover (15-40%), focal fish species abundance (>100 indiv./ha) and less algal cover (40%), and high coral rubble cover (>10%). • A number of policy processes have also been undertaken to improve protection of coral reefs and associated ecosystems. A National Coral Reef Task Force was developed in 2009 under the Regional Coral Reef Task Force (CRTF) of the Nairobi Convention. A Coral Reef and Seagrass Ecosystems Conservation Strategy Plan (2014) was launched for 2015-2019. To reduce the fragmentation among different institutions and their mandates that affect coral reefs, the Integrated Coastal Zone Management (ICZM) Action Plan and Coral Reef and Seagrass Strategy provide ways to bridge the gaps. • Historically, management of coral reefs in Kenya has been the domain of central government, with a network of 4 marine parks (fully protected) and 6 marine reserves (partially protected, allowing traditional fishing) under the management of Kenya Wildlife Service (KWS). In recent years, coastal fishing communities have embraced the concept of community-based conservation and established 12 demarcated CCAs (the local term for Locally Managed Marine Areas, LMMAs), to enhance sustainable fisheries and other livelihood options such as eco-tourism. • Key interventions include: <ul style="list-style-type: none"> • Project on adaptive management of coral reef in 5 MPAs through a project funded by the Western Indian Ocean Marine Science Association (WIOMSA), Marine for Science Management Program (MASMA). • Implementation of the National Coral Reef and Sea Grass Ecosystem Conservation and Management Strategy (2014 –2018) supported by the Kenya Coast Development Project (KCDP).

		<ul style="list-style-type: none"> • Development of Management plans 3 coral reef MPA These include: Kisite/Mpunguti, Malindi and Watamu Marine Protected Area Management Plans (2015 -2025). Kenya Wildlife Service will be responsible for implementing these plans. • Development of the National Mangrove Ecosystem Management Plan also supported by the KCDP project. This is a 10-year management plan spanning from 2017 –2027 period; and with an estimated implementation budget of KES 3.8 billion. • In 1998, reefs along the entire coast of Kenya suffered widespread bleaching and mortality of corals that reduced hard coral cover to almost 8%. Recovery of Kenya reefs from the 1998 coral bleaching event was slow, with cover remaining at 8-10% from 1999 to 2003, following which cover increased slowly to today's level. • The National Coral Reef Restoration Protocol (NCRPP) is expected to provide information on replacing dead coral reefs and adversely affected fish breeding grounds along the coastline. • Kenya Coral Reef and Sea Grass Ecosystems Conservation Strategy 2015-2019 also targets the coral and associated ecosystems recovery.
11: Protected Areas increased and improved	Insufficient Rate	<ul style="list-style-type: none"> • Kenya has officially protected over 8% of its terrestrial and marine ecosystems with a network of National Parks, National Reserves, Forest Reserves, and Sanctuaries. This is complemented by a further 160 Conservancies, ensuring an additional 11% of Kenya is actively managed for wildlife conservation. These Conservancies are estimated to contain as much as 60% of Kenya's large mammals and protect a diverse array of habitats and other species • Presently, Kenya has 24 terrestrial National Parks which occupy an area of 29,504Km2 that is approximately 5.08% of the total area of Kenya. There are 31 terrestrial National Reserves in Kenya occupying 17,358.8km2 which is 3% of the country's total area. Most of the National reserves are managed by county governments with technical advice from KWS. • Kenya has 257 sites categorized as natural forests which harbor a variety of wildlife species and are also water towers or water catchment areas. These natural forests fall under 4 key management regimes namely; community forests (52 sites covering 180, 245 ha), forest reserves (201 sites covering 2,045, 406 ha), national monuments (3 sites covering 401 ha) and trust land (1 site covering 188,2017ha) with a total area of 24,142.59km2 which is 4.2% of Kenya's total area. Marsabit forest ecosystem management plan 2015-2025 is under legal notice No. 1894 of March 2016. • There are 5 National Sanctuaries in Kenya located in Nakuru, Samburu, Kisumu and Homa bay counties. They cover 12.47km2 of the country. • There are over 160 conservancies covering over 63,600Km2 representing 11% of the country's area. Of these, 4 are Marine, 76 are community, 58 are private, and 26 are group while 60 are listed under World Database Protected Area (WDPA). They mostly operate as Community Based Organizations (CBOs), Trusts or private companies. • The Protected Areas include the Amboseli and Mt. Kenya are designated by UNESCO as Man and Biosphere Reserves (MAB); Tsavo East and West and Central Island are equally designated by UNESCO as World Heritage Sites; while Aberdares, Mt. Kenya, Chyulu and Mt. Elgon are National Water towers. • The Sibiloi PA hosts Koobi Fora which is regarded as the cradle of Mankind. • Kenya has Ramsar Sites of which include Lake Nakuru designated as a Park, Lake Bogoria is a Reserve while the other 4 (Tana River Delta, Lake Elementaita, Lake Baringo and Lake Naivasha) do not enjoy other protection status.

		<ul style="list-style-type: none"> • All the parks are required by law to have management plan that are gazetted. • Ngai Ndethya National Reserve and the 6km² Arabuko Sokoke National Park which in their true sense are now Paper Parks, also at risk are Losai, Rahole, Arawale and South Kitui. South Kitui is presently the Reserve with the highest number of charcoal kilns while Losai has several villages established inside it. Malka Mari is slowly being settled while its wildlife is being threatened by livestock incursion. • The Wildlife Conservation Management Act of 2013 (WCMA, 2013) provide for the protection, conservation, sustainable use and management of wildlife in Kenya and for connected purposes. The Act requires the Ministry to prepare and present to Parliament a Wildlife Status report which gives the status of: all National Parks and Reserves; Conservancies and Sanctuaries; community wildlife scouts in Conservancies; Management Plans; all listed species in Schedule 6 and 7 and their recovery status. • Presently only three protected areas in the country have management plans that are gazette, Amboseli, Mpunguti (Kisite-Mpunguti) and Marsabit have gazette management plans. The rest are at various stages of development. In addition, all of them have legal notices of their gazettment while a number of them have title deeds. • There are five marine protected areas covering total area 1,139 Km² managed by Kenya Wildlife Service. • Malindi and Watamu were grouped together and both are internationally recognized by UNESCO as Man and Biosphere Reserves. • Kenya is also signatory to several international conventions and protocols that advocate the implementations of MPAs as a tool for biodiversity conservation and regulation of fisheries. • The PA network is not fully representative to protect biodiversity as shown by the cover of the Important Bird Areas and Key Biodiversity Areas. • The National Wildlife Strategy 2030 developed in June 2018 lcreates an enabling environment under pillar one to build resilience for species conservation in the protected areas. • The National Forest Programme 2016-2030 integrates biological diversity in addressing threats to forest conservation. It strengthens local community involvement in co-management of forest resources as a follow up to forest Act 2016
12: Extinction Prevented	Insufficient Rate	<ul style="list-style-type: none"> • Kenya has documented 4,623 plant species within 1,387 genera, 766 species of bryophytes, 511 ferns and 2,071 species of fungi and lichens. There are 393 mammal species, 260 reptile species (Snakes, lizards, geckos, skinks, chameleons, tortoise, turtles, terrapins, crocodile) and amphibians (toads, frogs, salamanders) species. Further, 1,105 bird species, of 769 Fish (362 fresh water), of which 5 are likely to be extinct as well as 168 arthropods and arachnids. The 2017 IUCN list of threatened species showed that Kenya had 463 plant and animal species which were threatened. These include 30 mammal, 43 bird, 73 fish and 234 plant species. • The Wildlife Conservation and Management Act (WCMA, 2013) in schedule 6 lists 245 wildlife species under various categories of threats ranging from critically endangered to protected species. The Act requires that the status of these species be reported to the National Assembly every 2years and the recovery measures being implemented to restore the said species be indicated. Focus is given to the conservation status of endangered listed species, their habitats and factors that influence their population trends. Whereas the listed number of species in schedule 6 is 245, only 31 species recovery plans have been developed out of which 13 have since expired • The National Wildlife Conservation Status Report 2015-2017 provides an overview of the status and trends of wildlife species in Kenya, the current

		<p>population and its viability, population trends, breeding success rates, threats, and management interventions undertaken</p> <ul style="list-style-type: none"> • Recovery Plans: Section 49 (4) WCMA, 2013 requires KWS to develop and implement recovery plans for all nationally listed species and on the status of all species for which such plans have been developed. • KWS in collaboration with relevant stakeholders has developed and is championing implementation of 19 species specific recovery plans, including for Black Rhino, Elephants, Cheetah and Wild Dogs, Lion and Hyena, Grevy's Zebra, Sea Turtles, sable antelopes, giraffes, Eastern Mountain Bongos, Roan Antelope, Sitatunga, Hirola antelopes. Others include for Sagalla Caecilian, Critically Endangered birds in Taita Hills (Taita Thrush, Taita Apalis), Spotted Ground Thrush (<i>Zoothera guttata</i>), Bird, Coral reefs and sea grasses ecosystems, and Aloe, for invasive species, and for bioprospecting. With Partners, others included for Blue Swallow, Lesser Flamingo, Madagascar Pond Heron, Maccoa Duck, Grey Crowned Crane and Lappet-faced Vulture. These are available from the KWS website. • Due to limited human resource and technical capacity on some specific areas, there is inadequate information on some of the listed species thus their population status is listed as data deficient. • Remnant population of some of the listed species are non-viable e.g. the Roan antelope and the bearded vulture. The management through the Government has requested for two herds of roan antelopes and a pair bearded vulture from the People Republic of Tanzania and Ethiopia respectively thus require follow up. • The Government submitted twenty (20) proposals at COP 18 in Geneva, Switzerland, 2019, 19 of which successfully went through. COP 18 Proposal thirty-seven (37) was a proposal to transfer Pancake Tortoise from Appendix II to Appendix I to prohibit trade in specimens of Pancake Tortoise collected from the wild and control illegal trade in specimens of other species. Nearly all proposals to COP 18 on reptiles and amphibians including Kenya's proposal on Pancake Tortoise were adopted. • Kenya's proposals forty-four (44) and forty-five (45) for inclusion of White-Spotted Wedge Fish and Teat Fish, respectively, to regulate trade through CITES permits and certificates were approved. Proposal 5 to include Giraffe in Appendix II was accepted overwhelmingly.
<p>13: Genetic Diversity Maintained</p>	<p>Insufficient Rate</p>	<ul style="list-style-type: none"> • Some relevant policy and legal frameworks for GR in Kenya include the Environment Management and Coordination Act (EMCA, 2015); Industrial Properties Act Cap 509 (2001); the Forestry Act (2005); the National Biosafety Act (2009); the Land Act (No. 2 of 2012); Seeds and Plant (Amendment) Act 2012; Crops Act No. 16 of 2013; Wildlife Conservation and Management Act (No. 47 of 2013); the Science, Technology and Innovations Act (2013); Kenya Agricultural and Livestock Research Act No. 17 of 2013; the National Biotechnology Development Policy (2006); Kenya National Seed Policy (2010); Natural Resources Bill (2014) and Kenya's Protection of Traditional Knowledge and Cultural Expressions Act of 2016. • Under the Kenya Agricultural and Livestock Research (KALR) Act 2013, the Genetic Resources Research Institute (GERRI) was established with the responsibility for the conservation of all components of genetic diversity. GERRI developed National Strategy on Genetic Resources Within the context of Climate Change 2016 – 2020 as a response to the second Global Plan of Action (GPA) for GRFA, and the National Climate Change Action Plan (NCCAP). • GeRRI, is the only long-term ex situ conservation facility in the country which currently holds a repository of about 50,000 plant accessions representing 165 families, 893 genera and 2,000 species. These materials have been assembled through both in-country collecting expeditions and donations from within and outside Kenya. Out of the 2,000 species conserved at the GeRRI gene bank, only 144 have been characterized,

		<p>none of which has been comprehensively evaluated for biotic and abiotic stresses.</p> <ul style="list-style-type: none"> • Only 4,000 accessions out of the more than 50,000 conserved at the GeRRI gene bank have been distributed for utilization in the last 15 years, of which a total of 3,189 accessions have been distributed over the last 5 years. • GeRRI in partnership with the National Museums of Kenya, the Royal Botanic Gardens, Kew of the United Kingdom, and Kenya Forestry Research Institute, working under the auspices of the Seeds for Life Project, have recently described some more than 10 plant species that are new to science, collected and banked close to 1,000 plant species that are new to ex situ conservation in Kenya. • The Biodiversity for Nutrition (BFN) Project worked closely with stakeholders from Busia County in Western Kenya to develop a Biodiversity Conservation Policy that takes into account the importance of conserving nutrient-rich traditional foods such as cowpea leaves (<i>Vigna unguiculata</i>), amaranth (<i>Amaranthus</i> spp.), slender leaf (<i>Crotalaria brevidens</i>) and spider plant (<i>Cleome gynandra</i>) to increase diet quality and access to key micronutrients, particularly for mothers and children. The project also sought to provide scientific evidence and raise awareness on the role of local agrobiodiversity on food security and nutrition and enhance household livelihoods and promote utilization of local agrobiodiversity by linking farmers to markets.
<p>14: Ecosystems and essential services safeguarded</p>	<p>Insufficient Rate</p>	<ul style="list-style-type: none"> • Kenya has strengthened environmental governance to support ecosystem conservation and restoration, including through the Environmental Management and Coordination Act 2015, Wildlife Conservation and Management Act 2013, Forest Conservation and Management Act 2016, Natural Resources Act 2016, Water Act 2016, Climate Change Act 2016, and Fisheries Management and Development Act 2016. • In Kenya, a key approach to ecosystem management is through the concept of basins-based planning practiced since early 1970s through establishment of Regional Development Authorities (RDAs). • Kenya Water Towers Agency (KWTA) is mandated to coordinate and oversee the protection, rehabilitation, conservation and sustainable management of all the critical water towers in Kenya • The rehabilitation and protection of Kenya's five (5) major water towers namely; the Aberdares, Cherangany, Mau, Mt. Kenya and Mt. Elgon and other smaller significant Water Towers and catchment areas such as Chyulu Hills, Nyambene, Ngong Hills, Taita Hills, Maragoli, Marsabit, Shimba Hills, Ndotos, Nyiru, Hills in Machakos, Makueni and Kitui, Leroghi, Matthews Range and Dunes in Lamu and Northern Kenya has been undertaken in this period. • Under Vision 2030, the major achievements included: <ul style="list-style-type: none"> • rehabilitation, protection and securing of 121,000 Ha in Enoosupukia (12,000 Ha), South.West Mau (19,000 Ha), Maasai Mau (64,000 Ha) and Olpusimuru (26,000 Ha) through Joint Enforcement Unit providing basis for natural regeneration, • assessment of 18 water towers and developed water towers ecological health status reports, • Identified critical catchment, wetlands and Biodiversity Hotspots in Mt. Kenya, Mau Complex, Mt. Elgon, Shimba Hills and Chyulu water towers, • Community Development Action Plans for Leroghi, Shimba Hills & Chyulu, • Mau Ecosystem Strategic Management Plan, • Micro-Catchment Conservation Plan for Taita Hills, • Voluntary surrender of 1,250 Ha in Mau complex, and the • Establishment of the Water Towers Conservation Fund. • Nature Kenya has championed the use of the Toolkit for Ecosystem Services Site-based Assessment in Kenya in Kenya, which gives guidance

		<p>in measuring ecosystem services provided by a habitat. So far Ecosystem Services Assessment has been carried out in Kakamega Forest, Yala wetland complex, Taita Hills forests, Dakatcha Woodland and Arabuko Sokoke Forest IBAs.</p> <ul style="list-style-type: none"> • Other Vision 2030 Programmes under the Environment, Water and Sanitation Sector include: <ul style="list-style-type: none"> • Water Resources Management: Under MTP II, six (6) catchment management strategies were reviewed, and 157 Sub Catchment Management Plans developed. The sector developed and consolidated water allocation plans for three (3) basins namely Athi, Lake Victoria and Ewaso Ng'iro North. • Trans boundary Waters: The locations of trans-boundary surface waters and their status were established and three bilateral frameworks developed, negotiated and finalized for the management of transboundary water resources of Sio-Malaba-Malakisi River, Mara River and lakes Challa-Jibe and Uмба River. • Community based natural resource management initiatives in Kenya (CBNRM) seek to empower communities to enable them share in the rights and responsibilities of management and utilization of natural resources with government.
<p>15: Ecosystems restored and resilience enhanced</p>	<p>On Track</p>	<ul style="list-style-type: none"> • The Government through Executive Order No. 1 of 2018 expanded the mandate of the State Department for Irrigation to include the function of Land Reclamation to reverse Land Degradation and ensure Land Degradation Neutrality. • In November 2018, the Government committed 5.1 Million Hectares of land under afforestation to reclaim degraded forested land under the Pan African Action Agenda on Eco-system restoration. • The Government developed the Land Degradation Neutrality (LDN) Targets Report following the twelfth session of the UNCCD conference of parties (COP), held in Ankara, Turkey in October 2015, where parties agreed to move towards neutrality. • In <i>NCCAP 2013-2017</i> noted that the forestry sector would be the second highest emitter of GHGs after the agriculture sector. To mitigate climate change in the forestry sector, the following three actions were proposed in both <i>NCCAP 2013-2017</i> and <i>SNC</i>: Restoration of forests in degraded lands; Rehabilitation of degraded forests; and Reduction of deforestation and forest degradation. In the <i>NDC Sectoral Analysis Report 2017</i>, it was determined that relative to the proportionate mitigation reduction target for the sector of 20.1 MtCO₂e by 2030, the sector's mitigation potential was between 11.3 and 20.1 MtCO₂e per year, with a technical maximum potential of 40.2 MtCO₂e per year by 2030 • Kenya has also developed the following: <ul style="list-style-type: none"> • Strategy to Increase the Country's Tree Cover to 10%: efforts towards achieving the national 10% forest cover include integrated land use planning; provide the forest sector with strong instruments for implementing sustainable management and conservation efforts; devolving and mainstreaming forestry functions into county government planning; and engaging communities and stakeholders in the sustainable management of public forests. • National Mangrove Strategy and Action Plan to increase the spatial distribution of the species along the coastal line. • the REDD+ Strategy and Action Plan. • National estimation of the carbon emission (SLEEK) thus efficient monitoring of carbon production, biomass levels, and energy production sources; monitoring of interactions between human and genetic resources such as community conservancies, settlements along forest lines and other ecosystems e.g. wetlands.

		<ul style="list-style-type: none"> • Climate Change policy and legislation and a Green Growth Strategy (2016): • Kenya Climate Smart Agriculture Strategy and Implementation Plan to reverse impact of land degradation that has been exacerbated by unsustainable agricultural practices (over grazing, over cropping etc.) • The Climate Change Act 2016 which identifies forest conservation and management as key to realizing Target 15 of the Aichi Strategic Plan. • Enacted the Land Registration Act (2016) and the Community Land Act (2016): to support sustainable land use practices, protection of conservation areas (parks, ranches, conservancies) • Enacted the Forest Conservation and Management Act 2016, the Environmental Management and Coordination Act 2015 and developed the National Forest Programme (2016-2030) which have helped to increase areas under conservation. • Imposed a moratorium by the Government of Kenya on logging in public and community forests in February 2018; The moratorium on logging is aimed at reducing deforestation and forest degradation and enhancing regeneration and replanting for sustainable forest management and ecosystems protection through access to genetic materials such as the non- timber products. • Reviewed of Charcoal Rules and Regulations (2009) and developed the Private Forests and Gums & Resins Rules & Regulations. This diversification of energy demands aimsto reduce pressure on wood fuel and dependence on biomass sources. Some devolved units have banned production and transportation of wood fuel within their jurisdictions e.g. Kitui, Makueni and Machakos counties • Developed of Commercial Forestry Policy; To provide alternative source of wood products and increase vegetation cover thus reducing the direct pressure on natural habitats (forest, wetlands, wood lands, shrub lands, among others. • Further the Government has formulated the ASAL Development Policy, 2019, to guide coordinated development of ASALs; formulated National Irrigation Policy, 2017 and enacted Irrigation Act, 2019 to promote development, management and regulation of irrigation; initiated formulation of Draft Land Reclamation Policy, 2018; and the Land Reclamation Bill, 2018. • The Government institutionalized Drought Management by enacting the National Drought Management Act, 2016, creating the National Drought Management Authority to coordinate and manage drought in the country. In addition, the State Department for Development of ASALs is undertaking Programmes to enhance community resilience against drought through sustainable resource management of Natural Resources and livelihood diversification. • The Government has integrated Ending Drought Emergencies (EDE) in National Development Plans through the EDE Sector Plans for MTP III 2018–2022.
16: Nagoya Protocol in force and operational	On Track	<ul style="list-style-type: none"> • The Nagoya Protocol is part of Kenyan law as per the constitution which states that every international agreement Kenya is a signatory to is law. Article 2 Section 6 Kenya signed in 01/02/2012 and Ratified in 7th April 2014. • The Protection of Genetic Resources and associated Traditional Knowledge in Kenya is a subject matter in the new constitution of Kenya, under clauses touching on the protection of right to property, culture and environment in Article 69. Article 11 of Chapter Two 10 of the new constitution recognizes the value of our culture as the foundation of our nation, and as the cumulative civilization of the Kenyan people and nation. Article 40(5) of the new constitution provides that the state shall

		<p>support, promote and protect the intellectual property rights of the people of Kenya.</p> <ul style="list-style-type: none"> • On this basis, The Traditional knowledge and Culture expression Act of 2016 was enacted. • The Ministry of Environment and Forestry is the focal point organization and NEMA is the competent National Authority, Clearing-House and publishing authority for access and benefits sharing. The designated checkpoints are Kenya Wildlife Service, Kenya Forest Service, Kenya Plant Health Inspectorate Services (KEPHIS), NACOSTI, State Department of Immigration and Kenya Industrial Property Institute (KIPI). • No person shall transfer any genetic resources outside Kenya unless such person has executed a Material Transfer Agreement (MTA). Regulation 19 requires that benefit sharing shall apply, subject to the laws in force relating to intellectual property rights. • In Kenya, institutions responsible for intellectual property rights include the Kenya Industrial Property Institute (KIPI), the Kenya Plant Health Inspectorate Service (KEPHIS) and the Kenya Copyright Board (KECOBO). Since ratification, the Government has issued one hundred and thirty (130) access permits for research and development. • The Government has issued one hundred and thirty (130) access permits for research and development. • Kenya is in the process of preparing regulations for conservation on biodiversity, access to genetic resources and benefit sharing to be aligned with the provisions of the Protocol. • The Government has put in place an Access and Benefit Sharing (ABS) Committee that reviews and determines the approval of applications for research and development related to utilization of biological resources. • The country submitted their interim report on the implementation of Nagoya Protocol on 1st November 2018.
<p>17: NBSAP adopted as a policy instrument</p>	<p>On Track</p>	<ul style="list-style-type: none"> • Kenya has developed the draft NBSAP 2019-2030. This will be updated based on the post 2020 framework. Baseline Review has been undertaken and stakeholder consultations undertaken. The CHM has provided key resources for the implementation and review of the targets. • There have been various mainstreaming activities into key sectors • Although in the absence of an approved NBSAP, Kenya has put in place sectoral policies and legal frameworks within the reporting period 2010-2020 for implementation of the NBSAP • For instance: Species Management Strategies, The Community Land Act, WCMA 2013 recognition of conservancies, Revised EMCA 2015, Access to bio-resources toolkit, Bioprospecting strategy within and outside protected area developed, Masterplan for rehabilitation and restoration of water catchment areas, Fisheries Management and Development Act-2016, Forest Conservation and Management Act 2016, Forest Management Strategy, National Museums and Heritage Act, REDD+, Climate Change Act 2016, National Climate Change Action Plan, National Strategy for Achievement and Maintaining over 10% tree cover by 2022, National Environment Policy 2014 • The Kenya National Bureau of Statistics(KNBS) has mapped out 128 out of the 230 SDG Global Indicators, whose data can be available within the short term and work is going on to increase the number of indicators within the next five years. The KNBS has identified the period 2009-2014 as the base period for the SDGs. This is based on data availability and the priorities of the country. The indicators will be used to track and report on the process and progress of the implementation. • The National Treasury and Planning has strengthened the National Integrated Monitoring and Evaluation Systems (NIMES) and County Integrated Monitoring and Evaluation Systems (CIMES), including preparation of regular progress reports on the Plan implementation. The

		County Integrated Development Plans (CIDPs), County Spatial Plans and Ministries, Departments and Agencies (MDAs) Strategic Plans (2018-2022) have been aligned to the MTP III and the National Spatial Plan.
18: Traditional Knowledge respected	Insufficient Rate	<ul style="list-style-type: none"> • The Traditional knowledge and Traditional Cultural expression Act of 2016 was enacted. • Part two of the Act stipulates that county governments shall collect information, document and register traditional knowledge within their jurisprudence for the purpose of recognition. • Under the Act, Kenya's 47 counties are also charged with protection of traditional knowledge from misuse and misappropriation, among other roles. These include county governments working with the national government to establish mechanisms to prevent misappropriation, misuse or unlawful access and exploitation of traditional knowledge and cultural expression without prior consent. • The Act also states that county governments are supposed to work with institutions such as KIPi, the Kenya Copyright Board (KECOBO) and Kenya Plant Health Inspectorate Service (KEPHIS) in establishment and maintenance of a national repository for genetic resources, traditional knowledge and cultural expressions. The Ministry of Culture has established a task force to develop the roadmap for the implementation of the Act. • Other relevant policy and legal frameworks include the: <ul style="list-style-type: none"> • The Community Land Act, WCMA 2013 recognition of conservancies. EMCA 2015- Access to bio-resources • ST&I Science Technology and Innovation Act 2013- Provides for documentation of all traditional technologies of Kenya and ensures innovation encompasses IPLC PART 1:2d Recognition of TK as part of innovation • National Museums and Heritage act part 1 Section 4b, c the Act defines Natural heritage • The Kenya Industrial Property Institute established the Traditional Knowledge and Genetic Resources Unit. • Natural Products Programme: The Programme supported the development, acquisition, deployment and uptake of appropriate indigenous technologies to ensure optimal use of available natural resources in a sustainable manner. The aim is to spur home-grown innovative culture and develop Kenyan unique products that meet international standards.
19: Knowledge improved shared and applied	On Track	<ul style="list-style-type: none"> • The integration of Science, Technology and Innovation (ST&I) in national productive processes was considered central to the success of the government's policy priorities and Programmes outlined in Kenya Vision 2030. Further, STI capabilities are to promote sustainable development, especially through social integration, conservation and sustainable management of biodiversity, sharing opportunities and benefits of a knowledge-based society and economy and strengthening local and indigenous knowledge and culture • Over the last several years, many partners have worked together to build the Kenya Biodiversity Atlas Portal - an online platform supporting data generated from "Kenya's Natural Capital – Biodiversity Atlas" (2015). The platform is open access and supports data acquisition, storage, visualization, and analysis for a variety of uses while maintaining standards to facilitate data exchange and scalability for application in Kenya and East Africa. With support from the JRS Biodiversity Foundation, the online Portal has been developed with images, maps and other resources and is being enhanced in an initiative led by African Conservation Centre with key Government, Civil Society and Private sector Partners.

		<ul style="list-style-type: none"> • Other efforts were made through the Global Biodiversity Information Facility (GBIF) Biodiversity Information for Development (BID) Programme with the aim of increasing the amount of biodiversity data available about a country so as to respond to national priorities; and the Intergovernmental Authority on Development's (IGAD) Biodiversity Management Programme (BMP), whose main objective was to establish biodiversity databases, build technical capacity and digitize biodiversity collections so as to generate a map of biodiversity and other key information products for the IGAD Region. Kenya published 389,349 new occurrence records during 2019 out of a total of 305,637,165 occurrence records added globally to GBIF. The National Museums of Kenya, Kenya Wildlife Service and other institutions have published datasets with GBIF. Researchers from Kenya contributed to 5 peer-reviewed articles citing GBIF use during 2019 and a total of 31 articles since 2008. There are specific data mobilization projects such as for butterflies. • The Natural Product Initiative was prioritized as one of the flagship projects of the Vision 2030 which aims to create an interface between indigenous knowledge and Science, Technology, Innovation and business expertise; spurring home-grown innovation culture and promote quality production and growth while developing Kenyan unique products that meet national and international standards. Under the MTP II, the National Council for Science, Technology and Innovation (NACOSTI) supported the creation of enabling policy, legal, regulatory and institutional framework to ensure formal recognition and anchoring of natural products in the mainstream economy. Key success factors include harnessing of indigenous knowledge and related genetic resources; creation of a comprehensive inventory of ethno-botanical resources and building capacity for product discovery, improvement, development and commercialization capability with Government support and participation of private sector and individuals. • KWTa undertakes periodic assessment of the ecosystems in the Water Towers and is developing an Integrated Water Towers Monitoring System with 17 institutions in collaboration with World Resources Institute. A pilot has been developed and KWTa now exploring synergies on how the systems can communicate with others such as the Tana River Biodiversity Portal. KWTa is mobilizing biodiversity data from Water Towers forests, grasslands, wetlands and shrublands to identify the threats, needs and intervention to meet local needs, conserve the biodiversity, secure water towers and ensure water availability.
<p>20: Financial Resources from all sources increased</p>	<p>Insufficient Rate</p>	<ul style="list-style-type: none"> • The National Treasury and Planning through the State Department for Planning in partnership with development partners and stakeholders, produces a Comprehensive Public Expenditure Review (CPER) report on a three-year period that is well researched to replace the annual public expenditure review. The second Comprehensive Public Expenditure Review (CPER) 2017 presented a comprehensive analysis of public expenditure during the first three years of devolution thereby linking expenditure to achievements while taking cognizance of cost of achieving the results. The CPER also assesses the extent to which expenditure addresses national and county level priorities in order to strengthen the link between policies, planning and budgeting. Consequently, it informs current and future expenditure and budget decisions and is also a key input in the MTEF budget cycle. The CPER included an in-depth sectoral analysis for health, agriculture, infrastructure and energy sectors. However, the Environment Protection, Water and Natural Resources Sector was reviewed under the overall analysis. • Kenya's first Climate Public Expenditure and Budget Review processes has provided some critical lessons, experiences, findings on the budgeting and

expenditure frameworks, and where more opportunities for climate mainstreaming exist. The CPEBR process has also helped generate a new Segment 8, within the IFMIS SCOA which will be enhanced as a sustainable mechanism to track climate relevant expenditure. The National Treasury will continue improving the IFMIS system, to ensure climate change is effectively mainstreamed

- County Governments are working on developing their County Climate Change Fund model legislation to offer counties an opportunity to finance their own Climate change budget.
- A Biodiversity Public Expenditure and Budget Review is recommended to monitor and achieve this target.

SECTION IV. DESCRIPTION OF THE NATIONAL CONTRIBUTION TO THE ACHIEVEMENT OF EACH GLOBAL AICHI BIODIVERSITY TARGET

Based on the progress made in implementing the Aichi target described in Section III, the contribution of Kenya in achieving the global Aichi Targets is presented for each target based on the template provided. Further, the relevant SDG Goals, targets and indicators have been elaborated for each target. Reference has been made to Kenya's National SDG reports and Vision 2030 reports, amongst other sources to enhance coherence in reporting.

SECTION V: DESCRIPTION OF THE NATIONAL CONTRIBUTION TO THE ACHIEVEMENT OF THE TARGETS OF THE GLOBAL STRATEGY FOR PLANT CONSERVATION.

Kenya adopted the global targets for Plant Conservation, resulting in many Programmes and projects undertaken by key institutions such as the National Museums of Kenya, Kenya Forest Service, Kenya Wildlife Service, Kenya Agriculture and Livestock Research Organization, and Kenya Forest Research Institute, among others addressing Target 1-16. A summary is presented on some of the relevant actions under this section.

SECTION VI. ADDITIONAL INFORMATION ON THE CONTRIBUTION OF INDIGENOUS PEOPLES AND LOCAL COMMUNITIES

Additional information has provided for this section which is optional. A summary of the key actions is presented under the various targets given that Kenya has adopted a community-based approach to natural resource management.

SECTION VII. UPDATED BIODIVERSITY COUNTRY PROFILES

The Updated Profile for Kenya has been prepared by MEAs based on this report and will be refined by the CHM at NEMA for updating the Kenyan Country Profile as approved.

RECOMMENDATIONS:

1. **OPTIMISE IMPLEMENTATION:** Based on the CBD Strategic Plan 2011-2020, there has been progress in the adoption and implementation of the Aichi targets in the various sectors especially through the implementation of the Environment, Water and Sanitation Sector Plans. Nevertheless, there is need to plan, track, measure progress and evaluate impact from a CBD perspective.
2. **ALIGN AND MAINSTREAM:** The Vision 2030 and SDG implementation processes have mainstreamed various aspects of the CBD Strategic Plan 2011-2020. There is however a need to align and anchor the NBSAP with these implementation frameworks and in turn, mainstreaming at county level, undertake monitoring and evaluation, and ensure resource mobilization for effective implement. At national and county levels, there is need to link CBD reporting to the national frameworks and processes especially linked to the SDG reporting.
3. **TAKE ADVANTEAGE OF ENABLING CONTEXT:** The 2011-2020 decade in Kenya has focused on reviewing the policy and legal framework to align with the New constitution 2010. This has provided a good opportunity to address the three objectives of the CBD within the legal and policy framework

in Kenya. The decade 2021-2030 provides an opportunity to fast track implementation based on this new foundation.

4. **PARTNER, COORDINATE AND COMMUNICATE:** There is a wide range of actors and stakeholders in Kenya addressing various aspects of the CBD Strategic Plan. However there has been limited coordination, communication and information sharing. There is an opportunity to create a biodiversity forum to enable improved and effective implementation and enhance efficient use of resources. This will ease monitoring and reporting.
5. **UPDATE NBSAP 2021-2030:** This report provides a good baseline for reviewing the NBSAP in line with the Post 2020 framework. It also provides a good basis for refining the NBSAP 2020-2030 and get it aligned to the Vision 2030 planning process, the SDG implementation and many other policy frameworks in Kenya which have a 2030 timeline.
6. **ENHANCE RESOURCE MOBILIZATION FOR BIODIVERSITY:** A Biodiversity Budget and Expenditure Review is recommended to define the resources available, identify gaps and opportunities and enhance resource mobilization.
7. **DEVELOP A BIODIVERSITY POLICY:** The stakeholders in preparing this report noted that the absence of a Biodiversity Policy may have limited the effective implementation of the various biodiversity related legislations. Hence, to build on gains made in implementing the Strategic Plan 2020 and embark on the Post 2020 Global Biodiversity Framework, the timing may just be right to develop a Biodiversity Policy for Kenya.

1. INTRODUCTION

1.1 KENYA CONTEXT

1.1.1 Position and Location¹

Kenya is located on the eastern part of Africa between latitudes 5°N and 4° 40" South. It is almost bisected by the Equator horizontally and vertically by 38° East longitude. Longitudinally, it extends from longitude 33° 53" East of Greenwich Meridian from the Pyramid Islands on Lake Victoria to 41° 55.5" East. Kenya shares boundaries with the republic of Uganda to the west, the Sudan and Ethiopia to the north, Tanzania to the south and Somalia to the East. Kenya's territory comprises a total area of 582,646 km² of which 2.3% of the area consists of water bodies. This include a portion of Lake Victoria (an area of 3,755km²) and other inland water bodies located on the floor of Rift Valley. Kenya's Indian Ocean coastline has a total length of 1420 km. Kenya sea territory extends to the Indian Ocean by 21km while her Exclusive Economic Zone (EEZ) in the Indian Ocean is approximately 111,999km² (GOK National Spatial Plan 2014).

1.1.2 Topography

Kenya's topographical diversity and contrast ranges from plains, plateaus, hills, and mountains. One of the most spectacular features is the Great Rift Valley system that extends from the Middle East to Mozambique. This bisects the country into the highlands west and east of Rift Valley hosting the snowcapped Mt. Kenya, Mt. Elgon, Mau Escarpment, Cherangani Hills and Aberdare ranges. Within the Rift Valley there are many lakes (Turkana, Magadi, Naivasha, Nakuru, Baringo, Elementaita, and Bogoria) while Lake Victoria lies to the west of the Rift Valley. The northern and south eastern parts of the country are generally plains punctuated with mountains and hills. Chalbi is the only true desert in Kenya and is found to the east of L. Turkana. The coastal area contains coral reefs, mangroves and white sandy beaches of the Indian Ocean. ((GOK National Spatial Plan 2014).

1.1.3 Climate

Kenya h equatorial with a complex and variable climate that ranges from warm and humid in the coastal region, to arid and very arid in the interior. Kenya is frequently affected by weather related disasters. These profoundly impact the country's economy and the well-being of Kenyans. Low and unevenly distributed rainfall over much of Kenya means that about 82% of the country receives less than 700 mm of rain per year (GOK NCCAP II 2018).

1.1.4 Population

The total enumerated population in 2019 was 47,564,296 of which 23,548,056 were males, 24,014,716 were Females and 1,524 were Intersex. Females accounted for 50.5% of the total population. The population has grown to 47.6 Million in 2019 from 37.7 Million in 2009 The intercensal growth rate has declined to 2.2% in 2019, from 2.9% in 2009. The population trend for the past fifty years is shown in Fig. 1 below. The Average Household Size has declined to 3.9 in 2019 from 4.2 in 2009. (KNBS 2019)²

1.1.5 Economic Growth

The diverse ecosystems and habitats in Kenya are as a result of unique topography, climate, geology, and drainage systems. Within this rich and diverse environment are over 40 communities with diverse cultural heritage and livelihoods. This offers Kenya diversity in socio-economic activities such as crop farming, pastoralism, tourism, mining, fishing, water transport, hydro and geothermal power generation, and urban entrepreneurship. Kenya has great potential for renewable energy sources in the form of solar and wind energy resources which are harnessed to complement the country's power supply.

The major drivers of the economy in Kenya are: Agriculture; Forestry and Fishing, Construction; Wholesale; and retail trade, Transport and Storage, Hospitality (Hotel and catering), Manufacturing and Finance and Insurance. In regard to balance of payments, Kenya imports more than it exports in terms of value, therefore remaining in trade deficit. The main reason for this is that Kenya exports mainly agricultural products such as

¹ Source: Kenya National Spatial Plan 2015-2045

² www.knbs.or.ke/?p=5621

tea, coffee and horticulture and imports high-value products such as machinery and other capital equipment, fuel and lubricants and non-food industrial supplies.



Figure 1: Trends in Population growth in Kenya 1969 -2019

(Source: KNBS 2019)

1.1.6 Natural Resources:

Land: Land in Kenya is an important factor of production as it provides the foundation for all other activities such as agriculture, water, settlement, tourism, wildlife and forestry. About 42 per cent of GDP is derived from natural resources hence sound environmental conservation is necessary to assure continuous supply of environmental goods and services. However, land scarcity and population pressure is partly responsible for the conversion of marginal lands (such as floodplains, rangeland and slopes) into farmland. This situation further increases vulnerability and aggravates environmental damage. (Source: National Spatial Plan 2014.

Biodiversity: Kenya is endowed with unique natural ecosystems that constitute biodiversity assets in the terrestrial, aquatic and aerial environments. These comprise over 35,000 species of flora and fauna. This diversity is as a result of the variable ecosystems ranging from marine, mountains, tropical, dry lands, forests and arid lands. In addition, there are some 467 inland lake and wetland habitats covering about 2.5% of the total area. Kenya's rich biodiversity can be attributed to a number of factors, including a long evolutionary history, variable climatic conditions, diverse habitat types and ecosystems. (GOK 2016)³.

Kenya has an array of bio-geographical zones spread along altitudinal gradients from the coast to the snow-capped peaks of Mt. Kenya, reaching over 5000m above sea level. The latitudinal gradient in Kenya is bisected into two by the equator and some species e.g., Grevy's zebra, Reticulated Giraffe, Beisa Oryx respond to this gradient. Globally Kenya is classified in the second group of mega-biodiverse nations. The foundation for Kenya's vertebrate and invertebrate diversity is the richness and abundance of its plant life and bio-geographic spread.

The East African region has a documented 12,317 species: this is the highest plant diversity per unit area across mainland tropical Africa. Of these at least 7,004 (57 per cent) are found in Kenya. With the advent of more advanced taxonomic and biodiversity survey tools such as molecular techniques, this number is likely to change as new species will be established and recorded. Currently 4,623 plant species within 1,387 genera are documented.⁴ In addition, 766 species of bryophytes, 511 ferns and 2,071 species of fungi and lichens have been recorded. The Kenya-Tanzania borderland stands out on the African continent for its wealth of mammal which are associated with certain specific wildlife species. These biomes contain high levels of animal species diversity and genetic variability, and have many endemic, rare, endangered and threatened species. There are 393 Mammals in Kenya consisting of 2 golden moles; 43 even toed ungulates; 4 odd toed ungulates; 36 carnivores; 26 Whales, 5 dolphins and porpoises; 105 bats; 39 hedgehogs; 4 hyraxes; and 4

³ GOK 2016: Kenya Strategic Investment Framework for Sustainable Land Management. 2017-2027

⁴ Source: National Museums of Kenya).

Lagomorphs; 5 elephant shrews; 3 pangolins; 20 primates; 1 proboscis; 94 rodents; 1 Dugong and 1 aardvark. Kenya has over 260 reptiles (Snakes, lizards, geckos, skinks, chameleons, tortoise, turtles, terrapins, crocodile) and amphibians (toads, frogs, salamanders) species; 1,105 bird species; 769 Fish species (362 fresh water) of which 5 are likely to be extinct , 168 arthropods, arachnids. The 2017 IUCN list of threatened species showed that Kenya had 463 plant and animal species which were threatened. Of these, 30 mammals, 43 birds, 73 fish and 234 plants. The broad classification by IUCN while listing threatened species includes Critically Endangered, Endangered, Vulnerable, Near Threatened, Least Concern, Data Deficient, and Not Evaluated. (GOK 2018. National Wildlife Strategy 2030).

Ecosystems: Kenya has a unique diversity of ecosystems, ranging from mountains, forests, rangelands, arid lands, croplands, and urban areas, to marine and inland waters. Kenya's economy depends on a healthy environment and the sustainable use of natural resources, and this dependency is increasingly acute in the face of climate change. Land use change stemming from rural-urban migration and unsustainable development leads to degradation of both private and common property resources such as fisheries, forests, rivers and rangelands. Coupled with the direct over utilization of wildlife through poaching, bush meat, and the illegal wildlife trade, the resulting habitat degradation and fragmentation are threatening the productivity and resilience of ecosystems and the diversity and viability of biodiversity across the country. Ecosystem degradation and biodiversity loss has wide ranging impacts including, increased vulnerability to climate change and natural disasters, declines in productivity (e.g. fisheries, agriculture, livestock, etc.), and precipitous declines in iconic species such as elephant, rhino, giraffe, pangolin, and dugong. Climate change, population growth, changing aspirations, poverty, pollution and invasive species, and unplanned development are all threats to biodiversity. (GOK 2018)⁵

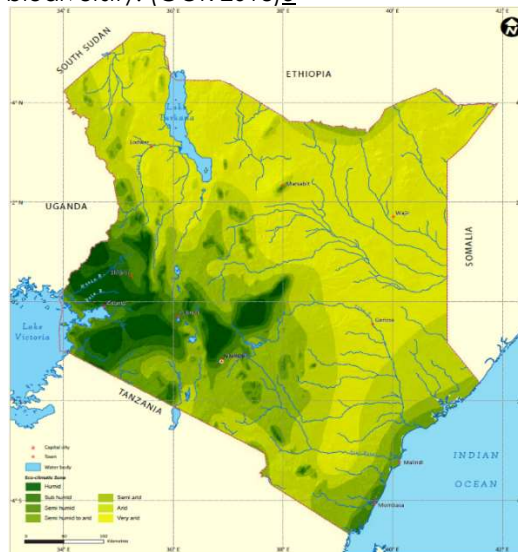


Figure 2: Eco climatic Zones of Kenya⁶

Forests: Kenya has a wide range of valuable forest ecosystems that can meet the increasing needs of its peoples if the resources are used in a sustainable manner. The key forest ecosystems are riverine, dryland, marine, western rainforest systems and montane forests. The montane forest ecosystems include the five major water towers: Mount Kenya, Aberdares Range, Mau Forest Complex, Mount Elgon and the Cherang'ani Hills. They represent the largest tracts of high-canopy forests that form the upper catchments for most of the main rivers and are sources of essential wood and non-wood products. Dryland forests are

⁵ GOK 2018: National Wildlife Strategy 2030

⁶ GoK (2015b) Kenya's Natural Capital: A Biodiversity Atlas. Ministry of Environment, Water and Natural Resources. Environment, Natural Resources (MoEW&NR) and Regional Development Authorities. Government of Kenya.

also essential in providing the basis for energy, fodder and construction material for livelihoods in the arid and semi-arid lands (ASALs)(GOK 2016)⁷.

Water resources: The total renewable freshwater resources¹ of Kenya are estimated to be 76.610 billion m³/year, of which 20.637 billion m³/year is surface water and 55.973 billion m³/year is ground water. Kenya's surface water resources are distributed across five major drainage basins: Tana, Athi, Ewaso Ng'iro North, Rift Valley and Lake Victoria Basins. These basins drain from the major water towers: Mt. Kenya, the Aberdares, the Mau escarpment, Cherangani/Tugen Hills and Mt. Elgon and other smaller water catchment areas. Wetlands occupy between 3% to 4% of Kenya's land surface. The diverse water towers contain about 164 sub-basins with perennial rivers, of which 33 have ephemeral flows, while 90 sub-basins suffer from surface water deficits. About 54% of Kenya's water is in transboundary basins, shared with other countries. Other significant catchments include sandy reserves at the Kenyan Coast such as Shella Dunes of Lamu and oases in arid areas such as Loiyangalani in Marsabit. There are also reservoirs created from dams and ponds, spread across the landscape. Kenya boasts about 880 km of coastal shoreline with an Exclusive Economic Zone of 200 nautical miles. (GOK 2016; KSIF 2017-2027))

Wildlife: Kenya has officially protected over 8% of its terrestrial and marine ecosystems with a network of National Parks, National Reserves, Forest Reserves, and Sanctuaries. This is complimented by a further 160 Conservancies, ensuring an additional 11% of Kenya is actively managed for wildlife conservation. These Conservancies are estimated to contain as much as 60% of Kenya's large mammals and protect a diverse array of habitats and other species. Wildlife, and wildlife habitats, are an extremely important economic asset since they are central to the tourism industry which attracts over one million tourists to our country every year. In 2017, tourism generated over 10% of the national gross development product (GDP) and directly employed nearly 11% of the total formal workforce. (GOK 2018: National Wildlife Strategy 2030)

1.2 THE SIXTH NATIONAL REPORT

1.2.1 Background

Article 26 of the Convention on Biological Diversity (CBD) requires Parties to submit periodic national reports to the Conference of Parties (COP) that assess measures taken to implement the CBD and the effectiveness of those actions in meeting the Convention's objectives. At their tenth meeting, the CBD COP adopted a Strategic Plan for Biodiversity 2011-2020⁸ (CBD COP decision XI/2). It included 20 Aichi Biodiversity Targets (ABT) to be achieved by 2020 at the global level. The Strategic Plan for Biodiversity 2011-2020 was welcomed and supported by the United Nations General Assembly, the different biodiversity-related Conventions, and other relevant organizations. The progress that countries are making to implement actions to achieve these targets, and the impact of them, are assessed during the national reporting process⁹.

Kenya submitted the 5th National Report to the CBD in 2015¹⁰ on the progress and achievements made in implementing the Aichi Biodiversity Targets. There were many success stories and improvements in biodiversity protection and restoration noted. However, there were also areas of concern raised and recommendations made. It was noted that while significant progress had been made in the implementation of the Convention, CBD Strategic Plan and the Aichi targets, the speed of implementation was heavily affected by the country's inadequate capacity with respect to its financial, human, scientific, technical and technological needs. Kenya has ratified the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits arising from their Utilization.

At the thirteenth meeting of the Conference of the Parties (COP 13) to the CBD, the Sixth National Report (6NR) guidelines and reporting templates (Decision XIII/27)¹¹ were adopted. The 6NR contains seven sections, hence:

⁷ GOK 2016: National Forest Programme 2016-2030

⁸ <https://www.cbd.int/sp/>

⁹ <https://www.cbd.int/reports/intro.shtml>

¹⁰ <https://www.cbd.int/doc/world/ke/ke-nr-05-en.pdf>

¹¹ <https://www.cbd.int/doc/decisions/cop-13/cop-13-dec-27-en.pdf>

1. Information on the targets being pursued at the national level,
2. Implementation measures taken, assessment of their effectiveness, associated obstacles and scientific and technical needs to achieve national targets,
3. Assessment of progress towards each national target,
4. Description of the national contribution to the achievement of each global ABT,
5. Description of the national contribution to the achievement of the targets of the Global Strategy for Plant Conservation (this section is optional),
6. Additional information on the contribution of indigenous peoples and local communities to the achievement of the ABT if not captured in the sections above (this section is optional); and
7. Updated biodiversity country profiles.

In response to CBD/COP/DEC/XIII/27, the CBD secretariat developed a voluntary online reporting tool¹² aligned with the reporting templates. Further, to assist the Parties in preparing the 6NR, resource manual, taking into account, among other relevant elements, guidance was made available on common data sources, indicators and other relevant information provided by the secretariats of other biodiversity-related conventions and to the Liaison Group of biodiversity-related conventions.¹³

Based on the guidance and available resources, Kenya has prepared its' 6NR using global and national indicators and the best available data to monitor the indicators on biodiversity status and trends. The process effectively engaged key stakeholders to develop reports on progress towards achieving each Aichi Biodiversity Target. This included stakeholder consultations, stakeholder write shops, key expert consultations, literature review and peer review. The Kenya 6NR seeks to provide an accurate and up-to-date reflection on the current biodiversity status and trends; the progress in achieving the national targets; and contribution of the country's actions to achieving the global ABTs and implementing the CBD Strategic Plan for 2011-2020. This report also provides information relevant to assessment of progress in addressing aspects of other international commitments, including the U.N. Sustainable Development Goals (SDGs) reporting and other biodiversity-related conventions.

¹² <https://chm.cbd.int/>

¹³ <https://www.cbd.int/doc/nr/6NR-Technical-Guidance-en.pdf>

2 SECTION I. INFORMATION ON THE TARGETS BEING PURSUED AT THE NATIONAL LEVEL

2.1 INFORMATION ON THE TARGETS BEING PURSUED AT THE NATIONAL LEVEL

My country has not adopted national biodiversity targets and is reporting progress using the Aichi Biodiversity Targets for reference.

3 SECTION II. IMPLEMENTATION MEASURES TAKEN, ASSESSMENT OF THEIR EFFECTIVENESS, ASSOCIATED OBSTACLES AND SCIENTIFIC AND TECHNICAL NEEDS TO ACHIEVE NATIONAL TARGETS

3.1 VISION 2030 AND MEDIUM-TERM PLAN II AND III.

Describe a measure taken to contribute to the implementation of your country's national biodiversity strategy and action plan.

Vision 2030 and the MTPs provide the overarching policy framework for the implementation of the CBD Strategic Plan and its Aichi Biodiversity Targets for Kenya. Kenya's Vision 2030 aims to deliver a "newly industrializing, upper middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment". This long-term national plan is being implemented through five (5), medium term plans and 25 annual budgets. The current Medium-Term Plan (MTP III) 2018-2022 succeeds the Second MTP (MTP II) 2013-2017 and the First MTP (2008-2012).

The Social Pillar of Kenya Vision 2030 demands development in a clean secure environment for all citizens as essentially guaranteed by the National Constitution 2010 and the Environmental Management and Coordination Act (EMCA) and its 2015 revision-the Environmental Management and Coordination (Amendment) Act.

Under MTP I, Science, Technology and Innovation (STI) was prioritized as an enabler with the capabilities of STI considered critical in ensuring sustainable development associated with natural resource management and disasters. Further, STI capabilities were to promote sustainable development, especially through social integration, conservation and sustainable management of biodiversity, sharing opportunities and benefits of a knowledge-based society and economy, while strengthening local and indigenous knowledge and culture. Land reforms were expected to address issues concerning land ownership and administration, security of tenure, land use and development, and environmental conservation.

Under the Environment, Water and Sanitation Sector, the MTP I objective was "Enhancing Access to a Clean, Secure, and Sustainable Environment, Water and Sanitation" Given that about 42 per cent of GDP is derived from natural resource-based sectors of agriculture, forestry, tourism, mining, water and energy, sound environmental conservation was necessary to assure continuous supply of environmental goods and services, and support mitigation of serious calamities and occurrences e.g. drought, floods and global warming.

With respect to Governance, Justice, Law and Order Sector, under MTP I, other policies, legal and institutional measures were undertaken to operationalize and implement devolution. These included preparation of a report on implementation of devolved government, formulation of policy paper on implementation of devolution, enactment of various laws on namely: County Governments Act, 2012; Transition to Devolved Government Act, 2012; Intergovernmental Relations Act, 2012 Public Finance Management Act, 2012), National Government Coordination Act, 2012

The second MTP prioritized devolution, STI and Ending Disasters and Emergencies. One of the key achievements of the MTP II was the successful implementation of the devolved system of government.

This saw the establishment of 47 County Governments with the relevant enabling laws in place and the transfer of devolved functions which gives mandate to county governments to manage and conserve their natural resources.

Under EDE the government prioritized the management of climate induced disasters by strengthening people's resilience to drought and improving the monitoring of, and response to the emerging drought conditions. The government introduced several initiatives to reduce the impact of disasters in the country; reduce drought vulnerability and enhance adaptation to climate change.

The MTP II targeted to strengthen the National Statistical System to support planning, and monitoring and evaluation of policies and Programmes. In this regard, the Kenya National Bureau of Statistics (KNBS) established offices in each of the 47 counties to coordinate statistical capacity building Programmes at the county level and ensure that international standards are applied in the production and dissemination of county statistics. The MTP II also envisaged that a number of surveys and censuses were to be conducted to improve on the quality and timeliness of data.

Further under Devolution, The Ministry of Devolution and Planning developed and disseminated guidelines for preparation of County Integrated Development Plans (CIDP) to guide counties in developing their CIDPs as well as guidelines for mid-term reviews of CIDPs. A national spatial data plan was developed to guide spatial planning at national and county levels.

The Third Medium Term Plan (MTP III) 2018-2022 is the second to be prepared under the devolved system of governance. Implementation of the MTP III and its financing framework focus on delivering the "Big Four" initiatives¹⁴ with the aim to support higher economic growth and faster job creation, but also reduce the high cost of living affecting many people.¹⁵

The key objective of MTP III is to implement policies, Programmes and projects that facilitate the attainment of the Sustainable Development Goals (SDGs). All Ministries, Counties, Departments and Agencies (MCDAs) report on the relevant monitoring indicators identified by the Kenya National Bureau of Statistics (KNBS).

Additional initiatives have been undertaken to harmonise planning and implementation at county level with the national planning framework. The National Treasury and Planning prepared and issued guidelines for aligning the County Integrated Development Plans to MTP III. Further, guidelines for preparation of Strategic Plans for all Ministries, Departments and Agencies (MDAs) in line with MTP III were also issued.

Development activities planned under Vision 2030 were projected to have different impacts on the state of the environment including increased pollution levels, increase in effluents discharged and waste which would require effective and efficient management. In line with the country's global commitment towards the sustainable development objective, targeted socio-economic development initiatives towards the Vision 2030 targets would take into account environmental considerations.

The Government also spearheaded the formulation of the Green Economy Strategy and Implementation Plan. About 42% of Kenya' GDP and 70% of the employment is derived from natural capital, mainly in the sectors of agriculture, forestry, mining, fisheries and tourism. The development of a national green economy strategy was identified as a priority under the MTP II to support implementation of Vision 2030. A Green Economy Assessment was undertaken in 2014 which proposed the alignment of the Green Economy across spheres of the social, economic and environmental spheres of society. One of the thematic areas under the GESIP is sustainable resource management. The GESIP has informed a range of initiatives including the Sustainable Financing Initiative under the Kenya Bankers Association¹⁶.

GESIP notes that integrating natural capital into economic growth poses a challenge towards transitioning to Green Economy. Kenyan prices and policy regime do not fully account for the external costs associated with technologies, products and practices that are environmentally friendly. As such, the thematic area 3 on Sustainable Natural Resource Management focuses on the economy-environment nexus to optimize contribution of Kenya's natural resource to the economy, industrialization

¹⁴ <https://www.president.go.ke/>

¹⁵ Government of the Republic of Kenya, 2018. Vision 2030: Third Medium Term Plan 2018-2022

¹⁶ <https://www.kba.co.ke/news32.php>

and livelihoods. It encompasses agriculture, forestry, water, wildlife, land use and extractive industries. GESIP seeks to address the drivers of change in both biological and physical aspects of natural resources emphasizing the need for decoupling development from natural resources management and conservation of Kenya's natural capital. In order to address the degradation and loss of natural resources, the tools under this thematic area include spatial planning and targeted periodic valuation of natural capital, payment for ecosystem services and environmental accounting to be scaled up.

In order to realize the aspirations of Vision 2030 goals, the government has made efforts to mainstream gender into government policies, plans, budgets and Programmes as an approach geared at achieving gender equity in all aspects of society. Moreover, the government has sought to increase the participation of women through the affirmative action policy of at least 30 per cent representation in all economic, social and political decision-making processes and platforms as well as through economic empowerment. As a positive step to reduce vulnerability across gender lines, deliberate efforts are being made to reduce levels of poverty across the board, prohibit retrogressive cultural practices and social ills as well as improve access to essential services. In addition, the government is seeking to ensure that the country upholds the basic rights of children in line with internationally recognized standards and produces a globally competitive labour force inclusive of young people at all levels, through youth empowerment Programmes and policies.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes.

All targets.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

Under MTP 1,

- National Spatial Plan concept papers on National Land Use Policy and National Spatial Plan prepared.
- Established the institutional framework for the preparation of the National Spatial Plan Land cover and land use maps updated/modernized:
- Land Reform Programme: Environment and Land Court Act, 2011, National Land Commission Act, 2012, Land Act, 2012 and Land Registration Act, 2012, Sessional Paper No 3 of 2009 on National Land Policy.

For the Environment, Water and Sanitation Sector

- Solid waste management strategy was developed during MTP I period to provide the strategic framework for clamping down on illegal dumpsites.
- A draft policy document on Nairobi Rivers Basin Programme (NRBP) was developed. A national geo-spatial data infrastructure for environmental and natural resource management was developed.
- The coastal zone pollution prevention guidelines and shore management strategy and guidelines were finalized.
- Four management plans for wetlands were developed.
- The national irrigation master plan was finalized and implementation commenced.
- Six water catchment management strategies were completed during MTP I.
- Transboundary water policy was prepared and submitted to the cabinet for approval.

Under MTP 11

Under Science, Technology and Innovation,

- Key policy and legal reforms undertaken include the following draft policies and bills developed included: Biosciences Policy and Bill, Nanotechnology policy, the Natural Products Policy and Bill.

- The following institutions were established: Kenya National Innovation Agency (KENIA), National Research Fund (NRF), National Commission for Science, Technology and Innovation (NACOSTI),

With respect to land reforms,

- the National Spatial Plan was finalized,
- the Kenya National Spatial Data Infrastructure Policy and the National Land Use Policy submitted to Cabinet for approval.
- Community Land Act (2016) and Land Laws (Amendment) Act 2016 were enacted
- the Physical Planning Bill was submitted to the Senate.

Under EDE, these initiatives included:

- The establishment of the National Disaster Management Unit under the Ministry of Interior and Coordination of National Government
- Establishment of disaster loss databases as a tool for drought risk reduction planning, new investment for pastoral reinforcement and transformation
- Establishing of new architecture for peace, establishment of National Drought Management Authority and Arid and Semi-Arid Lands (ASAL) focused institutions

In the Agriculture, Livestock and Fisheries Sector,

- Kenya adopted the climate-smart agriculture such as harnessing farm waste as source of organic fertilizer and use of bio-fertilizer that does not contribute to harmful emissions, better weather forecasting/early warning systems, growing resilient food crops, managing post-harvest losses and crop insurance.
- The following acts were enacted: The Agriculture, Fisheries and Food Authority Act 2012; the Kenya Agricultural and Livestock Research Act 2012 and the Crops Act 2012. This has given rise to the Agriculture, Fisheries and Food Authority (AFFA); and the Kenya Agricultural and Livestock Research Organization (KALRO).
- To facilitate development of the fisheries resources within the Blue economy, the Tuna Fisheries Development and Management Strategy was developed and launched in November 2014 while the Fisheries Management and Development Bill (2016) was enacted into law on 3rd September 2016. In 2014, the government acquired a 55.6-meter-long Deep-Sea Research Vessel RV MTAFTI at a value of Kshs. 3.2 billion to enhance the capacity on marine fisheries research.
- The country also set coast guard to police and also acquired a marine patrol vessel O PV DORIA protect the fisheries resources within the country.

Under the Environment, Water and Sanitation Sector, in the MTP II period,

- The Environmental Management and Coordination Act 1999 and Wildlife Conservation and Management Act 2013 were reviewed. In addition, the Forest Conservation and Management Act, 2016, Natural Resources Act, 2016, Water Act 2016, and Climate Change Act 2016 were enacted. The National Environment Management Authority (NEMA) was also accredited as a National Implementing Entity for the Green Climate Fund.
- A total of 47 County Environmental Action Plans were developed and finalized.
- The preparation and publishing of Ministry of Environment and Natural Resources: Kenya Strategic Investment Framework for Sustainable Land Management 2017-2027 (KSIF).
- Harmonized Regional Standards for Discharge of Industrial and municipal effluent into water bodies within Lake Victoria Basin 2011
- Regional Water Resources Management Policy 2012 (Lake Victoria)
- Regional Water Resources Bill 2014 (for Lake Victoria)
- Regional Basin Wide Strategy for Sustainable Land Management 2012(Lake Victoria Basin)
- Regional Water Hyacinth Surveillance, Monitoring and Control Strategy 2011(Lake Victoria Basin)
- Development of Options for the Establishment of Lake Victoria Environment Trust Fund 2016 (LVETF)
- Lake Victoria Fisheries Management Plan 2016
- Fish Levy Trust Fund (Lake Victoria) as part of the Kenya Fisheries Management and Development Act 2016
- Fish Levy Trust Fund Regulations 2014(Lake Victoria)
- Fish Levy Trust Fund Business Plan 2011(Lake Victoria)
- Fisheries and Aquaculture Policy for East African Community 2018

- Water Release and Abstraction Policy for Lake Victoria 2012
- Water Resources Information System (WRIS) 2014 for Lake Victoria
- Publication of The Master Plan for the Conservation of Water Catchment Areas 2015
- Production of an Atlas of Kenya's Biological Diversity (Atlas of our Natural Capital)

Under manufacturing, On the Natural products industry initiative,

- Documentation and profiling of all relevant players in the sub-sector involved in raw material access; technology transfer; patenting; product quality and licensing regulators; and marketing of finished products was undertaken.
- A number of products were identified for market-sounding.

Proposed for MTP III

The key highlights for **MTP III Environment, Water, Sanitation and Regional Development under the** Policy, Legal and Institutional Reforms component are

Policy Reforms:

- Develop Meteorology Policy; National Air Quality Management Strategy; Policy on plastics; National Solid Waste Management Policy; Policy on population, health and environment; National Resource Assessment Policy; National Water Policy; Legal framework for the implementation of trans-boundary water policy.
- Finalize National Wildlife Conservation and Management Policy; National Policy on Groundwater Resources Development and Management; National Irrigation Policy; National Land Reclamation Policy; review of the RDA Policy
- Draft Water Towers Management Policy; National water harvesting and storage Policy

Legal Reforms

- Develop Meteorology Bill; Bill on plastics; National Solid Waste Management Bill.
- Review Environmental Impact/Audit Regulations of 2003, and the Environmental Management and Co-ordination (Wetlands, riverbanks, lake shores and sea-shore management) Regulations, 2009; Environmental Management and Co-ordination (Water Quality) Regulations, 2006; Kenya Water Institute Act 2001.
- Enact regulations and guidelines to operationalize the Wildlife Act 2013.
- Develop regulations and guidelines to operationalize the Forest Conservation and Management Act 2016.
- Draft the Biodiversity Bill; Water Towers Management Bill; National water harvesting and storage Bill.
- Finalize the regulations and guidelines to operationalize the Water Act 2016; Finalize National Irrigation Bill; Finalize National Land Reclamation Bill; Review of the RDA legal framework.

Institutional Reforms

- Operationalize the National Water Harvesting and Storage Authority; and Transfer the Water Sector Institutions as per Water Act 2016.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found.)

GOK 2018: The Presidency - Vision 2030: Marking ten years of Progress (2008-2018):
<http://vision2030.go.ke/inc/uploads/2018/09/Kenya-Vision-2030-Sector-Progress-Project-Updates-June-2018.pdf>

Government of the Republic of Kenya. 2007. Vision 2030. Popular Version.
<http://vision2030.go.ke/inc/uploads/2018/05/Vision-2030-Popular-Version.pdf>

Government of the Republic of Kenya 2008: Vision 2030: First Medium Term Plan 2008-2012.
http://vision2030.go.ke/inc/uploads/2018/06/kenya_medium_term_plan_2008-2012-1.pdf

Government of the Republic of Kenya 2013: Vision 2030 Second Medium Term Plan 2013-2017

<http://vision2030.go.ke/inc/uploads/2018/06/Second-Medium-Term-Plan-2013-2017.pdf>

Government of the Republic of Kenya 2018: Vision 2030 Third Medium Term 2018-2022.<http://vision2030.go.ke/inc/uploads/2019/01/THIRD-MEDIUM-TERM-PLAN-2018-2022.pdf>

MTP III Indicators Handbook

GOK 2019. MTP III Indicators handbook. <https://monitoring.planning.go.ke/wp-content/uploads/2019/07/MTPIII%20Indicator%20Handbook%202019%20PC.pdf>

Other relevant information, including case studies to illustrate how the measure taken has resulted in (or is expected to result in) outcomes that contribute to the implementation of the NBSAP

Case Studies: NATIONAL SPATIAL PLAN 2015-2045

The country is endowed with diverse ecosystems and habitats that are home to unique and diverse flora, fauna and microbes. The effects of climate change, increase in human population and the high dependence on the natural capital exert pressure on the limited resources, leading to over-exploitation and degradation.

Despite the efforts put in place by the Government, land degradation and ecosystem destruction continue to be a major concern. This is manifested in the increasing siltation of water bodies and rivers. Further, waste management, air and water pollution remain major challenges in most of our urban centers. Rapid population growth and urbanization has continued to increase waste generation leading to unsustainable disposal.

A key component of our natural capital is the biodiversity which supports agriculture, tourism, health and other sectors. Despite its importance, the country continues to lose its biodiversity due to rapid population increase, habitat degradation and loss; Land degradation; desertification and over-exploitation of the ecosystems and species, as well as through application of herbicides and pesticides.

The Constitution of Kenya 2010 apportions responsibility of planning to both National and County Governments. Under the Fourth Schedule on distribution of functions Part 1 (21) and (32) the National Government is charged with the responsibility of formulating general principles of land planning co-ordination of planning by the counties, capacity building and technical assistance to the counties. On the other hand, Part 2(8) allocates the function of county planning and development to County Governments.

The National Spatial Plan 2015-2045 launched in March 2017 provides a framework to optimize the utilization of the national territory by reorganizing and adjusting the way land is used to achieve overall efficiency and sustainability. The strategy allocates land to different activities rationally by putting into consideration the land capacities and potentials and by addressing concerns arising from the need to protect and conserve the environment. To underscore the great importance of the Environmental considerations, implementation of projects and Programmes can only be undertaken after Environmental Impact Assessment has been undertaken and results shared and validated. There are Programmes to ensure protection and conservation of water sources and ecosystems. The National Spatial Plan (2015-2045) launched in March 2017 guides the implementation of projects under MTP III, Sector Plans, County Integrated Development Plans (CIDPs) and other county plans.

In undertaking their mandate the counties are expected to perform the functions of; preparation of County spatial plans and urban spatial plans, implementation of the plans, undertaking of research on spatial planning within their area of jurisdiction and participating in the preparation of regional spatial development plans. The Ministry of Lands and Physical Planning in collaboration with the Council of Governors prepared County Spatial Planning Guidelines in 2018 to assist County Governments in addressing the challenge of institutionalizing spatial planning in the counties. The guidelines require that all counties address cross cutting issues hence, Environment, climate change, gender, youth and disability. This ensures priority mainstreaming-needs permeate decision-making culture and practices as well as corresponding identified policies and Programmes to bring about improved livelihoods, increased

economic security and environmental management. Under Environment, the guidelines stress that Constitution of Kenya 2010: Environmental rights are envisaged under Article 42 which provides for the right to a clean and healthy environment, including the right to have the environment protected for the benefit of present and future generation. Chapter Five (Land 17 and Environment); Part 2 deals with the Environment. This requires sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefit to be achieved through planning for instance.

Some case studies include the Lamu and Bungoma County Spatial Plans.

Case study: Lamu County Spatial Plan.

The first planning sector is Natural Resources, Biodiversity and Environmental Conservation. Under this section, the CSP endeavors to promote the conservation and protection of ecologically sensitive biodiversity since this form the main spatial organizing element of the Lamu County. It does imply that only developments that are environmentally friendly will be allowed in the County of Lamu. Some of the objectives under this section are:

- Empower the people of Lamu to utilize the Natural capital sustainably to meet their diverse needs.
- Reclaim and rehabilitate ecologically sensitive areas that have been lost
- Establish and empower existing Natural capital community groups to protect and conserve natural capital in their own area of jurisdiction

The strategies are:

- Protect and conserve the demarcated natural capital areas in the County spatial plan
- Reconciliation of all development activities on both land and sea with expected widespread impacts on natural capital in the County
- Community awareness Programmes on all projects and their impact on the natural capital in their own County and area
- Establish sustainable community initiatives of utilization of natural capital
- Promote community awareness campaigns of the state of the current natural capital base use practices and its consequences now and for posterity
- Establish collaborative mechanisms among the stakeholders with the Community to protect and conserve demarcated natural capital areas
- Establish collaborative mechanism in form of county pacts to monitor common resource use across county borders
- Central and County Governments to establish measures of improving security in the County to enable effective protection of natural capital and its utilization
- All development projects to be subject to plan guidelines and natural capital assessment criterion and participation of the local community
- Fully utilize the tourism potential of the County based on the triple package integrated with the community to bolster conservation efforts
- Natural capital resource plans and guidelines for natural capital will be prepared for detailed implementation of the plan
- National government and the government of Somalia, and others to initiate mechanisms of conserving and sustainable use of natural capital

The environmental aspects are later divided into terrestrial & marine aspects. A natural capital development model is presented.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information can be found)

GOK 2015 .National Spatial Plan 2015-2045.

<https://vision2030.go.ke/publication/kenya-national-spatial-plan-2015-2045/>

<https://lands.go.ke/wp-content/uploads/2018/03/National-Spatial-Plan-popular-version..pdf>

GOK 2018 – County Spatial Planning Guidelines

<https://cog.go.ke/downloads/category/93-county-spatial-planning-guidelines-county-spatial-planning-guidelines>

Lamu County Spatial Plan

<http://lamu.go.ke/2017/07/lamu-county-spatial-plan-2016-2026/>

Government of the Republic of Kenya. 2007. Vision 2030. Popular Version.
<http://vision2030.go.ke/inc/uploads/2018/05/Vision-2030-Popular-Version.pdf>

Obstacles and scientific and technical needs related to the measure taken: Please describe what obstacles have been encountered and any scientific and technical needs for addressing these, including technical and scientific cooperation, capacity development

Challenges include:

- a. Inadequate budgetary allocation,
- b. Inadequate enactment of policy and legislation,
- c. Slow implementation of PPP projects,
- d. Environmental degradation and pollution,
- e. Inadequate bilateral mechanisms of trans-boundary natural resources,
- f. Increased population pressure,
- g. Inadequate institutional capacity to implement certain environmental initiatives
- h. Inadequate technical capacity to implement projects and Programmes,
- i. Inadequate water conservation strategies,
- j. Insecurity and resource conflicts in project areas,
- k. Invasive plant species have posed a remarkable challenge to the integrity of the various ecosystems across the country,
- l. Delays in implementation of functions devolved from National to County,
- m. Frequent shifting of the integrated development functions across ministries leading to slow implementation of ongoing projects and Programmes,
- n. Poor infrastructure that inhibits access to project sites.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to these obstacles and scientific and technical needs can be found.)

- Vision 2030 - <https://vision2030.go.ke/>
- Third Medium Term Plan 2018-2020-<https://vision2030.go.ke/publication/third-medium-term-plan-2018-2022/>
- The President's Big Four Initiative - <https://www.president.go.ke/>
- Mid Term Review of Kenya United Nations Development Assistance Framework (UNDAF) 2014-2018. <https://reliefweb.int/sites/reliefweb.int/files/resources/Final%20Report%20of%20the%20UNDAF%20MTR%20Report.pdf>
- **Government of the Republic of Kenya 2018. Vision 2030.** Sector Plan for the Environment, Water, Sanitation and Regional Development. <https://planning.go.ke/wp-content/uploads/2020/02/SP-7146-SECTOR-PLAN-FOR-Environment-Water-and-Sanitation-FINAL.pdf>
- **Government of the Republic of Kenya 2017:** Vision 2030 – Third Annual Progress Report 2015/2016 on the Implementation of the Second Medium Term Plan. https://planning.go.ke/wp-content/uploads/2018/04/THIRD-ANNUAL-PROGRESS-REPORT-2015_16.pdf

3.2 THE CONSTITUTION OF KENYA

Describe a measure taken to contribute to the implementation of your country's national biodiversity strategy and action plan.

The 2010 Kenyan constitution was hailed as progressive for dealing with issues rarely addressed by national law as it gave a lot of emphasis on environmental conservation and sustainable development. Some of the Articles of the constitution emphasizing the need for environmental conservation include:

- i. Preamble which states that "We, the people of Kenya –Respectful of the environment, which is our heritage, and determined to sustain it for the benefit of future generations."
- ii. Article 2(5) which states that the general rules of international law shall form part of the law of Kenya.
- iii. For the purposes of protection of the environment several principles of international environmental law which act as a guide on development of environmental legislation have been identified. Among the said principles are the polluter pays principle; public participation; sustainability; inter & intra- generational equity; prevention; and precautionary principle.
- iv. Chapter 5 on Land and Environment emphasizes that the state has an obligation to protect the environment as well as protect the rights of the people regarding their dependence on and use of the environment.
- v. Article 42 under Chapter 4 on the Bill of Rights guarantees every person a right to a clean and healthy environment, which includes the right to (a) to have the environment protected for the benefit of present and future generations through legislative and other measures, particularly those contemplated in Article 69; and (b) to have obligations relating to the environment fulfilled under Article 70.
- vi. Article 69 of the new Kenyan constitution outlines the obligations of the state in protecting the environment. These obligations include, but are definitely not limited to the following 7 points: The State shall—
 - a. ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits,
 - b. work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya,
 - c. protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities,
 - d. encourage public participation in the management, protection and conservation of the environment,
 - e. protect genetic resources and biological diversity,
 - f. establish systems of environmental impact assessment, environmental audit and monitoring of the environment,
 - g. eliminate processes and activities that are likely to endanger the environment; and utilize the environment and natural resources for the benefit of the people of Kenya.

Further, every person has a duty to cooperate with State organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources.

- vii. Article 70 expands on this by stating that anyone who feels these rights have been denied, infringed, violated, or threatened can seek legal redress in a court of law.

Enforcement contemplated by Article 70 will be done through the Environment and Land Court established under Article 162 (2) (b). The Court has the same status as the High Court. This effectively denies High Court jurisdiction over environmental matters under Article 165 (5) (b).

Further, Kenya established Law Review Commission to ensure that all the laws in the Statute Book are reviewed and aligned to the Constitution. Key to these reforms was devolution, which created county governments with both an executive and legislative arm. The Kenya Law Reform Commission (KLRC) therefore draws its mandate and functions from the Constitution of Kenya 2010, Section 6 of the KLRC

Act of 2013, and the County Governments Act, 2012. These instruments broadly require KLRC to review all the laws of Kenya and to also provide technical support to both National and County Governments in matters relating to law reform. There existed over 700 pieces of legislation, policies and regulations prior to the promulgation of the Constitution on 27th August 2010.

In strengthening Environmental Governance, the Environment, Water and Sanitation was supported to review of Environmental Management and Coordination Act 1999 and Wildlife Conservation and Management Act 2013 to harmonize them with the Constitution. In addition, the sector enacted Forest Conservation and Management Act, 2016, Natural Resources (Classes of Transactions Subject to Ratification) Act, 2016, Water Act 2016, and Climate Change Act, 2016.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes.

All targets.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

The KLRC has carried out comprehensive review of legislation upon receipt of legislative proposals/references from National and County Government MDAs. Feedback mechanisms were established for information sharing and engagement especially by adopting project Committees, stakeholder mapping engagements and collaborations. The Committees specifically address the issue under review by:

- a) Undertaking comprehensive research to determine the prevailing legal position and the deficiencies in the law that may require rectification,
- b) (b) Setting timeframes for the review,
- c) (c) Receiving, collating and analyzing views, including peer review by other legal staff and Commissioner,
- d) (d) Organizing the requisite consultative fora; (e) Preparing the necessary reports and draft bills, and
- e) (f) Producing an Issues or Position (Discussion) Paper as a key product of its initial research. The Issues or Position (Discussion) Paper must generally include the background information and the specific issues identified for examination.

The Kenya Law Reform Commission prepares annual reports and annual plans indicating progress in its mandate and function. Many Environmental laws have been reviewed and many others are in the pipeline as provided on their website.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found.)

The Constitution of Kenya.

<http://kenyalaw.org/kl/index.php?id=398>

Commission on the implementation of the Constitution <https://www.cickenya.org/kenyan-constitutions-enhanced-focus-protecting-environmental-rights/>

Laws of Kenya <http://kenyalaw.org/kl/>

Kenya Law Reform Commission <http://www.klrc.go.ke/>

Guide to the legislative process in Kenya

<http://www.klrc.go.ke/images/images/downloads/klrc-a-guide-to-the-legislative-process-in-kenya.pdf>

Other relevant information, including case studies to illustrate how the measure taken has resulted in (or is expected to result in) outcomes that contribute to the implementation of the NBSAP

CASE STUDY 1: The EMCA Amendment Act 2015 and SEA

The Environmental Management and Co-ordination (Amendment) Act, 2015 (Amendment Act 2015) amended EMCA (1999) by introducing section 57A (1) which provides that all Policies, Plans and Programmes for implementation should be subjected to Strategic Environmental Assessment. All entities are to undertake or cause to be undertaken the preparation of strategic environmental assessments at their own expense and should submit such assessments to the Authority for approval. The Amendment Act 2015 requires the Authority, in consultation with lead agencies and relevant stakeholders, to prescribe rules and guidelines in respect of Strategic Environmental Assessments. SEA helps to ensure that many of the environmental issues of global importance are considered in policies, plans and Programmes at different administrative levels (i.e. national, regional, local).

In line with Article 6b of the CBD and Article 14 (1) (b) the establishment of Strategic Environmental Assessment (SEA) in Kenya was ostensibly in recognition of the fact that the existing Environmental Impact Assessment (EIA) tool was unable to respond to environmental integration needs at strategic levels of decision-making. An example of the application of SEA is under the LAPPSET Project:

SEA Case Study: Lamu Port Southern Sudan - Ethiopia Transport (LAPSSET) Corridor Flagship Project

The LAPSSET Corridor Development Authority (LCDA) is developing the Lamu Port-South Sudan- Ethiopia (LAPSSET) Infrastructure Corridor, an ambitious singularly massive but integrated transport infrastructure corridor project conceived and developed under the Kenya Vision 2030 Strategy Framework. This is as an economic game-changer targeted to underpin national aspirations towards delivering a Globally Competitive Kenya with high quality for all citizens life in a clean and secure environment.

Towards ensuring compliance to both the National Constitution and reigning environmental legislation, the LAPSSET Corridor Infrastructure Development Project (LCIDP) has been subjected to a Strategic Environmental Assessment (SEA) Study conducted as per Legal Notice 101 of June 2003 and the Guidelines for Strategic Environmental Assessment issued by NEMA in 2014. The following highlights concerns with respect to biodiversity which were noted:

- a. Biodiversity:** It was noted that LAPSSET is traversing critical wildlife habitats in Ijara, Isiolo, Laikipia, Samburu and Marsabit which host vast populations of wildlife outside protected areas with some endangered species such as Hirola antelope, Elephant, Wild dog, Grevy's Zebra among others. The recommendation was to realign the corridor to avoid high density migratory corridors and provide modalities for traffic separation to allow free movement of wildlife.
- b. Protected land:** Protected land comprises the Mangrove Forests at the coastline site of Lamu Port which is protected under the Forests Act 2005 and the Losai and Marsabit Game Reserves protected under the Wildlife Management and Conservation Act 2013. Both game reserves are reserved largely for wildlife use but some limited exploitation such as grazing is allowed. The Corridor partly traverses the Arwale and Rahole Game Reserves in Garissa County which are important habitat for Hirola antelope and elephant breeding sanctuaries respectively.

The SEA noted that implementation of the LCIDP is likely to occasion concerns as follows:

- i. Realignment of the land resource base to the disadvantage of pastoral livelihoods and wildlife,
- ii. Continued habitat loss and threatened survival of wildlife,
- iii. Escalate pressure on water resources at the expense of pre-existing livelihoods and downstream ecosystems,
- iv. Marginalization of fishing-based livelihoods and aquatic habitats, and
- v. Erosion of the cultural heritage.

The SEA recommended the following measures:

- i. All components of LAPSSET will be preceded by full ESIA studies in line with EMCA 2015. EIA Licenses issued before this SEA will be amended to capture issues raised.
- ii. All displacement will be resolved through Resettlement Action Plans prepared in full consultation with stakeholders. Concerns raised in Chapter Seven to be resolved in the RAPs. This to include resolution of all outstanding compensation.

- iii. Where doubts on the Impact of components more so with regards to water and Wildlife, the precautionary approach to be adopted.

CASE STUDY 2: LAND USE PLANNING: TANA DELTA IN KENYA

The National Land Use Policy 2017 provides a legal, administrative, institutional and technological framework for optimal utilization and productivity of land related resources in a sustainable and desirable manner at national, county and community levels. The Policy is premised on the philosophy of economic productivity, social responsibility, environmental sustainability and cultural conservation. Key principles informing it include efficiency, access to land use information, equity, elimination of discrimination and public benefit sharing.

The Physical and Land Use Planning Act, 2019 enacted by parliament gives impetus to the implementation of the policy. It makes provision for the planning, use, regulation and development of land and for connected purposes.

The Tana Delta has a history of poor environmental management and disastrous agricultural development schemes. It faced an array of large-scale threats, including biofuels plantations, intensive rice and maize production and mining proposals. Along with the potential loss of the rich biodiversity, the 90,000 people who live in the Delta could face impoverishment, conflict and displacement.

Nature Kenya in 2011 led a collaborative effort of various stakeholders in the development of a Tana River Delta Land Use Plan that was guided by a Strategic Environmental Assessment. The process was concluded in 2015. The land use plan has since been approved and adopted as a policy by the Tana River County and Lamu County government.

The land use plan seeks to promote a balance in the use of the delta. It involves regulated access, wise use and improved rangeland management that will lead to improved sustainable livelihoods, security and equity, and biodiversity conservation. In May 2016, the Tana River Delta Land Use Plan won the Royal Town Planning Institute's International Award for Planning Excellence.¹⁷

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information can be found)

GOK 2018: The Presidency - Vision 2030: Marking ten years of Progress (2008-2018):
<http://vision2030.go.ke/inc/uploads/2018/09/Kenya-Vision-2030-Sector-Progress-Project-Updates-June-2018.pdf>

Land Use Plan for the Tana River Delta

Odhengo P., Matiku P., Waweru P., Guda D., Kinara T., Kathike S., Mmyamwezi E., Munguti S., Nelson P., and Koyier G. (2014). Tana River Delta Land Use Plan.
<https://drive.google.com/file/d/15fjBuy2B2PZwhHlaPRas-29I6KOtN3Zk/view>

Tana River Delta Strategic Assessment Report

Odhengo P., Matiku P., Nyangena J., Wahome K., Opa B., Munguti, S., Koyier G., Nelson, P., Mnyamwezi, E. (2014a). Tana River Delta Strategic Environmental Assessment. Kenya Water Towers Agency Reports.
https://drive.google.com/file/d/1spWwRFiNUT0-RSSaBGkPth2_6EghU3Ku/view

LAPSSET SEA

The Presidency. LAPSSET Corridor Development Authority 2017. Strategic Environmental Assessment-SEA in the LAPSSET Corridor Infrastructure Development Project (LCIDP) – Draft Report.
<http://www.nema.go.ke/images/Docs/SEA%20Reports/SEA-037%20LAPSSET%20Corridor%20Authority%20Development%20report.pdf>

Nature Kenya

<http://naturekenya.org/publications/>

¹⁷ [Tana River Delta Land Use Plan won the Royal Town Planning Institute's International Award for Planning Excellence](#)

Obstacles and scientific and technical needs related to the measure taken:

The Executive authority of the county is vested in the Governor and members of the County Executive Committee while the county assemblies core mandate includes inter alia oversight and passing legislation. County legislation is essential in order to enable the full implementation of devolved functions. However, being entirely new entities, the effective exercise of this legislative function by county assemblies has to a large extent been hindered by inter alia a lack of sufficient technical legislative capacity, the absence of proper systems and structures at county level and the lack of a clear guide on the process of formulating legislation.

Relevant websites, web links and files

<http://www.klrc.go.ke/images/images/downloads/Kenya-Law-Reform-Commission-KLRC-Annual-Report-2016-17.pdf>

3.3 THE ENVIRONMENT, WATER AND SANITATION SECTOR PLAN 2018-2022**Describe a measure taken to contribute to the implementation of your country's national biodiversity strategy and action plan.**

The overall goal of the Environment, Water, Sanitation and Regional development Sector is to enhance "development in a clean, safe and sustainable environment, natural resources and access to water and sanitation services for all Kenyans". This sector consists of Environment, Natural Resources, Water, Irrigation and Regional Development sub-sectors. In the Medium-Term Planning process, the national priorities related to biodiversity are primarily addressed through this sector. This is based on the understanding articulated by the Constitution on the protection of Environment, Natural Resources and Water resources and the promotion of human rights which have been intertwined and become part of the fundamental pillars of sustainable development.

Under all the three MTPs, the Sector has focused efforts to conserve and manage forests, wildlife resources, water catchments, and wetlands; achieve land degradation neutrality besides promoting green economy and strengthen waste management and pollution control measures among other Programmes. Sustainable management of water resources has continued to be critical to the realization of objectives of the social pillar in Kenya Vision 2030. In this regard, water resources management, and sanitation as well as management of trans-boundary water resources have been enhanced. Further, the Sector has aligned activities in response to the climate change Act 2016.

MTP III 2018-2022 – Environment, Water, Sanitation and Regional Development:

Under MTP III, the Environment, Water, Sanitation and Regional Development Sector has an important role in ensuring the sustainability of natural resources in the country. The Sector Plan based on the review of MTP II, rolls forward activities under the targets that were not realized to the period 2018-22. It offers a roadmap towards achieving the relevant global/regional commitments such as Sustainable Development Goals (SDGs), Agenda 2063 and East Africa Community Vision 2050 on environment, water and sanitation by reversing the negative effects arising from the existing challenges. The Sector is contributing towards achieving the "Big Four" initiatives on universal health coverage, food and nutrition security, manufacturing and affordable housing. During the Plan period, the Sector is focusing on the conservation and management of forests, wildlife resources, water catchments, and management of wetlands, restoration of degraded land, green economy, waste management, pollution control, integrated regional development, water resources management, increase access to water and sanitation and mitigation and adaptation to the effects of climate change among other Programmes.

The Sector Plan has target six strategic thrusts namely:

- Improved Environment Management and Conservation,
- Sustainable management and development of Water resources,
- Improved access to safely managed water and sanitation,

- Forest Conservation & Management,
- Wildlife Conservation & Management and
- Improved land productivity for enhanced food security in the Sector.

This Plan is implemented in consultation between the National and County government taking into account the interrelations of the two levels as provided for in the Constitution.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes.

All targets.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

Measure taken has been partially effective

The Sector Plan is still under implementation.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found.)

Government of the Republic of Kenya 2018. Vision 2030. Sector Plan for the Environment, Water, Sanitation and Regional Development. <https://planning.go.ke/wp-content/uploads/2020/02/SP-7146-SECTOR-PLAN-FOR-Environment-Water-and-Sanitation-FINAL.pdf>

GOK 2018: The Presidency - Vision 2030: Marking ten years of Progress (2008-2018): <http://vision2030.go.ke/inc/uploads/2018/09/Kenya-Vision-2030-Sector-Progress-Project-Updates-June-2018.pdf>

Other relevant information, including case studies to illustrate how the measure taken has resulted in (or is expected to result in) outcomes that contribute to the implementation of the NBSAP

Achievements under Sector Plan for MTP II

- Strengthening Environmental Governance

The sector facilitated the review of Environmental Management and Coordination Act 1999 and Wildlife Conservation and Management Act 2013 to harmonize them with the Constitution. In addition the sector enacted Forest Conservation and Management Act, 2016, Natural Resources (Classes of Transactions Subject to Ratification) Act, 2016, Water Act 2016, and Climate Change Act, 2016, to align them to Constitution and also incorporate global issues that are pertinent to the sector. Other instruments developed to strengthen the sector include National Climate Change Action Plan, Green Economy Strategy and Implementation Plan, National Adaptation Plan, National Water Master Plan 2030, and National Forest Programme 2016-2030. During the review period, the National Environment Management Authority (NEMA) was accredited as a National Implementing Entity for the Green Climate Fund.

- Waste Management and Pollution Control

The Programme achieved the following: developed a National Solid Waste Management Strategy in 2015; established status and developed action plans on waste management and pollution levels in Mombasa, Thika, Nakuru, Eldoret and Kisumu; implemented Plastic Bags Initiative vide Gazette notice No. 2334 of March 2017; harmonized Municipal and Industrial effluent standards within the Lake Victoria Basin; constructed sewerage treatment plants in Kisumu, Homa Bay, and Bomet Towns; and developed a system to monitor Nutrient and Sediment Losses from Land Use and Covers in the Nyando Basin.

- Rehabilitation of Urban Rivers

Urban rivers in Kenya remain highly polluted from dumping of solid and liquid waste including toxic chemicals. Some priority rivers that were rehabilitated included Nairobi and Sosiani Rivers. Achievement towards the rehabilitation of rivers were as follows: Approximately 270 kms of urban rivers were

rehabilitated; Reclaimed lands along the riparian zones at the Michuki Memorial Park; constructed 2.5 km river banks embankment to stabilize them; and planted 270,000 indigenous trees along Mathare, Ngong, Nairobi, and Sosiani river banks.

- Forest Conservation and Management

Kenya's Constitution and Vision 2030 require forest and tree cover to be increased to at least 10% of the total land area. Forest and tree cover increased to an estimated 7.24 per cent in 2016 from an estimated 4.4 per cent reported in 2012. The sector increased the state managed forests from 1.2 million hectares to 2.4 million hectares, developed 115 Forest Management plans, facilitated production of 222,124 bamboo seedlings and 800 million tree seedlings and availed these for planting 500,000 hectares on farmlands for livelihood improvement. This contributed to climate change mitigation through the enhancement of GHG (forest) sink.

- Wildlife Conservation and Management

The focus of the sector on wildlife conservation and management was to identify, map and document hotspots, refurbish and equip wildlife research stations, enhance ecological monitoring programs in protected areas, develop information and database for national wildlife research. The sector enhanced wildlife security and management and promoted eco-tourism. The following were achieved: Mapping and documentation of wildlife migration corridors and dispersal areas in Naivasha-Hells Gate-Longonot-Lake Nakuru, Nairobi National Park-Swara Conservancy and Southern Kenya Rangeland (Amboseli National Park-Kimana-Chyulu National park). In addition, an Integrated Database System which incorporates wildlife research was developed.

- Forestry research and development

The target for forestry research and development in the review period was to conduct research to develop intervention measures for causes of forest degradations, provide forestry related baseline data, establish a monitoring system on forest and aspects of climate change, identify and improve tree species for various uses and services, develop and demonstrate forestry technologies, new products, generate and disseminate knowledge and technologies.

- Rehabilitation and protection of water towers

This Programme entailed the rehabilitation and protection of Kenya's five (5) major water towers namely; the Aberdares, Cherangany, Mau, Mt. Kenya and Mt. Elgon and other smaller significant Water Towers and catchment areas such as Chyulu Hills, Nyambene, Ngong Hills, Taita Hills, Maragoli, Marsabit, Shimba Hills, Ndotos, Nyiru, Hills in Machakos, Makueni and Kitui, Leroghi, Matthews Range and Dunes in Lamu and Northern Kenya. The major achievements included: rehabilitation, protection and securing of 121,000 Ha in Enoosupukia (12,000 Ha), South.West Mau (19,000 Ha), Maasai Mau (64,000 Ha) and Olpusimuru (26,000 Ha) through Joint Enforcement Unit providing basis for natural regeneration; Conducted assessment of 18 water towers and developed water towers ecological health status reports; Identified critical catchment, wetlands and Biodiversity Hotspots in Mt. Kenya, Mau Complex, Mt. Elgon, Shimba Hills and Chyulu water towers. In addition, Community Development Action Plans for Leroghi, Shimba Hills & Chyulu; Mau Ecosystem Strategic Management Plan; Micro-Catchment Conservation Plan for Taita Hills were developed. There was also voluntary surrender of 1,250 Ha in Mau complex and the Water Towers Conservation Fund established.

- Promotion and piloting of Green Energy

The sector supported the development and implementation of 17 technologies and innovations including clean cooking stoves and solar lighting that address the energy demand in the country. In addition, the Sector facilitated a research project on the factors influencing household adoption of renewable energy technologies in rural households in three (3) counties: Tharaka Nithi, Elgeyo Marakwet and Narok. National level assessment was undertaken through literature reviews. The findings will be used to promote the adoption of renewable energy options at household levels in rural communities. A policy brief and research publications were also developed.

- Carbon credit trading

This Programme planned to establish carbon trading schemes and a regional framework for carbon trading across the East African Community, the wider African region and beyond. While this was not

done due to the collapse of the global carbon markets, some carbon offset schemes such as the Clean Development Mechanism (CDM) and Joint Credit Mechanism (JCM) have been operationalized.

At the Kenya Coast, the work on blue carbon trading using mangrove forests has been undertaken. Mikoko Pamoja (Mangroves together), based in Gazi Bay in Kenya, is the first mangrove Payment for Ecosystem Services (PES) project in the world which seeks to restore and conserve mangroves, degraded by years of legal and illegal cutting, through the sale of carbon credits. The community received technical support in restoration of the mangrove forests and also in the carbon quantification through scientists of the Kenya Marine and Fisheries Research Institute in Mombasa.

The project is accredited by Plan Vivo system and standards to trade in 3000tCO₂. Mangroves are referred to as Blue Forests and they have been documented to contain six times the carbon sequestration potential of terrestrial forests. Mangrove forests also offer additional ecosystem support services such as the provision of nursery grounds for important fish species and coastal protection services. This project provides a successful example of cooperation between multiple stakeholders including the local communities, state agencies, and non-governmental organizations. An important aspect of this endeavor is the fact that it provides financial benefits for conservation and the work is currently promoting the policy level national dialogue for inclusion of blue carbon from mangroves in the Kenyan Nationally Determined Contributions (NDCs).

- Water Resources Management

This Programme was geared towards sustainable utilization of water resources. During the planned period six (6) catchment management strategies were reviewed and 157 Sub Catchment Management Plans developed. Towards the development of the national water allocation plan the sector developed and consolidated water allocation plans for three (3) basins namely Athi, Lake Victoria and Ewaso Ng'iro North. In addition, wetland management plans were developed such as Kibirong Integrated Wetland Management Plan 2013, King'ol Integrated Wetland Management Plan 2013, Tionosoyiet Integrated Wetland Management Plan 2013, Ombeyi Integrated Wetland Management Plan 2013, Ondago Wetland Management Plan (2018-2022) 2017, Kuje Wetland Management Plan (2018-2022) 2017, Sub-Catchment Management Plan for Kundos sun-catchment and lower Kipchorian sub-catchment 2012 and Sub-catchment plan for lower Kichorian sub-catchment

- Trans boundary Waters

The Programme entailed negotiations on mutual utilization and conservation of trans-boundary waters thereby fostering harmonious coexistence on the continent and in the region. The sector intended to map shared water resources of the country and their parameters; Review international treaties on transboundary waters to address the water supply management and finalize the negotiations for the joint management and development of all shared water resources within the riparian states. In this respect, the locations of trans-boundary surface waters and their status were established and three bilateral frameworks developed, negotiated and finalized for the management of transboundary water resources of Sio-Malaba-Malakisi River, Mara River and lakes Challa-Jibe and Uмба River.

- Water Harvesting and Storage

This Programme targeted to increase of water storage capacity and availability for multipurpose uses. In line with this aspiration a final development plan for Nzoia dam was completed. The Nyando (Koru) Dam resettlement action plan was developed, land compensation surveys completed designs and tendering documents finalized. On the construction of 21 medium sized dams with storage capacity of 2 billion m³; Kiserian, Chemususu and Maruba dams were completed. Completion of Umaa and Badasa dams was hampered by contract disputes. Additionally, the regional development authorities have constructed 400 water pans and 70 boreholes, in an effort to mitigate the effects of droughts and climate change.

- Urban Water Supply

The Programme aimed at achieving universal access to safe water in urban areas. The overall coverage of the population with access to safe drinking water rose from 53.3 per cent in 2013 to 59.9 per cent in 2017. Over the same period, urban water supply coverage increased from 61.7 per cent to 70.3 per cent. The increase in water coverage was achieved through the establishment of water schemes in the major

cities of Nairobi, Kisumu and Mombasa. The construction and expansion of water supplies in 15 medium sized towns partially contributed to the increase in access. Access to sewerage is estimated to be 15 per cent in urban areas and 7.3 per cent nationally. The national sanitation coverage (which includes sewerage and onsite sanitation) is estimated at 68 per cent. The increase in coverage has been achieved through rehabilitation of sewerage schemes in Nairobi, Kisumu, Mombasa, Kericho, Kisii, Nyahururu and Muranga. In addition, new sewerage schemes were constructed in Othaya, Ruiru, Isiolo, Bomet, Garissa, Siaya, Bondo and Kitui.

- Rural Water Supply

The Programme aimed at achieving universal access to safe water in rural areas. National Rural water supply coverage improved from 47.1 per cent in 2013 per cent to 50.2 per cent in 2017. Rural access was boosted through the rehabilitation and extension of rural water schemes where 199 new water and sanitation projects were constructed, 410 existing rural water supplies were rehabilitated while 276 new boreholes were drilled and equipped.

- Water Research and Resource Center (WARREC)

The Centre seeks to enhance and facilitate research in fields related to water resources utilization and management. The research center through its representatives participated in the Annual Water Conferences, signed the "Billion Dollar Business Alliance (BDBA) for Rainwater Harvesting– Kenya Chapter. WARREC also facilitated several capacity building activities on water sector issues such as training of Practitioners on Water Sanitation and Hygiene (WASH); training of women farmers on rainwater harvesting; and training of Water Resource Users Associations of the Tana Basin on integrated watershed management.

- Land reclamation

The Programme entailed rehabilitation and reclamation of land in the counties prone to landslides, floods and heavy soil loss that leads to gullies formation and loss of landscape. During the plan period the total land reclaimed was 4,800 hectares out of an ultimate target of 50,000 hectares. This land included degraded and wasted environments rehabilitated with ecosystem water conservation structures. In addition, 4,984 reclamation structures and 701 water pans were constructed increasing water storage capacity by 16 million cubic meters.

- Socio Economic Atlas

A Kenya Socio Economic Atlas outlining areas vulnerable to degradation was also published during the plan period. Additionally, building capacity of communities of 1200 people in ASAL counties to respond and participate in reversing degradation and climate change was undertaken.

CASE STUDY: Natural Products Programme:

The Programme supported the development, acquisition, deployment and uptake of appropriate indigenous technologies to ensure optimal use of available natural resources in a sustainable manner. The aim is to spur home-grown innovative culture and develop Kenyan unique products that meet international standards. The projects proposed include:

- i. Manufacture of Pharmaceuticals through Public Private Partnership Initiative: implemented through a Public Private Partnership between the Kenya Medical Research Institute (KEMRI) and local pharmaceutical industries in the manufacture of pharmaceutical products through appropriate technology transfer and acquisition.
- ii. Development of Indigenous Technologies for the Manufacture of Niche Products: Projects aim to identify, profile, document and secure indigenous technologies and home-grown innovations for application in the manufacture of niche products.

CASE STUDY II – KWTA Biodiversity conservation and water management interface

The dynamics within the water towers are complex and comprise hydrological and other models. The profile consists of varied habitats from mountains which collect water to the rivers which eventually drain to the ocean. There are various zones such as protected areas, agriculture, settlements and towns. KWTA mandate is to ensure that the hydrological cycle is maintained. Biodiversity is critical to the maintenance of both the quality and quantity of water through maintenance of water cycle i.e. Forests,

grasslands, soils, wetlands. Plants control soil erosion thus regulating water quality. Water is required to support biodiversity. Without sufficient water, stresses on species increase global biodiversity losses. Water scarcity has often led to community conflicts thus impacting biodiversity conservation. Therefore, to enhance water quality and quantity it is important to conserve biodiversity in these ecosystems. Better functioning ecosystems provide cleaner water and stabilize flow. The Water Towers in the Tana River Basin are shown in Figure xx below. There are two gazetted Water towers (in green) and 18 proposed (in blue).

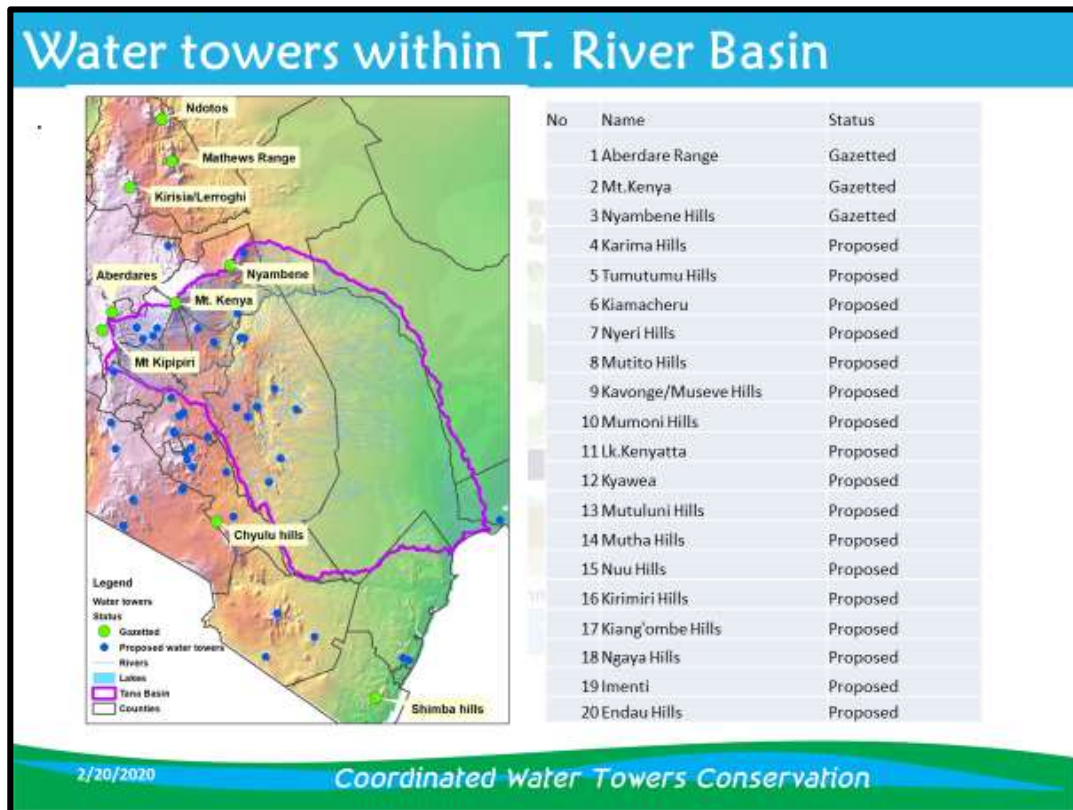


Figure 3: Water Towers in the Tana River Basin

(Source: KWTa).

KWTA is mapping the Water Towers as a basis for describing the working closely with National Museums of Kenya. KWTA undertakes periodic assessment of the ecosystems in the Water Towers and is developing an Integrated Water Towers Monitoring System with 17 institutions in collaboration with World Resources Institute. A pilot has been developed and KWTA now exploring synergies on how the systems can communicate with others such as the Tana River Biodiversity Portal. KWTA is mobilizing biodiversity data from Water Towers forests, grasslands, wetlands and shrublands to identify the threats, needs and intervention to meet local needs, conserve the biodiversity, secure water towers and ensure water availability.

There were other Programmes such as the rehabilitation and protection of Kenya's five major water towers namely: the Aberdares, Cherangany, Mau, Mt. Kenya and Mt. Elgon and other smaller significant Water Towers and catchment areas. The rehabilitation, protection and securing of Enoosupukia (12,000 Ha), South West Mau (19,000 Ha), Masai Mau (64,000 Ha) and Olpusimoru (26,000 Ha) was realized through the Joint Enforcement Unit. An area of 1,250 Ha was surrendered voluntarily at Mau complex and a Water Towers Fund established. An assessment of 18 water towers was conducted and water towers ecological health status reports were prepared. The Status reports of the water towers are available on the website www.watertowers.go.ke/downloads

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information can be found)

Government of the Republic of Kenya 2018. Vision 2030. Sector Plan for the Environment, Water, Sanitation and Regional Development.

<https://planning.go.ke/wp-content/uploads/2020/02/SP-7146-SECTOR-PLAN-FOR-Environment-Water-and-Sanitation-FINAL.pdf>

Government of the Republic of Kenya 2017: Vision 2030 – Third Annual Progress Report 2015/2016 on the Implementation of the Second Medium Term Plan. https://planning.go.ke/wp-content/uploads/2018/04/THIRD-ANNUAL-PROGRESS-REPORT-2015_16.pdf

Water Towers Agency Reports

<https://watertowers.go.ke/downloads/>

National Environment Management Authority

www.nema.go.ke

Natural Products Programme

<https://www.kemri.org/natural-products-research-drug-development-napreda-program/>

Obstacles and scientific and technical needs related to the measure taken: Please describe what obstacles have been encountered and any scientific and technical needs for addressing these, including technical and scientific cooperation, capacity development activities or the need for guidance materials.

Despite the efforts to improve the management and conservation of environment and natural resources, the sector continues to face several challenges. Key among these key challenges include impacts of climate change, increasing population, expansion of agriculture and settlements into fragile water towers ecosystems. This leads to biodiversity loss and unsustainable land-use practices thereby posing serious threats to the attainment of a clean and secure environment.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to these obstacles and scientific and technical needs can be found.)

Mid Term Review of Kenya United Nations Development Assistance Framework (UNDAF) 2014-2018. <https://reliefweb.int/sites/reliefweb.int/files/resources/Final%20Report%20of%20the%20UNDAF%20MTR%20Report.pdf>

Government of the Republic of Kenya 2018. Vision 2030. Sector Plan for the Environment, Water, Sanitation and Regional Development.

<https://planning.go.ke/wp-content/uploads/2020/02/SP-7146-SECTOR-PLAN-FOR-Environment-Water-and-Sanitation-FINAL.pdf>

Government of the Republic of Kenya 2017: Vision 2030 – Third Annual Progress Report 2015/2016 on the Implementation of the Second Medium Term Plan. https://planning.go.ke/wp-content/uploads/2018/04/THIRD-ANNUAL-PROGRESS-REPORT-2015_16.pdf

Kenya Strategic Investment Framework on Sustainable Land Management

Government of the Republic of Kenya. 2016. Kenya Strategic Investment Framework on Sustainable Land Management. <http://www.environment.go.ke/wp-content/uploads/2018/08/KSIF-Kenya-Strategic-Investment-Framework-on-SLM-2017-2027.pdf>

Kenya Socio Economic Atlas

Wiesmann, U., Kiteme, B., Mwangi, Z. (2016). Socio-Economic Atlas of Kenya: Depicting the National Population Census by County and Sub-Location. Second, revised edition. KNBS, Nairobi. CETRAD, Nanyuki. CDE, Bern. <https://www.kenya-atlas.org/pdf/Socio-Economic Atlas of Kenya 2nd edition.pdf>

Wiesmann, U., Kiteme, B., Mwangi, Z. (2014). Socio-Economic Atlas of Kenya: Depicting the National Population Census by County and Sub-Location. KNBS, Nairobi. CETRAD, Nanyuki. CDE, Bern. 152 pp. ISBN-13: 978-9966-767-46-2. ISBN-10: 9966-767-46-0.

Kenya natural capital: The Biodiversity Atlas: <http://www.environment.go.ke/?p=1596>

<http://biodiversityatlaskenya.org/>

Kenya Green Growth Strategy and Implementation Plan:

Government of the Republic of Kenya 2016. Green Economy Strategy and Implementation Plan 2016-2030. http://www.environment.go.ke/wp-content/uploads/2018/08/GESIP_Final23032017.pdf

3.4 IMPLEMENTATION OF THE SUSTAINABLE DEVELOPMENT GOALS IN KENYA

Describe a measure taken to contribute to the implementation of your country's national biodiversity strategy and action plan.

The Government of Kenya, non-state actors and development partners have committed to the implementation, monitoring and evaluation of the 2030 SDG Agenda. This Agenda was adopted when Kenya was already implementing its long-term Economic blueprint for accelerating transformation of the country into a rapidly industrializing middle-income nation by the year 2030. The Kenya Vision 2030 comprising of three key pillars; Economic, Social and Political provides the frameworks for the integration of the three dimensions of sustainable development.

To start the implementation of the SDGs in Kenya, it was found necessary to establish the extent to which the SDGs converge with Kenya's own development objectives as set out in the Kenya Vision 2030 and therefore identify which SDGs are relevant to Kenya's development context. This was done by mapping each of the 17 goals with Vision 2030 within the second Medium Term Plan. The mapping indicated that the Kenya Vision 2030 is well aligned to the global development framework and its implementation is directly linked towards achieving both the Vision and SDGs.

The timeframe for the Vision 2030 coincides with the timeframe for the SDGs. This is an opportunity for Kenya as progress towards the national priorities as spelt out in the Vision are matched with progress towards the SDGs. Since vision is implemented at both the national and sub national levels through five-year Medium-Term Plans and County Integrated Development Plans respectively, the SDGs have been mainstreamed at these two levels. Further, the Constitution also establishes that any treaty ratified by Kenya will form part of national law. As a result, the implementation of the new constitution fast tracks the achievement of the SDGs.

The government is responsible for tracking and reviews of the SDGs. This is be done at both the national and sub national levels. At the national level, monitoring and evaluation of policies, projects and Programmes outlined in MTP is done through National Integrated Monitoring and Evaluation System (NIMES) which was established in 2004. It employs a result-based monitoring framework and provides important feedback to policy makers and the general public on the national government's performance.

At sub national level, tracking progress towards the achievement of the policies, projects and Programmes outlined in each CIDP is undertaken through the County Integrated Monitoring and Evaluation System (CIMES). The ministry of devolution and planning has developed guidelines to provide basic principles for designing a clear CIMES for sub national level monitoring.

The Kenya National Bureau of Statistics (KNBS) has mapped out 128 out of the 230 SDG Global Indicators, whose data can be available within the short term and work is going on to increase the number of indicators within the next five years. The KNBS has identified the period 2009-2014 as the base period for the SDGs. This is based on data availability and the priorities of the country. The indicators will be used to track and report on the process and progress of the implementation.

The National Treasury and Planning has strengthened the National Integrated Monitoring and Evaluation Systems (NIMES) and County Integrated Monitoring and Evaluation Systems (CIMES), including preparation of regular progress reports on the Plan implementation. The County Integrated Development Plans (CIDPs), County Spatial Plans and Ministries, Departments and Agencies (MDAs) Strategic Plans (2018-2022) have been aligned to the MTP III and the National Spatial Plan.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes.

All targets.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

In line with the outcome document of the United Nations Summit for the Sustainable Development (paragraph 79) which encourages member states to "conduct regular and inclusive reviews of progress at the national and sub-national levels which are country-led and country-driven, Kenya volunteered to participate in the 2017 High Level Political Forum. Kenya presented its Voluntary National Reviews (VNRs) in order to share Kenya's experience in the implementation of the SDGs two years after adoption. The overall objective was to assess the progress made in the implementation of the Sustainable Development Goals for purpose of continued policy planning and implementation. The specific objectives were to:

- share experiences in the transition from the MDGs to SDGs,
- review progress and status on SDGs implementation,
- highlight progress and initiatives related to eradicating poverty and promoting prosperity to ensure no one is left behind,
- identify best practices, lessons learnt, emerging issues and areas that would need support in the implementation of the SDGs; and
- identify challenges and actions being undertaken to address the gaps and challenges.

The report was used for this assessment as well as sector reports.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found.)

The National Treasury and Planning State Department for Planning Projects and Programmes Department. SDG Progress Report, June 2019. <https://planning.go.ke/wp-content/uploads/2019/10/SDGs-Status-Report.pdf>

SDG Kenya Forum or Sustainable Development. The Second Progress Report on Implementation of SDGs in Kenya Civil Society Report 2019. <https://planning.go.ke/wp-content/uploads/2019/07/Reformatted-Template.pdf>

Ministry of Planning and Devolution: Roadmap to Sustainable Development Goals (SDGs) Kenya's Transition Strategy 2016-2018. https://planning.go.ke/wp-content/uploads/2019/07/Roadmap_to_SDGs.pdf

Other relevant information, including case studies to illustrate how the measure taken has resulted in (or is expected to result in) outcomes that contribute to the implementation of the NBSAP

Goal 12: Ensure Sustainable Consumption and Production Patterns

In order to enhance efficiency in the use of natural resources and energy, the industrial sector has embraced cleaner production technologies through technical assistance by the Kenya National Cleaner Production Centre. The Centre has built capacity of industries in improving efficiency in the status of production systems/equipment in order to reduce wastage of raw materials and energy aimed at minimizing waste generation at source.

The country has also pioneered the Green Economy Strategy initiatives that aim to support development efforts towards addressing key challenges such as poverty, unemployment, inequality, environmental degradation, climate change and variability, infrastructure gaps and food insecurity. A green growth path results in faster growth, a cleaner environment and high productivity.

The Minerals and Mining Policy was developed and approved in 2016. The enactment of Mining Act 2016 and the development of 14 regulations necessary to operationalize this Act are in their final stages. In addition, the Mining Policy 2016 has put sustainable mining at the core of all extractive industries.

The private sector in Kenya is also championing sustainable consumption and production under the SWITCH Africa Green Project. Several companies have mainstreamed use of biodegradable materials in their production and consumption.

Goal 13: Take Urgent Action to Combat Climate Change and its Impacts

Climate change is considered one of the serious threats to sustainable development globally. Climate is a major driving factor for most of Kenya's economic activities and therefore high priority has been given to climate change and its impacts on livelihood and economic development. During the period under review, Kenya developed the National Disaster Reduction Strategy and Policy and National Disaster Preparedness and Response Strategies in 2016. Efforts that have been put in place by the Government on Strategies for disaster risk reduction (DRR) include: Establishment of National Drought Management Authority (NDMA) which is created through the Enactment of the National Drought Management Authority Act, 2016 and adoption of the 10 year Ending Drought Emergencies (EDE) Strategy covering the period, 2012-2022.

The Climate Change Act 2016 establishes the Climate Change Council which comprises stakeholders from National Government, sub national Governments, the private sector, civil society, communities and academia. The Act highlights the climate change response measures and actions, the roles of each of the stakeholders in mitigating effects of climate change and how to engage the public. Kenya also ratified the Paris Agreement on Climate Change which took effect on 27th January 2017.

The Forest Conservation and Management Act, 2016 provides for the conservation and management of public, community and private forests and, areas of forest land that require special protection. Forest play a critical role as Carbon dioxide (CO²) sink as well as building resilience to climate change.

In support of the East Africa Community (EAC) Polythene Materials Control Bill, 2016 which proposes a total ban of plastic bags in the EAC countries, Kenya placed a total BAN on plastic bags with effect from August 2017.

The Government is in the process of integrating climate change into the curriculum for primary and secondary levels of education. This is geared towards taking advantage of the current education curriculum review that is being undertaken by the Kenya Institute of Curriculums Development (KICD). Climate change will be mainstreamed in the current subjects and topics and not as a standalone topic. The Kenya School of Government has also developed a climate change curriculum and training manual that will be used to build capacity of both government and private sector on climate change mitigation, adaptation and finance.

The private sector has set up, an incubation Programme that supports the development and deployment of technologies that help communities to either mitigate against or adapt to climate change.

Ecotourism Kenya is involved in Climate Change issues primarily through the Eco-rating Certification Scheme, a voluntary scheme that covers accommodation facilities and basically advocates for the sustainable use of resources to reduce negative impacts on the environment and to use the dwindling resources in a more equitable manner.

Goal 14: Conserve and sustainably use the Oceans, Seas and Marine Resources for Sustainable Development

The concept of blue economy is now adopted to guide policy making and investment so as to ensure economic development of the ocean contributes to true prosperity for the current and future generations. In Kenya, Coast Development Authority (CDA) is mandated to provide integrated development planning, coordination and implementation of projects and Programmes within the coast region. The Kenya's EEZ and adjacent environment is well endowed with unique Coastal resources that include the sea, rivers, springs, lakes, deltas, water catchments, hills and rangelands, marine resources, fisheries, tree crops, forestry (mangroves), Sacred Kaya Forests, minerals (gemstones), wildlife (Hirola, butterflies), tourism, diverse cultures, monuments and history.

CDA has been addressing development challenges in the coast region by employing participatory, multi-sectoral and integrated development approach that considers all related factors in sustainable utilization and management of the natural resources for the region's economic development.

The coverage of protected areas in relation to marine areas was 10% in 2014. The government has undertaken various measures to fast track this goal. The Government efforts to protect the forest which are the major water towers resulted into increased water volumes especially in the rift valley lakes leading to increase in fish stocks especially in Lake Naivasha.

The Government enacted Fisheries Management and Development Act 2016 and also continue to enforce controls for exploitation of fisheries resources. The Act provides for the conservation, management and development of fisheries and other aquatic resources and seeks to enhance the livelihood of communities that depend on fishing. The Act gives guidance on importation and exportation of fish and fish products, fish quality and safety. Additional support is in Blue Bonds for Conservation program, which aims to help Kenya protect 30% of her national lands waters or the area prescribed under the Marine spatial Planning process.

The Kenya Marine and Fisheries Research Institute (KMFRI) headquartered in Mombasa is a State Corporation that is mandated to undertake research in the oceans and to provide much needed information in support of the Blue Economy. KMFRI's mandate is to undertake research in "marine and freshwater fisheries, aquaculture, environmental and ecological studies, and marine research including chemical and physical oceanography", in order to provide scientific data and information for sustainable exploitation, management and conservation of Kenya's fisheries and other aquatic resources, and contribute to National strategies of food security, poverty alleviation, clean environment and creation of employment as provided for under Vision 2030. The work that is undertaken by KMFRI scientists in the different fields contributes towards fulfillment of SDG 14.

Goal 15: Protect, Restore and Promote Sustainable use of Terrestrial Ecosystems, Sustainably Manage Forests, Combat Desertification, and Halt and Reverse Land Degradation and Halt Biodiversity Loss

The Government enacted the Forest Conservation and Management Act 2016 to guide the sustainable exploitation of forest resources. In addition, a number of initiatives were undertaken. Green Schools and Commercial Tree Growing for a Green Economy Programme was established. The Bamboo Development and Commercialization Strategy (2014-2017), Green Economy Assessment Report and Sustainable Environmental and Restoration Programme were launched.

Several initiatives were further undertaken to reclaim the degraded land. The private sector contribution towards this goal includes a Programme that encourages and enables schools to participate in environmental activities by developing small forests and woodlots within their compounds for multiple benefits.

Review of regulations on EMCA Act 2015, Forest conservation and Management 2016 and Wildlife Conservation and Management 2016 sets the best implementation methodology. Development of eighteen wildlife regulations forms a long-term solution to benefit sharing and corridors ownership.

Goal 17: Strengthen Means of Implementation and Revitalize the Global Partnership for Sustainable Development

In order to ensure quality and adequate data on SDGs, Kenya has strengthened the national statistical office, the Kenya National Bureau of Statistics. The policy priority of the Kenya Government is to strengthen the National Statistical System to support planning, and monitoring and evaluation of government policies and Programmes. The Kenya National Bureau of Statistics (KNBS) is therefore, expected to generate official statistics that are comprehensive, reliable, timely and disaggregated up to the sub national level. Towards this end, the Bureau has established offices in each of the 47 counties to coordinate statistical capacity building Programmes at the sub national level and ensure that international standards are applied in the production and dissemination of county statistics.

The government has rolled out the National Integrated Monitoring and Evaluation System (NIMES) and fast-tracking implementation of electronic Project Monitoring Information System (e-promis) to provide a non-stop information portal where information is easily and readily available.

This multi-level monitoring and evaluation system will be used for monitoring the SDGs in the country. The SDGs indicators are being integrated in regular surveys. Efforts have been made to ensure engagement of stakeholders. Emphasis has been paid to building capacity of the national Statistical System to ensure data availability and credibility.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information can be found)

Ministry of Planning Reports: <https://planning.go.ke/reports/>

SDG Kenya Forum: <https://sdgkenyaforum.org/about#vision-mission>

The National Treasury and Planning State Department for Planning Projects and Programmes Department. SDG Progress Report, June 2019. <https://planning.go.ke/wp-content/uploads/2019/10/SDGs-Status-Report.pdf>

MTP III Indicators Handbook

<https://monitoring.planning.go.ke/wp-content/uploads/2019/07/MTPIII%20Indicator%20Handbook%202019%20PC.pdf>

Obstacles and scientific and technical needs related to the measure taken: Please describe what obstacles have been encountered and any scientific and technical needs for addressing these, including technical and scientific cooperation, capacity development activities or the need for guidance materials.

The Key challenges noted were:

- i. Absence of baseline data for some of the indicators affected monitoring their progress,
- ii. Inadequate capacity on SDGs implementation, monitoring and reporting affected the adequacy of stakeholder submissions,
- iii. No clear modalities of engaging the large number of stakeholders in the preparatory process; and
- iv. Inadequate Resources

Goal 12: Challenges

- i. Inadequate physical and social infrastructure in slums and informal settlements,
- ii. Rapid urbanization,
- iii. Rapid population growth; and
- iv. Proliferation of informal settlements.

Goal 13: Challenges

- i. Lack of reliable and adequate data on climate issues
- ii. Lack of baseline data to measure the progress on implementation of the SDGs in the environment sector.
- iii. Low Investment in climate Change research
- iv. Inadequate and underfunded technical expertise

Goal 14: Challenges

- i. Lack of baseline data on marine life and environment management; and
- ii. Invasive and alien species that threaten indigenous species by way of predation, alteration of habitat or disruption of ecosystem processes. The prevention, control and elimination of these species is a big challenge in environmental management efforts,

Goal 15: Challenges

- i. Inadequate institutional capacities,
- ii. Lack of participatory coordination frameworks in land and forestry management which allow joint planning, monitoring and reporting by key stakeholders,
- iii. Insufficient funding,
- iv. Illegal logging, charcoal burning and opening up of lands for farming,
- v. Low sewerage coverage and insufficient treatment of effluent; and
- vi. Natural calamities and resource-based conflicts.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to these obstacles and scientific and technical needs can be found.)

Ministry of Planning Reports: <https://planning.go.ke/reports/>

SDG Kenya Forum: <https://sdgkenyaforum.org/about#vision-mission>

The National Treasury and Planning State Department for Planning Projects and Programmes Department. SDG Progress Report, June 2019. <https://planning.go.ke/wp-content/uploads/2019/10/SDGs-Status-Report.pdf>

3.5 KENYA'S IMPLEMENTATION OF BIODIVERSITY RELATED CONVENTIONS

Describe a measure taken to contribute to the implementation of your country's national biodiversity strategy and action plan.

Kenya is a signatory to and is implementing various biodiversity related conventions. These include the following¹⁸:

- a. **Convention on Biological Diversity (CBD):** The Convention entered into force on 29th December 1993. Kenya signed the Convention on 11th June 1992 and acceded to it on 26th July 1994. The Government is reviewing the National Biodiversity Strategy and Action Plan together with legislation and regulations for enhanced conservation and management of biological diversity.
- b. **The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity:** The Protocol was adopted by the Conference of Parties to the CBD at its 10th meeting (COP 10) on 29th October, 2010, and Kenya ratified it on 7th April, 2014. It entered into force on 12th October 2014.
- c. **The Cartagena Protocol on Biosafety:** Kenya signed the Protocol in the year 2000 and ratified it in 2013.

¹⁸ Source: Kenya Mission to UNEP 2020.

- d. United Nations Framework Convention on Climate Change (UNFCCC):** The United Nations Framework Convention on Climate Change (UNFCCC) was adopted on 9th May 1992. Kenya ratified the Convention on 30th August 1994, and it entered into force on 30th August 1994. Kenya has also developed the second five-year National Climate Change Action Plan (NCCAP 2018–2022). The plan is derived from Climate Change Act, No. 11 of 2016, which requires the Government to develop an Action Plan to guide the mainstreaming of climate change into sector functions. The Paris Agreement on Climate Change (Paris Agreement) was adopted on 12th December 2015 and entered into force on 4th November 2016. Kenya signed on 22nd April 2016 and became party to the Agreement on 28th December 2016.
- e. United Nations Convention to Combat Desertification (UNCCD):** The Convention was adopted on 17th June, 1994. Kenya signed on 14th October 1994 and ratified on 24th June 1997. Kenya has aligned the National Action Plan (NAP) to the UNCCD through the development of a 10-year Strategy “National Climate Change Action Plan” (NCCAP) 2013–2017 and 2018–2022.
- f. Minamata Convention on Mercury:** The Convention was adopted in Geneva, Switzerland in January 2013. Kenya signed the Convention on 10th October 2013. The Convention entered into force on 16th August 2017 and Kenya is yet to accede to it.
- g. The Basel Convention on the Control of Trans-boundary Movement of Hazardous Waste and their Disposal:** The Convention was adopted on 22nd March 1989 and entered into force on 5th May 1992. Kenya acceded to the Convention on 1st June 2000.
- h. Stockholm Convention on Persistent Organic Pollutants (POPS):** Kenya signed the Convention on 23rd May 2001. The Convention entered into force on 17th May 2004 and Kenya ratified it on 24th September 2004.
- i. Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade:** The Convention was adopted on 10th September 1988 and entered into force on 24th February 2004. Kenya ratified the convention on 3rd February 2005.
- j. Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES):** The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was adopted on 3rd March, 1973, in Washington DC and entered into force on 1st July, 1975. Kenya ratified it on 13th December 1978, and it entered into force for Kenya on 13th March 1979.
- k. Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) (CMS):** The Convention was concluded on 26th March 1979, in Bonn, Germany and entered into force on 1st November 1983. Kenya acceded to the Convention on 26th February 1999. Kenya has signed and ratified several agreements and MOUs under the CMS. These include the African Eurasian Water Birds Agreement (AEWA) and MoUs on Migratory Sharks, Sea Turtles, Raptors and Dugongs.
- l. Convention on Wetlands of International importance especially as Waterfowl Habitats (RAMSAR Convention):** The Convention was adopted on 2nd February 1971, in Ramsar, Iran. Kenya ratified it on 5th October 1990, and it came into force on 5th October 1990.
- m. Convention on the Law of the Non-Navigational Uses of International Watercourses (1997 UN Watercourses Convention):** The 1997 UN Watercourses Convention is a multilateral framework developed by the International Law Commission (ILC) and adopted by the UN on 21st May 1997. The Convention entered into force on 17th August 2014. Kenya is committed to co-operate internationally with regards to equitable utilization and protection of shared water resources and has initiated measures to ratify the Convention.
- n. Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean (Nairobi Convention) and its Protocols:** The Convention was adopted on 21st June 1985 and entered into force on 11th September 1990. The obligation of the states is to protect and manage the marine environment of the coastal areas of Western Indian Ocean.
- o. Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora:** The Lusaka Agreement (LA) was adopted on 10th December 1996 in Lusaka, Zambia to facilitate cooperation among African Party States to deter illegal trade in wild fauna and flora. Kenya signed the Agreement on 9th September 1994, and it entered into force on 10th December 1996. Kenya ratified the LA on 17th January 1997. Kenya hosts the Secretariat (LATF) established under the Agreement.

- p. Revised African Convention on the Conservation of Nature and Natural Resources. (The Algiers Convention):** The African Convention for the Conservation of Nature and Natural Resources of 1968 (the "Algiers Convention") was adopted on 15th September 1968 and came into force on 16th June 1969. Kenya signed the Convention on 15th September 1968 and ratified on 12th May 1969. The Convention was revised, renamed and adopted on 11th July, 2003 and entered into force on 23rd July 2016. Kenya signed on 17th December 2003.
- q. East Africa Community Protocol on Environment and Natural Resources Management:** The Protocol was adopted and signed on 26th June 2017, and Kenya ratified the Protocol on 26th June 2017.
- r. East African Community Protocol on Cooperation in Meteorological Services:** Kenya signed the Protocol in 2016 and ratified it in May 2019.
- s. The 2010 Nile Basin Cooperative Framework Agreement (CFA):** The Nile River Basin negotiations started in 1997, to come up with the Nile River Basin Cooperative Framework which was opened for signature on 19th May 2010. Kenya signed on 19th May 2010.
- t. East Africa Community Protocol for the Sustainable Development of Lake Victoria Basin:** The Protocol was concluded on 29th November 2003 and entered into force on 1st December 2004. Kenya signed it on 30th November 2004.
- u. East African Community Transboundary Ecosystem Management Bill, 2010:** An Act to provide for the management and regulation of transboundary ecosystems of the East African Community, to establish a commission for the management of transboundary ecosystems and to provide for other related matters.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes.

All Targets

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

Literature Review, Kenya Mission to UNEP, NEMA CHM Reports to the Conventions and Agreements. MEAs Directorate to provide more information

GOK 2018: The Presidency - Vision 2030: Marking ten years of Progress (2008-2018):
<http://vision2030.go.ke/inc/uploads/2018/09/Kenya-Vision-2030-Sector-Progress-Project-Updates-June-2018.pdf>

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found.)

NEMA CHM

Other relevant information, including case studies to illustrate how the measure taken has resulted in (or is expected to result in) outcomes that contribute to the implementation of the NBSAP

UNCCD

Kenya has aligned the National Action Plan (NAP) to the UNCCD through the development of a 10-year Strategy "National Climate Change Action Plan" (NCCAP) 2013–2017 and 2018–2022. Further, Kenya has been participating in COPs and other UNCCD international engagements besides hosting the UNCCD Committee in Nairobi in October 2016.

The Government has developed the Land Degradation Neutrality (LDN) Targets Report following the twelfth session of the conference of parties (COP), held in Ankara, Turkey in October 2015, where parties agreed to move towards neutrality.

The Government has formulated the ASAL Development Policy, 2019, to guide coordinated development of ASALs; formulated National Irrigation Policy, 2017 and enacted Irrigation Act, 2019 to promote development, management and regulation of irrigation; initiated formulation of Draft Land Reclamation Policy, 2018; and the Land Reclamation Bill, 2018. The Land Reclamation Policy and Bill formulation are ongoing concurrently. The draft policy is at the regional consultative stage and will be submitted to the Cabinet alongside the bill thereafter.

The Government institutionalized Drought Management by enacting the National Drought Management Act, 2016, creating the National Drought Management Authority to coordinate and manage drought in the country. In addition, the State Department for Development of ASALs is undertaking Programmes to enhance community resilience against drought through sustainable resource management of Natural Resources and livelihood diversification. The Government has integrated Ending Drought Emergencies (EDE) in National Development Plans through the EDE Sector Plans for MTP III 2018–2022.

The Government has also conducted public awareness campaigns on Land Desertification, Land Degradation and Drought (DLDD) issues. The Annual World Day to Combat Desertification and Drought was celebrated in Makueni County in June 2019.

United Nations Framework Convention on Climate Change

Kenya has also developed a five-year National Climate Change Action Plan (NCCAP 2018–2022). The plan is derived from Climate Change Act, No. 11 of 2016, which requires the Government to develop an Action Plan to guide the mainstreaming of climate change into sector functions. Measures taken in line with the action plan include: constitutional recognition of social economic rights, sustainable development and public participation in environment decision making. Developed Kenya Climate Smart Agriculture Strategy and Kenya Climate Smart Agriculture Implementation Framework and the Kenya Climate Smart Agriculture Project (KCSAP) is ongoing.

The Government has also sponsored the concept of green economy by fostering innovation in the financial sector by developing domestic green bond markets in collaboration with various players in the private sector. Kenya's first green bond in December 2019 raised 4.3 billion Kenya Shillings to build environment friendly student accommodation in public educational institutions. Kenya has developed the Kenya Climate Change Knowledge Portal to provide easy access to all information pertaining to climate change to the public. Kenya submitted to the UNFCCC Secretariat her Nationally Determined Contributions (NDCs) for the implementation of the Agreement. The NDCs have been mainstreamed into sector planning of both national and county governments.

The Climate Change Act, 2016, establishes the National Climate Change Council which is chaired by the President. The Council provides an overarching National Climate Change Coordination Mechanism among other functions.

CITES:

Kenya has designated the Kenya Wildlife Service (KWS) as CITES Management Authority and the National Museums of Kenya as the CITES Scientific Authority as required by the Convention.

The Wildlife Conservation and Management Act, 2013; The East African Customs and Management Act, 2004 (Rev. 2008); EMCA, 2015; are among the key legislation for penalties, seizures and confiscation, and permitting. In 2014, the Government enhanced the penalties under the Wildlife Conservation and Management Act, 2013, to curb the illegal trade in endangered species. The National Wildlife Strategy 2030 launched in June 2018, forms the blueprint for wildlife conservation and management in the country. In order to have a comprehensive and coordinated policy framework, the Government is reviewing the 1975 Wildlife Policy.

Kenya's has made various proposals at CITES COP such as on issues of engagement of rural communities in CITES processes and how issues of CITES and livelihoods should be considered under the CITES framework, enhances law enforcement to protect species such as the East African Sandalwood, Pangolins and Cheetah whose populations continue to decline as a result of Illegal Wildlife Trade.

Bonn Convention (CMS)

CMS brings together the states through which migratory animals pass, the range states, and lays the legal foundation for internationally coordinated conservation measures throughout a migratory range. Kenya has signed and ratified several agreements and MOUs under the CMS. These include the African Eurasian Water Birds Agreement (AEWA) and MoUs on Migratory Sharks, Sea Turtles, Raptors and Dugongs.

The KWS is the focal point institution that coordinates and implements Kenya's obligations under the Convention. In 2018, the KWS implemented action plans and the strategies for recovering and managing of species covered under the convention, agreements and MoUs.

RAMSAR Convention:

The first obligation under the Convention is for a party to designate at least one wetland at the time of accession for inclusion in the List of Wetlands of international importance in accordance with Article 2 (4) (The Ramsar List) and to promote its conservation. The contracting parties commit to work towards the sustainable use of all their wetlands and designate suitable wetlands for the List of Wetlands of international importance (The Ramsar List) and ensure the effective management and co-operate internationally. Kenya is required to have an inventory of all the wetlands and update their conservation status. Kenya has six wetlands in the RAMSAR list: Lake Naivasha, Lake Baringo, Lake Bogoria, Lake Elementaita, Lake Nakuru and Tana River Delta. The process of listing more wetlands in RAMSAR site is underway to include sites such as Lake Ol Bolossat in Nyandarua county.

Kenya Wildlife Service (KWS) is designated as the Convention's implementing authority and National Focal Point. Focal points for other aspects are NEMA and the National Museums of Kenya. The Government raises awareness on wise use of wetlands under the World Wetlands Day Programme observed annually on 2nd February. Limited enforcement of laws governing use of wetlands and lack of coordinated approach towards implementation and lack of a structured feedback mechanism from COPs to site hinders implementation of the objectives of the Convention.

REGIONAL CONVENTIONS AND AGREEMENTS Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean (Nairobi Convention) and its Protocols

The Convention was adopted on 21st June, 1985, and entered into force on 11th September 1990. The obligation of the states is to protect and manage the marine environment of the coastal areas of Western Indian Ocean. Kenya participated in the 4th negotiation meeting from 25th to 27th March 2019 for the draft Integrated Coastal Zone Management (ICZM) Protocol and Amendment of Nairobi Convention held in Dar es Salaam, Tanzania. Kenya observes the World Oceans Day on 8th June annually and participates in various programs including the Western Indian Ocean Strategic Action Program. (WIOSAP).

To enhance implementation of the Convention, The West Indian Ocean Strategic Action Plan for the protection of West Indian Ocean from Land-based sources and activities (WIOSAP) is supporting the implementation of Waste Treatment Plant at Shimo la Tewa Prisons.

Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora

Kenya hosts the Secretariat (LATF) established under the Agreement. The Secretariat is run by law enforcement officers seconded from the wildlife authorities of the signatory states and coordinates with the National wildlife authorities of signatory states and other law enforcement agencies to control cross-border illegal wildlife trade in member states.

Through the Agreement the country has strived to control poaching and trafficking of wildlife especially of ivory and rhino horns. The Wildlife Conservation and Management Act, 2013 and The East African Community Customs Management Act, 2004 (Rev. 2008) implement the Lusaka Agreement.

Revised African Convention on the Conservation of Nature and Natural Resources. (The Algiers Convention)

The objects of the Convention are: to enhance environmental protection; foster the conservation and sustainable use of natural resources and harmonize and coordinate policies in this field with a view to achieving ecologically rational, sound and socially acceptable development policies and Programmes.

Parties are required to increase vegetation cover, promote traditional rights of local communities and traditional knowledge, and participate in meetings for the conservation and rehabilitation of shared natural resources for future generations. At the United Nations General Assembly in September 2019, Kenya set targets to increase its forest cover from the current 7 to 15 percent by 2022.

East Africa Community Protocol on Environment and Natural Resources Management

The Protocol was adopted and signed on 26th June 2017, and Kenya ratified the Protocol on 26th June 2017. The Protocol is yet to enter into force as some partner states have not ratified it. The objective of the Protocol is to co-ordinate parties to adopt a common vision in addressing the challenges of achieving sustainable development at the local, national and regional levels through sound environment and natural resources management. Partner states are currently re-negotiating the Protocol to streamline certain aspects with respect to use and protection of natural resources in the East Africa Community (EAC).

The 2010 Nile Basin Cooperative Framework Agreement (CFA)

Kenya has a keen interest in the conclusion of the CFA given its rising water demands and hence the need to fully utilize the potential of the Nile River Basin as an important and indispensable water resource to her people. Moreover, the main water towers that are the source of the rivers that feed into Lake Victoria are in Kenya. The Cabinet and the National Assembly approved the ratification process of the instrument.

Kenya hosted the 27th Nile Council of Ministers meeting in Nairobi on 29th November 2019, to review status of ratification of the CFA by 10 member countries and review progress made towards earlier resolutions.

East Africa Community Protocol for the Sustainable Development of Lake Victoria Basin

The Protocol provides a framework for cooperation among the Partner States in the conservation and sustainable utilization of the resources in the Lake Victoria Basin. EAC partner states and stakeholders are obliged to protect, conserve, and where necessary rehabilitate Lake Victoria Basin and its ecosystems; and to develop Programmes to reduce environmental degradation within the Lake Victoria Basin and explore means of having coordinated implementation of Programmes on the Lake's basin by different institutions.

The Protocol establishes the Lake Victoria Basin Commission (LVBC) with its headquarters based in Kisumu, Kenya. Currently, the EAC has allocated funds to construct the headquarters of LVBC in the land allocated by the Government of Kenya. The objectives and broad functions of the Secretariat is to promote, co-ordinate and facilitate development initiatives within the Lake Victoria Basin.

As a party, Kenya co-operates in the sustainable management and development of Lake Victoria Basin and is involved in the development and implementation of measures to enhance safety of life, navigation and preservation of aquatic life. The National Focal Point is Ministry of Environment and Forestry while the Ministry of Water, Sanitation and Irrigation coordinates Kenya's implementation of the Protocol.

Programmes and Projects being implemented in the basin include the strategy to manage water hyacinth, improved sanitation across the basin, rehabilitation of catchments, community development projects, among others implemented by LVBC is the Lake Victoria Environmental Management Program LVEMP I, II and III as well as the Lake Victoria Water and Sanitation (LVWATSAN) I and II Project, under the Focal Point Ministry.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information can be found.

Kenya Clearing House Mechanism: NEMA

Obstacles and scientific and technical needs related to the measure taken: Please describe what obstacles have been encountered and any scientific and technical needs for addressing these, including technical and scientific cooperation, capacity development activities or the need for guidance materials.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to these obstacles and scientific and technical needs can be found.)

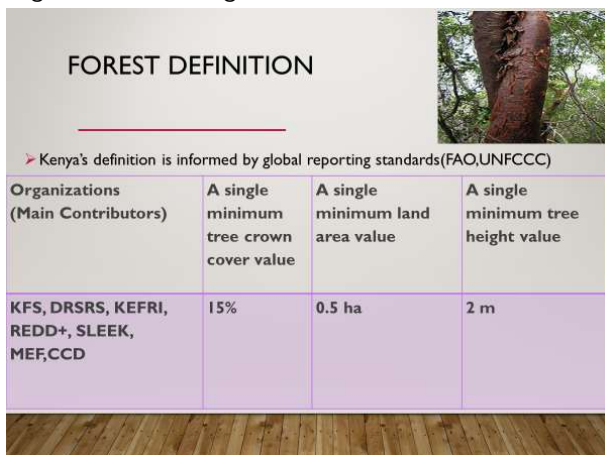
NEMA CHM

3.6 MEETING THE 10% FORESTRY TARGET INCREASE THE COUNTRY'S TREE COVER TO 10%

Describe a measure taken to contribute to the implementation of your country's national biodiversity strategy and action plan.

Kenya has a wide range of valuable forest ecosystems that can meet the increasing needs of its peoples if the resources are used in a sustainable manner. The key forest ecosystems are riverine, dryland, marine, western rainforest systems and montane forests. The montane forest ecosystems include the five major water towers: Mount Kenya, Aberdare Range, Mau Forest Complex, Mount Elgon and the Cherangani Hills. They represent the largest tracts of high-canopy forests that form the upper catchments for most of the main rivers and are sources of essential wood and non-wood products. Dryland forests are also essential in providing the basis for energy, fodder and construction material for livelihoods in the arid and semi-arid lands (ASALs).

Kenya's constitution 2010 requires that the country should maintain a minimum of 10% forest cover. In its reporting to the UNFCCC as part of REDD+, the Ministry of Environment and Forestry in 2019 reported a loss of 103,368ha in 2018. Reforestation efforts have been in place at the rate of 90,477ha per year. (MEF,2019). The Government committed to increase and maintain tree cover of 10 per cent by 2022. The Forest cover statistics have varied from 6.9% and 7.4% and 5.9%. This has been a reflection of the lack of long-term monitoring data.



The current forest cover of 7.4% was established through wall to wall forest resource assessment through a partnership of DRSRS, World Resources Institute and KFS. The current forest land use definition for Kenya based on a multi-stakeholder process and taking into consideration international processes and definition. Plantation such as tea and coffee are excluded. (Source: KFS 2020)

In Kenya, forest restoration has been of high priority on the government's agenda and is reflected in a number of different legislations and policies. In addition, the Government of Kenya has put in place several high-level initiatives and laws that are strongly linked to restoring lands and their associated ecosystem services. Further, the Government through Executive Order No. 1 of 2018 expanded the mandate of

Figure 4: Kenya Forest Definition -Source Kenya Forest Service.

the State Department for Irrigation to include the function of Land Reclamation to reverse Land Degradation and ensure Land Degradation Neutrality. In November 2018, the Government committed 5.1 Million Hectares of land under afforestation to reclaim degraded forested land under the Pan African Action Agenda on Eco-system restoration. In June 2018, the Head of Public Service issued a circular to all ministries on the inclusion of tree planting in Corporate Social Responsibility (CSR) activities.

The Forest Conservation and Management Act 2016 Section 6(3)(a)(iii) highlights the need to develop "Programmes for achievement and maintenance of tree cover of at least 10% of the land area of Kenya". Section 37(1) requires every County Government to, establish and maintain arboreta, green zones or recreational parks for use by persons residing within its area of jurisdiction. In this regard, every County shall cause housing estate developers within its jurisdiction to make provision for the establishment of green zones at the rate of at least 5% of the total land area of any housing estate intended to be developed.

The Environmental Management and Coordination CAP 387 and (Amendment) Act, 2015 provides for protection of forests and environmental impact assessments of forest related developments. Section 9(2)(r) of the Act requires NEMA to work with other lead agencies to issue guidelines and prescribe measures to achieve and maintain a tree cover of at least 10% of the land area of Kenya. Section 44 of the Act requires that NEMA in consultation with other relevant lead agencies, develop, issue and implement regulations, procedures, guidelines and measures for sustainable management of hilltops, hillsides and wetlands.

Agriculture (Farm Forestry) Rules 2009 rules apply for the purposes of promoting and maintaining farm forest cover of at least 10% of every agricultural land holding and to preserve and sustain the environment in combating climate change and global warming. Part II Section 6 of the Rules specifically deals with the maintenance of 10% tree cover.

The National Forest Programme (2016–2030) is the first cross-sectoral and multi-stakeholder national framework for developing and coordinating forest development aimed at meeting the needs of Kenyans. It builds on the constitutional values and principles of the Kenya Vision 2030, and advances forest development to 2030. It seeks to increase tree cover and reverse forest degradation through sustainable forest management and Enhance forest-based economic, social and environmental benefits including by improving the livelihoods of forest-dependent people.

Further, the government has developed the Strategy to Increase the Country's Tree Cover to 10%. The strategy provides for a series of interventions towards achieving and maintaining 10% tree cover by 2022. This strategy, which is aligned to the National Forest Program, is a cross-sectoral framework that provides for:

- (i) Broad Institutional and multi-stakeholder participation in accelerating the achievement of the Constitutional target of 10% tree cover of the national land area as provided under Article 69 (1) (b),
- (ii) Implementation of Presidential Directives that the Constitutional target of 10% national tree cover should be achieved by 2022 through among other initiatives the revival of Chief's tree nurseries with technical support of Kenya Forest Service and allocation of 10% Corporate Social Responsibility (CSR) to tree growing,
- (iii) Opportunity to achieve national and global commitments with respect to climate change, biodiversity conservation, and land degradation. The government has committed to restore 5.1 million Ha of degraded landscapes as a contribution to the Africa Forest Landscape Initiative (AFR100), 50% reduction of green-house gases from the forest sector by 2030 as part of its Nationally Determined Contribution (NDC) to climate change, and to achieve land degradation neutrality by 2030 as a commitment to United Nations Convention to Combat Desertification (UNCCD),
- (iv) Shared responsibility towards addressing public concerns with regard to continued deforestation, forest degradation and the need for enhanced protection, conservation and sustainable management of forest resources, and
- (v) Enhancing the contribution of the forestry sector towards implementation of the Big 4 Agenda.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes.

Aichi Targets 5, 7, 8, 10.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

Forest resource assessment is done periodically in intervals of 5 years depending on availability of financial resources. The Kenya Forest Service has a GS lab adequately equipped to handle this working together with other institutions such as the Department of Resource Surveys and Remote Sensing and the Kenya Wildlife Service among other institutions.

There is a monitoring system of the key biodiversity areas spearheaded by Nature Kenya working together with the Kenya Forest Service, Kenya Wildlife Service, National Environment Management Authority and other institutions

Tools

- biodiversity assessments and baseline studies, (Forest, Fisheries, Wildlife surveys, livestock),
- trends in the extent of forest cover; mangroves),
- trends in the abundance and distribution of fisheries,
- Kenya has zoning/spatial maps/Agro-ecological zones,

Spatial plans that mainstream biodiversity.

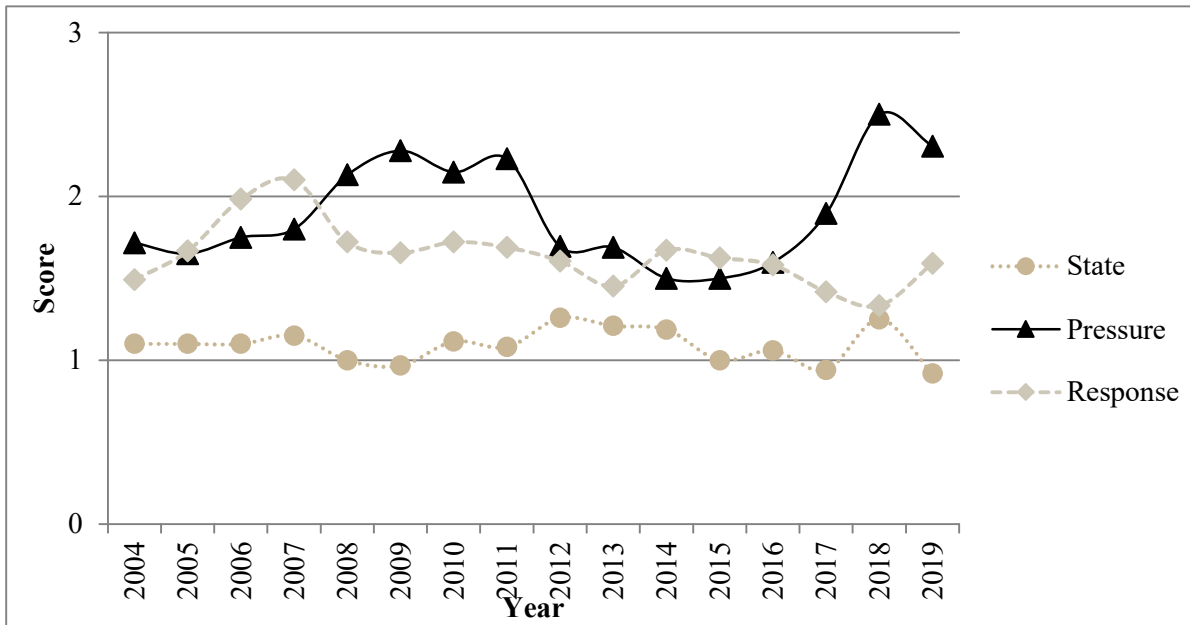


Figure 5: Trends of Kenya KBAs STATE, PRESSURE and RESPONSE between 2004 and 2019 published annually in Kenya KBA Status and Trends report

(Source: Nature Kenya 2020)

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found.)

GOK 2016: National Forest Programme.

<https://kwcaKenya.com/download/kenya-national-forest-Programme-2016-2030/>

GOK 2019. MTPIII Indicators Handbook. <https://monitoring.planning.go.ke/wp-content/uploads/2019/07/MTPIII%20Indicator%20Handbook%202019%20PC.pdf>

Department of Resource Surveys and Remote Sensing, (DRSRS), 2019. Improving Capacity in Forest Resource Assessment in Kenya (IC-FRA) implemented 2013–2015. Field Manual for LiDAR Assisted Estimation of Forest Resources in Kenya. https://www.kefri.org/PDF/Publications/ALS_FieldManual.pdf
http://www.kenyaforestservice.org/documents/icfra/ALS_report.pdf

Kenya Forest Service 2016. Improving Capacity in Forest Resources Assessment in Kenya (IC-FRA) implemented 2013–2015. Field Manual for Biophysical Forest Resource Assessment in Kenya. https://www.kefri.org/PDF/Publications/Kenya_FieldManual.pdf

GOK 2017 -National Mangrove Ecosystem Management Plan 2017-2027. Summary for Policy Makers. http://www.kenyaforestservice.org/documents/National_Mangrove_Management_Plan_Summary_For_Policy_makers%20_Final_170628.pdf

GOK 2016 Kenya Gazette: Forest Management Act 2016.

<http://www.kenyaforestservice.org/documents/ForestConservationandManagementActNo34of2016.pdf>

GOK 2017. National Mangrove Ecosystem Management Plan 2017-2027. http://www.kenyaforestservice.org/documents/National_Mangrove_Ecosystem_Management_Plan_Final_170628.pdf

FAO & KFS 2017 Roadmap for the establishment of Forest Reference levels and the National Forest Monitoring System. <http://www.fao.org/3/a-i6014e.pdf>

Kenya Forest Service: Status of Gazetted Forest 2019. <http://www.kenyaforestservice.org/documents/STATUS%20OF%20GAZETTED%20FORESTS%20IN%20KENYA.pdf>

Other relevant information, including case studies to illustrate how the measure taken has resulted in (or is expected to result in) outcomes that contribute to the implementation of the NBSAP

Other actions that seek to achieve the 10% tree cover target include:

- a) Enactment of Forest Conservation and Management Act 2016, review of the Environmental Management and Coordination Act 2015 and development of the National Forest Programme (2016-2030);** mainly efforts towards achieving the national 10% forest cover; integrated land use planning; provide the forest sector with strong instruments for implementing sustainable management and conservation efforts; devolving and mainstreaming forestry functions into county government planning; and engaging communities and stakeholders in the sustainable management of public forests.
- b) Imposition of a moratorium by the Government of Kenya on logging in public and community forests in February 2018;** This is aimed at reducing deforestation and forest degradation and enhancing regeneration and replanting for sustainable forest management and ecosystems protection through access to genetic materials such as the non-timber products.
- c) National commitment to restore 5.1 million ha of degraded forest and other landscapes.** The African Forest Landscape Restoration Initiative (AFR100) seeks to bring 100 million hectares of land in Africa into restoration by 2030. The commitments announced under AFR100 also support the Bonn Challenge adopted in 2011, whose overall objective is to restore 150 million hectares by 2020, the New York Declaration on Forests that stretches the goal to 350 million hectares by 2030, and the African Resilient Landscapes Initiative that promotes integrated landscape management to promote adaptation to, and mitigation of climate change. In 2016, Kenya committed to restore 5.1 million hectares of forest land.
- d) Review of Charcoal Rules and Regulations (2009), development of Private Forests and Gums & Resins Rules & Regulations;** diversification of energy demands to reduce pressure on wood fuel

and dependence on biomass sources; some devolved units have banned production and transportation of wood fuel within their jurisdictions e.g. Kitui, Makueni and Machakos counties.

- e) **Development of a Strategy to Increase the Country's Tree Cover to 10%;** Aforestation and reforestation for regeneration in conservation areas (forests, conservancies, game reserves and large scale woodlots), establishment of national mangrove strategic plan that has been implemented to increase the spatial distribution of the species along the coastal line.
- f) **Development of REDD+ Strategy and Action Plan;** National estimation of the carbon emission (SLEEK) thus efficient monitoring of carbon production, biomass levels, and energy production sources; monitoring of interactions between human and genetic resources such as community conservancies, settlements along forest lines and other ecosystems e.g. wetlands.
- g) **Development of Commercial Forestry Policy;** To provide alternative source of wood products and increase vegetation cover thus reducing the direct pressure on natural habitats (forest, wetlands, wood lands, shrub lands, among others).

B. National Strategy for Achieving and Maintaining Over 10% Tree Cover By 2022.

Some highlights from the strategy are summarized below:

RESTORATION:

- i. **Ensure sustainable supply of seedlings**
 - a. Produce 1.8 billion quality tree seedlings by 2022 needed to increase tree cover to 10%. This includes establishment of model tree nurseries for seedlings for production of 20,000 seedlings each per year.
 - b. The Ministry of Interior and Coordination of National Government, through the County Commissioners to establish 8,500 Chiefs' tree nurseries with an annual capacity of 20,000 seedlings each.
- ii. **Reduce Pressure on Existing Forests**
 - a. Establish commercial forest plantations on public, private and community lands and Upscale innovative funding for sustainable farm forestry and livelihood enterprises.
 - b. Promote bamboo growing Bamboo presents diverse opportunities that broadly supplement forest products. This strategy seeks to establish 50,000 Ha of bamboo largely through private sector investments, Develop and implement the bamboo policy.
 - c. Implement the Agriculture (Farm Forestry) Rules, 2009. Hence targeted at planting of appropriate trees and fruits in the 10.5 million Ha of agricultural land using appropriate technologies.
- iii. **Enhance Conservation:**
 - a. Enhance protection of the existing 4.18 million Ha of natural forests and water towers, of which 2.59 million Ha are public and managed by Kenya Forest Service; rehabilitate 300,000 Ha through enrichment planting; fence 1,500 Kms of natural forest boundaries; rehabilitate 200,000 hectares through natural regeneration; and rehabilitate 50,000 hectares of degraded community and private forests.
 - b. Implement of the Mangrove Management Plan (2017-2027) and rehabilitate 17,036 ha of degraded mangrove through partnerships and Develop and implement guidelines on mangrove restoration.
 - c. Restore of 543,000 Ha degraded landscapes in the Arid and Semi-Arid Lands (ASALS) ASALS - which face severe land degradation arising from unsustainable charcoal burning, overgrazing and erratic weather patterns.
- iv. **Increase Tree Cover Outside Forests.**
 - a. **Urban Forests and Green Spaces:** increase urban forests and green spaces in all the urban centers in the 47 counties through avenue tree planting and establishment of green parks, arboreta and botanical gardens as well as securing and rehabilitating of riparian areas and wetlands.
 - b. **Implementation of the Greening Kenya Initiative** which aims to produce of 50 million tree seedlings annually; Rehabilitate of 1,000 Ha of degraded areas in South Marmanet Forest Station; establish 2,000 Km of boundary planting within the Prison Services land; and establish 700 Ha of commercial woodlots within Prison Services land.

- c. **Greening infrastructure:** Government land and other un-alienated public land provide opportunities for increasing the tree cover in the country. The government will enforce compensatory planning for infrastructure developments that lead to deforestation; enforce the Environment and Social Impact Assessment (ESIA) licensing provisions; and Institute a deposit bond mechanism to ensure compliance with requirements for restoration.
 - d. **Greening of Institutions including, Ministries Departments and Agencies (MDAs).** This strategy seeks to ensure that MDAs identify land and invest in tree growing as their contribution to the 10% tree cover; and MDAs to set aside 10% of their CSR budget for tree growing.
 - e. **Greening of schools and other Institutions of learning** This strategy will leverage on the pupils and students to enhance the tree cover through; establishment of woodlots and boundary planting, creation of environmental awareness; and planting and adoption of at least two trees by the students;
- v. **Implementation of national forest policies, legislations and Strategies.**
 - a. County governments are required to implement specific national policies on forestry which include; provision of forest extension services to communities, farmers and private land owners; integrate spatial development plans into County Integrated Development Plans (CIDPs) to identify areas for forestry and tree development; and develop policies and legislation to implement the devolved forestry functions as detailed in the Transition Implementation Plans (TIPs),
 - b. The National Environmental Management Authority to implement the National action plan for restoration of degraded sites in Arid and Semi-Arid Lands,
 - c. The Ministry of Agriculture and County Governments to implement the Climate Smart Agriculture Strategy,
 - d. Kenya Forest Service and County Governments to implement the Forest Act 2016 requirement for establishment of Arboreta in urban centres and the Forest (Charcoal) Rules, 2009,
 - e. The Ministry of Tourism and Wildlife and Kenya Wildlife Service to implement the National Wildlife Conservation Strategy 2030 which calls for protection, rehabilitation and restoration of wildlife habitats, including forests, savannas and mountains,
 - f. Ministry of Agriculture, Kenya Forest Service, and County Governments to implement Agriculture (Farm Forestry) Rules, 2009,
 - g. County Governments to implement the physical planning rules that require 5% of all residential premises are covered by appropriate tree species.
- vi. **FOREST RESOURCE ASSESSMENTS:** Enhance forest resources assessment, monitoring and reporting capability through implementation of a full national forest inventory, establishment of a National Forest Monitoring System with reporting capabilities; Periodic monitoring and reporting on performance on tree planting, survival rates and status of protected forests.
- vii. **EDUCATION AND AWARENESS:** This strategy seeks to educate, sensitize and create awareness to the public for the uptake of tree growing.
 - a. The Ministry of Education will review the teaching curriculum of primary and Secondary schools to include sustainable forest management.
 - b. **National tree planting campaigns** This strategy seeks to mobilize the public for the uptake of tree growing through the Ministry of Interior and Coordination of National Government to direct Chiefs to Mobilize citizenry to plant 100,000 seedlings each planting season; launch the national and county level tree planting seasons; and mark the International Day of Forests.
- viii. **SUSTAINABLE PRODUCTION AND CONSUMPTION:** This strategy seeks to ensure that Eco-labeling of charcoal produced from efficient technologies is done for market access; Efficient cook stoves, Industries invest in efficient boiler technologies and increase use of alternative energy sources such as; solar, wind, Liquid Petroleum Gas (LPG), biogas, briquettes 9.18.
- ix. **INCENTIVES:** Provision of incentives and awards Incentives will be provided to support sustainable conservation and management of forests as identified in the Environment Management and Coordination Act, 2015, Forest Conservation and Management Act, 2016, Climate Change Act, 2016 and others. These include:

- a. The Ministry of Environment and Forestry and the National Treasury to provide economic and fiscal incentives e.g. tax rebates that promote efficiency in wood conversion and utilization,
 - b. Payment for Ecosystem Services, including water, carbon, and tourism levies,
 - c. Provision of affordable credit facilities to businesses engaged in forest development,
 - d. Provision of grants to communities for forest development. Other incentives directed at counties, institutions, schools, media houses, communities, individuals and institutions who excel in forestry conservation and management include Trophies, Certificates, Cash and in-kind prizes and Recommendation to the Head of States for decoration.
- x. **RESEARCH:** The strategy seeks to deploy the latest technologies in forest regeneration, protection, and planting by enhancing capacity of KEFRI and other relevant agencies to undertake research; identification and promotion of innovative technologies for forest restoration; and application of indigenous technical knowledge on conservation.
- xi. **RESOURCE MOBILIZATION:** Mobilization of resources Forestry is a long term, capital intensive investment that mainly generates common goods and services.
- a. In order to sustainably conserve, manage, promote forestry activities, the National and County Governments should explore opportunities for increased financing of forestry sector development, in addition to incentivizing private sector investment,
 - b. Diversify revenue streams by Kenya Forest Service, including from sale of mature and over-mature trees in public forest plantations, eco-tourism and Payment for Ecosystem Services (PES),
 - c. Development and operationalization of climate finance policy and strategy to support access to International Climate Finance and a framework for issuance of green bonds,
 - d. Operationalization of the Forest Conservation and Management Trust Fund (FCMTF),
 - e. Formulation of the REDD+ Strategy and investment plan to facilitate carbon trading and access to other global carbon finance sources,
 - f. Establishment of Public Private Partnerships, and
 - g. Conservation levies particularly water and tourism levies.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information can be found)

GOK 2019 – Strategy to increase tree cover by to 10%<http://www.environment.go.ke/wp-content/uploads/2019/08/Strategy-for-10-Tree-Cover-23-5-19-FINAL.pdf>.

GOK 2016. TECHNICAL REPORT ON THE NATIONAL ASSESSMENT OF FOREST AND LANDSCAPE RESTORATION OPPORTUNITIES IN KENYA 2016. Ministry of Environment and Natural resources.
https://afr100.org/sites/default/files/Kenya_Technical%20Report_Assessment%20of%20National%20Forest%20and%20Landscape%20Resto..._0.pdf

Nature Kenya (2019) Mt. Kenya Forest Ecosystem Services Assessment report 2019
https://drive.google.com/file/d/1J3LPfMaYeAM5f_GGXkhFdo7DpekNUmJ9/view

KEFRI 2016. Landscape restoration in Kenya. Is it worth restoring degraded landscapes.
<https://www.kefri.org/PDF/Publications/Brief1e-versionNew1.pdf>

Nature Kenya (2019) Mt Kenya forest restoration and conservation business case
https://issuu.com/nature_kenya/docs/business_case_full

Obstacles and scientific and technical needs related to the measure taken: Please describe what obstacles have been encountered and any scientific and technical needs for addressing these, including technical and scientific cooperation, capacity development activities or the need for guidance materials.

Challenges

- The forestry sector has been characterized by ineffective regulatory mechanisms and inadequate law enforcement.
- These challenges are compounded by dwindling public land meaning that forestry development has to expand into private and community land, which need incentives and clear methods of engagement to encourage investments in commercial forestry on private land.
- The forest sector has to contend with low productivity of tree crops, low conversion efficiency and weak value addition schemes.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to these obstacles and scientific and technical needs can be found.)

Kenya Forest Service <http://www.kenyaforestservice.org/>

KFS 2018. Gazetted Forests by County

<http://www.kenyaforestservice.org/documents/STATUS%20OF%20GAZETTED%20FORESTS%20IN%20KENYA.pdf>

KFS 2015. Participatory Forest Management Guidelines.

<http://www.kenyaforestservice.org/documents/pfm/PFM%20Guilines%20Final%202016.pdf>

3.7 ENHANCING THE BLUE ECONOMY

Describe a measure taken to contribute to the implementation of your country's national biodiversity strategy and action plan.

The Blue Economy sector is one of the emerging economic frontiers that is expected to significantly contribute to Kenya's economic growth. In recognition of the sector's potential during the Third Medium Term Plan, 2018-2022, the Blue Economy has been added as the eighth priority sector under the Economic Pillar. This covers both aquatic and marine spaces including oceans, seas, coasts, lakes, rivers, and underground water. It encompasses a range of productive sectors, including fisheries, aquaculture, tourism, transport, shipbuilding, energy, bio prospecting and underwater mining and related activities. Kenya's share of Blue Economy to the GDP is 2.5% and the sector contributes an estimated Kshs. 178.8 billion to the economy annually.

Building on these, the President through Executive Order No. 1/2016 on "Organization of the Government of the Republic of Kenya" established the State Department for Fisheries and The Blue Economy. The Kenyan government created a Presidential Blue Economy Task Force in 2017. The Task Force oversees interventions to achieve the Blue Economy objectives in sectors such as fisheries and aquaculture, maritime transport, culture and tourism, environmental conservation and oil and mining. Underscoring how much the BE has become a priority for Kenya, the government hosted the first-ever global 'Sustainable Blue Economy' conference on 26 to 28 November 2018 with Japan and Canada. Over 16,000 participants from 184 countries attended the conference, which resulted in the [Nairobi Statement of Intent on Advancing a Sustainable Blue Economy](#).

The Fisheries Management and Development Act 2016 provides for the conservation, management and development of fisheries and other aquatic resources to enhance the livelihood of communities that depend on fishing. It gives guidance on the import and export trade of fish and fish products, fish quality and safety among other provisions that support sustainable utilization of marine products in Kenya.

Under the Blue Economy Sector Plan, key Programmes proposed include:

- i. Development of the blue economy Programme including the Blue Economy master plan.
- ii. Fisheries and Maritime infrastructure Development Programme
- iii. Exploitation of living resources under the blue economy Programme

- iv. Aquaculture business development Programme
- v. Kenya Marine Fisheries and Socio – economic development Programme.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes.

All targets

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

The Blue Economy Sector planning process included a situation analysis. Additional information is from sector reports and the Vision 2030 ten-year review report 2008-2018.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found.)

GOK 2018: The Presidency - Vision 2030: Marking ten years of Progress (2008-2018):
<http://vision2030.go.ke/inc/uploads/2018/09/Kenya-Vision-2030-Sector-Progress-Project-Updates-June-2018.pdf>

GOK 2018. Vision 2030 MTP III. Sector Plan for Blue Economy

<https://planning.go.ke/wp-content/uploads/2020/02/SP-7144-SECTOR-PLAN-FOR-BLUE-ECONOMY.pdf>

Kenya Marine Fisheries Research Institute

<https://www.kmfri.co.ke/>

Kenya Maritime Authority

<https://kma.go.ke/>

Blue Economy Strategy Presentation

<https://www.icpak.com/wp-content/uploads/2017/11/5.-Blue-Economy-Strategy-John-Omingo.pdf>

Ministry of Agriculture, Livestock and Fisheries, State Department for Fisheries, Aquaculture and Blue Economy

<http://www.kilimo.go.ke/management/state-department-of-livestock-2/>

Other relevant information, including case studies to illustrate how the measure taken has resulted in (or is expected to result in) outcomes that contribute to the implementation of the NBSAP

During the MTP II period, the key achievements in the maritime and fisheries sub-sectors included:

- development of Fisheries Management Plans; Kenya Tuna Fisheries Development and Management Strategy 2013 -2018,
- enactment of the Fisheries Management and Development Act No. 35 of 2016,
- procurement of an Offshore Patrol Vessel (OPV Doria) for surveillance of deep-sea fishing and two patrol boats one for Lake Victoria and another for Lake Turkana; acquisition of an Offshore Research Vessel (R.V Mtafiti),
- reflagging of four foreign deep-sea fishing vessels (with the Kenyan flag), and
- establishment of a Monitoring, Control and Surveillance (MCS) centre in Mombasa and installation of a Vessel Monitoring System (VMS).

Other achievements realized during the period include:

- restocking of 135 dams, 11 rivers and 3 lakes with a total of 4,881,663 assorted fish fingerlings to increase productivity,

- mapping and delineation of thirteen (13) critical fish habitats, 5 in Lake Naivasha, 3 in Lake Baringo and 5 in Lake Turkana to protect the breeding areas and thus increase in-situ stock recruitment.

In addition, during the MTP II period,

- a Residue Monitoring Plan for farmed fish was developed and approved by the European Union (EU) and thereby, opening up export markets for farmed fish and fishery products in the EU,
- three Fish Quality Control Laboratories were established in Nairobi, Mombasa and Kisumu; four cold storage and mini fish processing facilities were established in Meru, Kakamega, Nyeri and Migori,
- seaweed farming was developed in Kibuyuni - Kwale County,
- Expansion of the Blue Carbon project from Gazi to Vanga into the Vanga Blue Forest Project in South Coast, Kwale County
- improved local strain of tilapia was developed and transferred to 10 certified hatcheries for mass production of quality seed,
- an intensive Recirculation Aquaculture Systems (RAS) demonstration infrastructure was established in Sagana; and
- an aquaculture curriculum for Advanced Technical and Vocational Education Training (ATVET) was developed.

MTP III

The proposed actions under MTP III include the following:

Research:

- Assessment of stock status of key fisheries species to enhance capture fisheries management,
- Research on promotion of investments in the Blue Economy,
- Development and implementation of the Maritime Spatial Plan for Kenya,
- Diversification and commercialization of aquaculture species,
- Establishment of a centre for biosecurity and fish disease surveillance in aquaculture,
- Fish feed formulation and testing,
- Biophysical assessment and mapping of major aquatic ecosystems and associated biodiversity,
- Assessment of the vulnerability of aquatic ecosystems to climate change and related disasters,
- Assessment of changes in the socio-cultural characteristics aquatic resource user communities
- Economic valuation of marine and coastal resources,
- Development of innovative technologies for value-addition and reduction of post-harvest losses; and
- Maritime and shipping affairs research.

Policy Development

- Development of Blue Economy Policy
- Development of Aquaculture Guidelines and Standards,
- Development of National Maritime Spatial Plan,
- Development of Blue Economy Master Plan,
- Review of Aquaculture Policy 2011,
- Review of National Aquaculture Strategy and Development Plan,
- Development of Aquaculture Master Plan,
- Development of a Fish Marketing Strategy,
- Review of the Fisheries (Safety of Fish, Fishery Products and Fish Feed) Regulations 2007.

Legal reforms

- Development of Cage Culture Regulations,
- Review of Fisheries Beach Management Units (BMUs) Regulations 2007,
- Undertake miscellaneous amendment of the Fisheries Management and Development Act, 2016,
- Development of the Marine and Inland Fisheries Regulations.

Institutional Reforms

- Implementation of the Fisheries Management and Development Act, 2016.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information can be found)

GOK 2018. Vision 2030 MTP III. Sector Plan for Blue Economy

<https://planning.go.ke/wp-content/uploads/2020/02/SP-7144-SECTOR-PLAN-FOR-BLUE-ECONOMY.pdf>

UNDP Kenya Strategic Policy Advisory Unit. 2016 Policy Brief Issue no. 6. Leveraging the Blue Economy for Inclusive and Sustainable Growth.

<https://www.undp.org/content/dam/kenya/docs/UNDP%20Reports/Policy%20Brief%20%202018%20-%206-%20%20Blue%20Economy%20for%20Inclusive%20and%20Sustainable%20Growth.pdf>

Blue Economy Conference

<https://www.unenvironment.org/nairobiconvention/kenya-promoting-blue-economy-home-and-abroad>

<http://www.blueeconomyconference.go.ke/>

<http://www.blueeconomyconference.go.ke/wp-content/uploads/2018/12/SBEC-FINAL-REPORT-8-DECEMBER-2018-rev-2-1-2-PDF2-3-compressed.pdf>

Obstacles and scientific and technical needs related to the measure taken:

The investments in the Blue Economy are fairly new and the focus has been on setting up the legal and institutional framework.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to these obstacles and scientific and technical needs can be found.)

GOK 2018. Vision 2030 MTP III. Sector Plan for Blue Economy

<https://planning.go.ke/wp-content/uploads/2020/02/SP-7144-SECTOR-PLAN-FOR-BLUE-ECONOMY.pdf>

3.8 ADDRESSING CLIMATE CHANGE IN KENYA

Describe a measure taken to contribute to the implementation of your country's national biodiversity strategy and action plan.

Kenya's economy is dependent on its natural resource base and climate-sensitive sectors, making it highly vulnerable to climate variability and change. Towards this end, the Government has put in place an enabling environment to respond to challenges of climate change as well as to take opportunities associated with it. These include the Climate Change Act 2016, National Climate Change Action Plan (2013-2017 and 2018-2022) and National Adaptation Plan (2015-2030). Sectoral initiatives such as the expansion of renewable energy resources, ecosystem and habitat restoration, and climate smart agriculture have also contributed to building resilience of the communities and systems to climate

variability and change. In ratifying the Paris Agreement, Kenya submitted its' Nationally Determined Contribution (NDC) in December 2016. The NDC set out an adaptation contribution as mainstreaming adaptation into Medium Term Plans (MTPs) and implementing adaptation actions. The NCCAP represents the national mechanism through which Kenya's NDC are implemented, in accordance with the Act.

While adaptation is the priority for Kenya, action is needed to reduce GHG emissions that are projected to increase due to population and economic growth. Kenya's mitigation or low-carbon actions seek to help to keep GHG emissions lower than the projected trajectory, and to deliver co-benefits, including sustainable development, green growth, and resource efficiency. The low carbon actions also contribute to achieving the Government's Big Four Agenda. Actions in the six mitigation sectors set out in the UNFCCC; agriculture, energy, forestry, industry, transport, and waste; lead to lower emissions than in the projected baseline; and could help meet Kenya's mitigation Nationally Determined Contribution (NDC) goal of abating the emissions by 30% by 2030, relative to business as usual. The forestry sector has large potential to reduce GHG emissions in Kenya, because forests act as "sinks" through carbon sequestration.

- Examples of National legislative Frameworks which create an enabling environment for addressing climate change in Kenya:
- Climate Change Act 2016
 - National Climate Change Action Plan (NCCAP) (2013-2017 and 2018-2022))
 - National Adaptation Plan (NAP) (2015-2030)
 - Nationally Determined Contribution (NDC)
 - Medium Term Plans (MTPs)

Further, County Governments mainstream climate change actions and interventions in their CIDPs, while taking into account National and County priorities. County Governments are enacting regulations to allocate a portion of their development budgets to support climate change action. A number of National, County, and sectoral policies and plans that have been developed, such as the National Climate Change Response Strategy (2010), the Kenya Climate Smart Agriculture Strategy (2017-2026) and the National Climate Finance Policy (2017). The National Climate Change Policy (2018) was approved by Parliament, the Climate Change Directorate (CCD) put in place, and the National Climate Change Resource Centre (NCCRC) established.

NCCAP 2018-2022 seeks to further Kenya's development goals by providing mechanisms and measures to achieve low carbon climate resilient development, in a manner that prioritizes adaptation. The Actions help to align sectors to lower GHG emissions, and help Kenya meet its Nationally Determined Contribution goal. State departments and national public entities are required to establish climate change units to integrate NCCAP 2018-2022 into their strategies and implementation plans, and to report to NCCC on an annual basis. County Governments are to integrate actions in NCCAP 2018-2022 into their CIDPs for the 2018-2022 period and designate a County Executive Committee member to coordinate climate change affairs. Under Water and the Blue Economy, they have responsibility for Water management and implementation of policies established by the National Government on water conservation; while under Forestry, Wildlife and Tourism, Implementation of policies on natural resource and environmental conservation, and the management of community and private forests.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes.

All targets.

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

An in-depth analysis was undertaken in preparation for NCCAP II hence Mitigation Technical Analysis Report (MTAR) 2018-2022 and Adaptation Technical Analysis Report (ATAR) 2018-2022.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found.)

Government of Kenya (2018). National Climate Change Action Plan (Kenya) Volume 3: Mitigation Technical Analysis Report. Ministry of Environment and Forestry. Nairobi
<http://www.environment.go.ke/wp-content/uploads/2020/03/MTAR-2018-2022-Final-v3.pdf>

Government of Kenya (2018). National Climate Change Action Plan (Kenya) Volume 2: Adaptation Technical Analysis Report 2018-2022. Ministry of Environment and Forestry. Nairobi.
<http://www.environment.go.ke/wp-content/uploads/2020/03/ATAR-2018-2022-Final-v1.pdf>

Government of Kenya (2017). Nationally Determined Contribution (NDC) Sector Analysis Report: The Evidence Base for Updating Kenya's National Climate Change Action Plan, Nairobi: Ministry of Environment and Natural Resources.
<http://www.starckplus.com/documents/ta/ndc/NDC%20Sector%20Analysis%20Report%202017.pdf>

Other relevant information, including case studies to illustrate how the measure taken has resulted in (or is expected to result in) outcomes that contribute to the implementation of the NBSAP

Kenya's first National Climate Change Action Plan (NCCAP) (2013-2017) guided the transition and promotion of the country's economy to a low carbon and climate resilient development pathway. NCCAP 2018-2022 builds on the foundation established through enabling actions implemented under NCCAP 2013-2022. A key accomplishment was enactment of the Climate Change Act, 2016 which provides the regulatory framework for enhanced response to climate change and provides for the mainstreaming of approaches for low carbon climate resilient development. The Act sets out the institutional structures and responsibilities in the oversight and management of NCCAPs and the National Climate Change Council (NCCC) responsible for overall coordination.

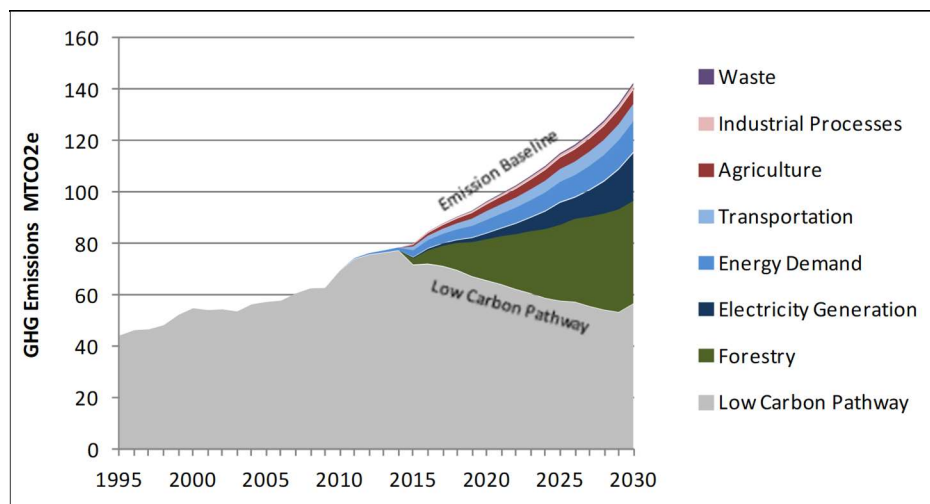


Figure 6: Kenya's Baseline Emissions and Mitigation Potential for the Sectors (MtCO2e per year)¹⁹

¹⁹ Source: GoK; NCCAP 2013-2017

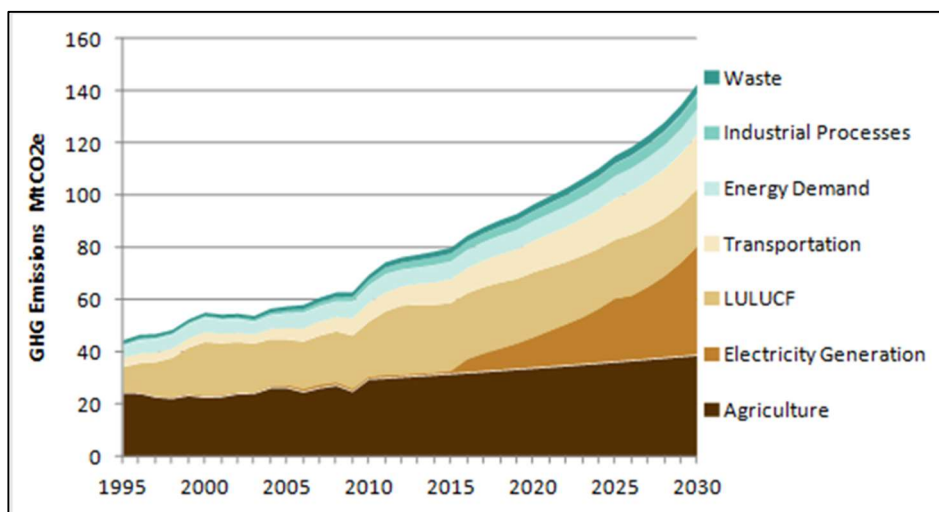


Figure 7: Baseline Emission Projections for Kenya (MtCO₂e per year)²⁰.

Other achievements of NCCAP 2013-2017 are: summarized in table 1 and 2 Below.

Table 2: National Sector-based Adaptation-related Policies, Strategies and Plans

Sector	Climate Change/Adaptation /Related Plan	Ministry/ Department
Agriculture	Kenya Climate Smart Agriculture Strategy (2017-2026)	Ministry of Agriculture and Irrigation
Disaster Risk Management	Draft Kenya's Disaster Risk Financing Strategy for Catastrophe Deferred Drawdown Option or Cat-DDO (2018-June 2023)	National Treasury
Drought Management	Climate Risk Management Framework (2017)	National Drought Management Authority
Energy	Energy Bill (2017) – Part 3, section 43; Part 4, section 74 (i), and Part 9 address climate change-related issues	Ministry of Energy
Environment	<i>Environmental Management and Coordination Act (No. 8 of 1999 and Amendment 2015)</i> Biodiversity and Climate Change Strategy (2016)	Ministry of Environment and Forestry
Finance	National Climate Finance Policy (2018)	National Treasury
Forestry	National Forest Programme (2017) - chapter on climate change. REDD+ Readiness Plan and analysis (2013-2018)	Kenya Forest Service, Ministry of Environment and Forestry
Health	<i>Health Act (No. 21 of 2017)</i> - section on environmental health and climate change (part VII, sections 68 & 69)	Ministry of Health
	Draft Disaster Risk Management Policy (2018); Draft Disaster Risk Management Bill (2018)	Department of Interior; National Disaster Operations Centre National Treasury
Water	Draft Water Harvesting and Storage Policy (2018)	Ministry of Water and Irrigation

(Source: NCCAP 2018-2022 ATAR)

Table 3: Successes of Adaptation Actions Undertaken During the NCCAP 2013-2017 Period

Project name	Description	Partners
Kenya Water Security and Climate Resilience Project	Increases availability and productivity of irrigation water and builds capacity of water sector institutions, including integrated and participatory basin planning.	Ministry of Environment and Forestry (MoE&F), World Bank

Coastal Region Water Security and Climate Resilience Project	Increases water supply to Mombasa County through construction of dams; and increases access to water and sanitation in Kwale County through investments in water, sanitation and irrigation.	MoE&F, World Bank
Adaptation to Climate Change and Insurance Project	Facilitated small-scale farmers and small-scale agricultural enterprises to increase their capacity to adapt to climate change by making use of climate risk management measures	State Department of Agriculture and GIZ
Kenya Livestock Insurance Programme	Provides index-based insurance product to pastoralists' communities that receive pay out once satellite images indicate vegetation cover is below a certain threshold. This allows pastoralists to utilize the payouts to purchase animal feed, pasture and water to support their livestock during the drought period.	Government of Kenya, International Livestock Research Institute (ILRI), Swiss Re
Water Towers Protection and Climate Change Mitigation and Adaptation	Identifies and develops integrated management plans for ecological and economical sustainable land use systems in the watershed systems that feed into lakes Victoria, Turkana and Baringo.	MoE&F, County Governments, European Union
Integrating Agriculture in National Adaptation Plans	Integrates climate change risks and opportunities as they affect agriculture sector-based livelihoods into national and sectoral planning and budgeting processes.	Ministry of Agriculture Livestock and Fisheries (MoAL&F), MoE&F, Food and Agriculture Organization (FAO), UNDP and Government of Germany
Kenya National Agricultural Insurance Programme	Based on Area Yield Index Insurance, the crop insurance framework benefits rural smallholder farmers in three pilot counties (Embu, Bungoma and Nakuru), and will be rolled out to other counties.	MoAL&F, MoE&F, USAID-UNDP through the LECRD project, World Bank
Integrated Programme to Build Resilience to Climate Change and Adaptive Capacity of Vulnerable Communities in Kenya	Builds resilience to climate change and adaptive capacity of vulnerable communities in Kenya. This USD 10 million Programme is implemented by three executing entities (KEFRI, TARDA and CDA) and eight sub-executing entities and covers five thematic areas: Food Security, Water Management, Coastal Management, Disaster Risk Management and Knowledge Management. The project is implemented in the following counties – Marsabit, Kajiado, Kwale, Mombasa, Homa Bay, Laikipia, Machakos, Kisumu, Wajir, Makueni, Kiambu, Meru, Kitui, Kilifi, Taita Taveta, Lamu, Tana River and Garissa.	National Environment Management Authority (NEMA) as the National Implementing Entity (NIE), UNFCCC Adaptation Fund
Kenya: Adaptation to Climate Change in Arid and Semi-Arid Lands Phase 2	strengthens climate risk management and natural resource base related knowledge; builds institutional and technical capacity for improved planning and coordination to manage current and future climate risks; and invests in communities' priorities in sustainable land and water management and alternative livelihoods that help them adapt to climate risk	MoD&P, World Bank, with incremental support from UNFCCC Special Climate Change Fund administered by UNDP
Ending Drought Emergencies	The Common Programme Framework operationalizes a commitment to end drought emergencies by June 2023 through a collaborative approach across sectors, counties, and development partners. NDMA leads efforts and establishes mechanisms such as the National Drought Contingency Fund which is guided by contingency planning and early warning systems	NDMA, MoD&P, Development Partners
Kenya Integrated Climate Risk Management Project	builds national and sectoral capacity for climate analysis that informs effective use of disaster risk reduction and adaptation resources	NDMA, Government of Sweden
Adaptation Consortium	Supports county governments to mainstream climate change in planning and access climate finance through establishment of county climate change funds and related	NDMA, KMD, UK-Met, International Institute for Environment and

	planning structures and development of county Climate Information Services (CIS) plans	Development, CARE, Government of the UK through the StARCK+ Programme
National Agriculture and Rural Inclusive Growth (NARIG)	Aims to increase agricultural productivity and profitability of targeted communities. The project supports the adoption of climate smart agriculture practices and processes, and will be complementary to the proposed Kenya Climate Smart Agriculture Project	MoALF&I and 21 County Governments, World Bank
Kenya Cereal Enhancement Programme-Climate Resilient Agricultural Livelihoods Window	grant funding to complement an IFAD loan, that aims to build farmer's capacity to adopt climate smart practices by promoting efficient water management, conservation agriculture and crop insurance	MoAL&F, IFAD, European Union
Implementing a Resilience Framework to Support Climate Change Adaptation in the Mt. Elgon Region of the Lake Victoria Basin Project	improves scientific knowledge of climate change information and demonstrates increased social and ecological resilience to address climate vulnerability in the Mt. Elgon water tower	Lake Victoria Basin Commission; International Union for Conservation of Nature, African Collaborative Centre for Earth Systems Science, USAID
Kenya Climate Smart Agriculture Project	Increases agricultural productivity and build resilience to climate change risks in the targeted smallholder farming and pastoral communities in Kenya, and in the event of an Eligible Crisis or Emergency, to provide immediate and effective response	MoALF&I and World Bank
National Agriculture and Rural Inclusive Growth Project	Increases agricultural productivity and profitability of targeted rural communities in selected Counties, and in the event of an Eligible Crisis or Emergency, to provide immediate and effective response	MoALF&I and World Bank
Agriculture Sector Development Support Programme I and II	Development of sustainable value chains for improved income, food and nutrition security by increasing agricultural productivity, promoting investment and encouraging private sector participation in agricultural enterprises and agribusiness	MoALF&I and Sida
Kenya Coastal Development Project	Implementation of activities from Ridge to Reef in fisheries management, conservation, woodlot development, biodiversity assessments, coral, seagrass and mangrove restoration, community development and support for ecotourism	MoALF&I and World Bank

(Source: ATAR 2018)

Proposed action in NCCAP 2018-2022

NCCAP 2018-2022 seeks to further Kenya's development goals by providing mechanisms and measures to achieve low carbon climate resilient development, in a manner that prioritizes adaptation. The Actions help to align sectors to lower GHG emissions, and help Kenya meet its Nationally Determined Contribution goal of abating the emissions by 30% by 2030, relative to business as usual.

Seven priority areas underpin NCCAP 2018- 2022; 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. The actions prioritized in these areas have been incorporated in the third Medium Term Plan 2018-2022 (MTP III) and second- Generation County Integrated Development Plans (CIDPs). Implementation of these plans is tracked using appropriate indicators to measure progress and achievements. Under Vision 2030 MTP III, the Climate Change Thematic Plan 2018-2022 addresses the country's vulnerability to climate variability and change, supports efforts towards the achievement of Kenya Vision 2030, the Paris Agreement, the Sustainable Development Goals and Africa's Agenda 2063.

The adaptation actions identified by the sectors for the 2018–2022 planning period focused on six broad issues:

- Climate Induced Natural disasters – drought, floods, consequent infrastructure damage, landslides, pests, and diseases,
- Food insecurity – crops, livestock, fisheries,
- Water insecurity – both in urban and rural areas,
- Energy infrastructure – vulnerability, resilient energy mix, robustness (biomass, solar, wind, hydrodynamic, geothermal, etc.),
- Land degradation – terrestrial (forests, wetlands, rangelands, agricultural land); and
- Marine and Coastal ecosystem degradation – e.g. mangrove forests, coral reefs, sea grass beds, beaches, deltas, sea water intrusion, and coastal erosion.

In the context of the CBD Strategic Plan and its Aichi targets, the relevant outputs and indicators for monitoring at national and county level include for NCCAP 2018-2022 include:

1) Thematic Area 2 – Food and Nutrition Security

a) Outcome 2: Enhance agricultural resilience:

- i) Sustainable land management Practices - (Number of farmers adopting sustainable land management practices)
- ii) Water harvested for irrigation Purposes - (Amount of water harvested)

b) Outcome 3: Increase livestock productivity

- i) Rangeland Reseeded – (Hectares of rangeland reseeded)
- ii) water harvested and stored – (Millions of cubic metres of water harvested and stored in ASALs)
- iii) Investment in aquaculture as a diversification for fisheries (Number of farmers engaged in aquaculture)

2) Thematic Area 3 – Water and the Blue Economy

a) Outcome 2: Enhanced protection and conservation of coastal and marine biodiversity

- i) Restored and rehabilitated mangrove forests, coral reefs and seagrass beds – (Acreage of mangrove forests, coral reefs and seagrasses restored and rehabilitated)

3) Thematic area 4 – Forestry, wildlife and Tourism

a) Outcome 1 – Increased forest cover –

- i) Area of land afforested or reforested – (Hectares of land afforested or reforested)

b) Outcome 2 – Enhanced Wildlife management

- i) dispersal areas and migratory pathways secured – (Percentage of dispersal areas and migratory pathways secured)
- ii) wildlife surveillance systems installed – (Number of surveillance systems installed)

4) Thematic Area 5 – Health

a) Reduced incidence of climate change and pollution induced diseases

- i) Functioning waste management systems – (Number of households connected to the sewer system and Number of urban areas/counties with operational solid waste management systems)
- ii) Green spaces created - (Number of green spaces created)

5) Thematic Area 6- Manufacturing

a) Outcome 1 - Clean and efficient industrial production

- i) water efficiency audits conducted - (Number of water efficiency audits)
- ii) Green production systems installed – (Number of Green Production systems installed)

6) Thematic Area 7 – Energy and Transport

a) Outcome 2 – Increased use of clean energy solutions

- i) Improved biomass stoves - (charcoal and wood) Distributed (Number of Improved biomass stoves distributed)
- ii) Awareness forums on Improved biomass stoves conducted - (Number of awareness forums on Improved biomass stoves conducted.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information can be found)

National Climate Change Action Plan II 2018-2022

Government of Kenya (2018). National Climate Change Action Plan (Kenya) 2018-2022. Ministry of Environment and Forestry, Nairobi, Kenya.

<http://www.environment.go.ke/wp-content/uploads/2020/03/NCCAP-2018-2022-v2.pdf>

Kenya National Adaptation Plan 2015-2030

https://www4.unfccc.int/sites/NAPC/Documents%20NAP/Kenya_NAP_Final.pdf

Climate Change Indicators Development Handbook

The National Treasury and Planning 2108. <https://planning.go.ke/wp-content/uploads/2018/12/Climate-Change-Indicator-Development-Guidebook.pdf>

GOK 2018: Vision 2030 MTP III. Thematic Plan for Climate Change

<https://planning.go.ke/wp-content/uploads/2020/02/L-270-THEMATIC-PLAN-FOR-CLIMATE-CHANGE.pdf>

Obstacles and scientific and technical needs related to the measure taken: Please describe what obstacles have been encountered and any scientific and technical needs for addressing these, including technical and scientific cooperation, capacity development activities or the need for guidance materials.

Key challenges identified by the Adaptation Technical Assessment Report (ATAR) included:

- Skill and technical expertise to support climate change adaptation activities limited,
- Insufficient financial resources allocated for climate change activities both at National- and County-levels,
- Inadequate functional data, and lack of a climate information management system and clear documentation, which make monitoring, evaluation, learning and planning adaptation activities difficult,
- Inadequate climate adaptation technologies to address felt National needs,
- Low productive base for natural and manmade capital assets, which limits capacities to adapt,
- Inadequate knowledge and poor understanding of adaptation concepts, with options to reduce climate risks or means to implement their associated adaptation actions lacking,
- Socio-cultural and institutional rigidity, with cultural norms that discourage change and innovation, but only affirm existing traditional means of reacting to climate stress and shock,
- A tendency for partners to work with Counties providing enabling environments in-terms of legislation that supports climate change activities, which makes some attract several adaptation funding and projects and not others. This trend might lead to having some Counties 'left behind' in terms of implementation.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to these obstacles and scientific and technical needs can be found.)

Government of Kenya (2018). National Climate Change Action Plan (Kenya) Volume 2: Adaptation Technical Analysis Report 2018-2022. Ministry of Environment and Forestry. Nairobi.

<http://www.environment.go.ke/wp-content/uploads/2020/03/ATAR-2018-2022-Final-v1.pdf>

4 SECTION III. ASSESSMENT OF PROGRESS TOWARDS EACH NATIONAL TARGET

4.1 TARGET 1

Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

12 /3/2020

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

I. Publication, launch and dissemination of the Biodiversity Atlas of Kenya and Portal

In 2016 the Government of Kenya with support from DANIDA brought together a wide range of stakeholders and institutions to compile the natural capital of Kenya, produce a biodiversity atlas and develop a web portal for biodiversity information. This was an attempt to present in a visual form the current extent, status, threats, trends, interventions and potential sustainable use opportunities of Kenya's biological diversity. Efforts were made to collate the available data and information of the country's biological diversity and present it in form of maps, photos and diagrams that are easy to understand.

The purpose for developing the Atlas and Portal was re-invigorate stakeholders to act on the knowledge, institutional, policy, technological and economic development challenges highlighted in the Atlas. In the same vein, stakeholders and Partners were encouraged to take up the opportunities for sustainable use and economic activities elaborated in the Atlas. The Cabinet Secretary for Environment and Natural Resources, in 2016, when launching the Biodiversity Atlas, called on development partners, private sector, academia, researchers and all relevant stakeholders to increase their efforts and contribution towards achievement of conservation and sustainable use of biological diversity, while improving the wellbeing of Kenyans through the creation of wealth as envisioned by Vision 2030.

Over the last several years, many partners have worked together to build the Kenya Biodiversity Atlas Portal - an online platform supporting data generated from "Kenya's Natural Capital – Biodiversity Atlas" (2015). The platform is open access and supports data acquisition, storage, visualization, and analysis for a variety of uses while maintaining standards to facilitate data exchange and scalability for application in Kenya and East Africa. With support from the JRS Biodiversity Foundation, the online Portal has been developed with images, maps and other resources and is being enhanced in an initiative led by African Conservation Centre with key Government, Civil Society and Private sector Partners. The aim is to improve the user interface for local stakeholders and researchers, enhance content through data harvesting and linkages to other global portals, and will identify means of sustaining the portal in perpetuity.

II. Use of Popular Media and Programmes.

In 2016, with support from various Partners, Kenya Wildlife Service and premier TV station, NTV, ran four seasons of the NTV Wild program that brought award winning documentaries on wildlife to Kenyans during prime time, reaching a nationwide audience. The series provided a platform for debate and discussion with experts on Kenya's wildlife, its conservation and why it matters so much. Expert panelists included diplomats, government ministers, national park managers, scientists, expert professionals such as economists and lawyers, civil society leaders, and grassroots activists. Viewers participated by posting

comments online and taking part in quizzes and competitions, with prizes provided by leading hotels and tourism companies.

NTV Wild Talk addressed biodiversity issues in depth such as wildlife trends, forest loss, protected areas and threatened species among others. A wide range of Partners were involved, including National Geographic Society, BBC Worldwide, African Environmental Film Foundation, WildlifeDirect and USAID. NTV Wild and NTV Wild Talk became among Kenya's most anticipated weekly TV programs and regularly featured at the top of the ratings for the prime time Tuesday and Saturday night TV slots while thousands of comments and discussions are generated on Twitter and other social media platforms.

A survey found that overall, 20% of all Kenyans said they had seen NTV Wild and this number rose to 44% for Nairobi County. In 2016, the success of the show received two prestigious awards. In September NTV Wild Talk was awarded second place in the category "best use of online video" at the Africa Digital Media Awards ceremony in South Africa. In October NTV Wild won a special award at Eco Tourism Kenya's "Eco Warrior Awards" gala for contributing to the transformation of public attitudes towards wildlife conservation in Kenya.



Smriti Vidyarthi host of NTV Wild Talk with her team and KWS team at the Eco Warriors Awards 2016 where NTV Wild Talk received recognition award for changing public attitudes towards wildlife (Source: Eco warrior award 2016:

Figure 8: Ecotourism Eco-Warriors Award Kenya 2016.

<https://ecotourismkenya.org/ecowarrioraward/>

III. CONSERVATION EDUCATION INITIATIVES

Key environmental and natural resource management institutions focus on conservation education as part of their institutional mandate. For example, one of the core functions of KWS is to provide wildlife education and extension services to the public for their support in wildlife conservation (<http://www.kws.go.ke/content/conservation-education>). This contributes to the overall KWS mandate in terms of enhancing wildlife conservation, protection, and management, improving KWS's linkages, recognition and relationships with stakeholders. National initiatives include

- **School Essay competition:** This is an annual event involve schools and higher learning institutions in essay writing on conservation issues. The program gives an opportunity to students and pupils to air their views on viable and practical ideas in support of Wildlife conservation.
- **Kenya Music festival:** This is an annual event where KWS sponsor category under Wildlife conservation themes that schools and higher learning institutions compose conservation messages in form of songs, choral verses and public speaking.
- **Community Education programs:** It involves general sensitization of the communities adjacent to protected areas on conservation issues
- **Media programs:** These are radio and TV programs to sensitize the public and schools on conservation issues. In collaboration with media houses, children programs are organized in Education facilities which give children an opportunity to interact with nature and learn animal behavior.
- **Education Exhibitions and trade fares:** These are Exhibitions that gives an opportunity to schools and general public to learn more about conservation issues. Mostly carried out during world biodiversity importance day's celebrations, higher learning institutions career fares and trade fares.

Many Civil Societies collaborate with and support national institutions to actively implemented Programmes on conservation education, advocacy and public awareness.

IV. NATIONAL EVENTS

Two key national events supported by the Presidency enhance awareness of the value of biodiversity in Kenya and send a strong conservation message to the general public. These are:

- The National Tree Planting Day, with Kenya Forest Service
- Ivory Burn, with Kenya Wildlife Service.
-

(a) National Tree Planting Day 2018



Figure 9: Celebrating National Tree Planting Day

NAIROBI, Kenya May 6 – President Uhuru Kenyatta led the country in a national tree planting exercise:

The event was replicated at the County and sub-county levels. “H.E President Uhuru Kenyatta launched the National Tree Planting Day at Moi Forces Academy in Kamukunji Sub-County, Nairobi on 12th May, 2018 from 9am”. The national event, whose theme was ‘Panda Miti, Penda Kenya’, was graced by the President accompanied by Nairobi Governor Mike Sonko.

<https://www.capitalfm.co.ke/news/2018/05/president-kenyatta-to-lead-national-tree-planting-on-may-12/>



Kenyans around the country join in tree planting efforts.

<https://www.facebook.com/arochakenya/photos/national-tree-planting-day-panda-miti-penda-kenya-is-the-theme-of-the-day-httpwww/10156366935943524/>

Figure 10: Kenyans Plant Trees on National Tree Planting Day

(b) Ivory burn

On 1st May 2016, set off the fire for historic burn of the 11 massive piles of ivory, which took place at Nairobi National Park. It was organized by Kenya Wildlife Service and partners, and attended by the presidents of Kenya, Gabon and Uganda, as well as high-level UN officials, including Ibrahim Thiaw, Deputy Executive Director of the UN Environment Programme (UNEP), and Helen Clark, Administrator of the UN Development Programme (UNDP).



Figure 11: Kenya Ivory Burn 2016

"As African leaders soundly rejected "those who think our natural heritage can be sold for money," senior United Nations officials expressed support for Kenyan-led efforts to end illegal wildlife trade during a weekend ceremony in Nairobi where tonnes of elephant tusks and rhino horns were burned to protest poaching, which is pushing several iconic species to the brink of extinction. In the ceremony, 105 tonnes of ivory and 1.3 tonnes of rhino horns, nearly all of Kenya's elephant ivory and rhino horn stockpiles, were burned."

<https://www.un.org/sustainabledevelopment/blog/2016/05/kenya-stages-largest-ever-ivory-destruction-as-un-reaffirms-zero-tolerance-on-poaching/>

V. Commemoration of annual international environment days

Kenya has been commemorating international environment days to raise awareness on biodiversity. These are undertaken at National level and celebrated rotationally across counties. Examples include the following:

- a) In 2019, National celebrations to mark the **World Environment Day**, were held on Wednesday, 5th June 2019, under the theme: Air Pollution, A Silent Killer; and the slogan 'Hewa Safi, Jukumu Letu' (Clean Air, Our Responsibility). The Commemoration is undertaken by National and County Governments with involvement of major stakeholders such as civil society, women and youth and private sector. This commemoration is in line with UN day for encouraging worldwide awareness and action to protect our environment.
- b) In 21st March 2019, Kenya water towers agency together with key stakeholders in environment landscape celebrated the **International Day of Forest** aimed at raising awareness on the crucial role of forest under the theme : Forest and Education which sought to raise awareness on how to sustainably manage forest and provide a wide array of conservation activities in the country. These commemorations are done rotationally across all the 47 County Governments of Kenya.
- c) **The World Wildlife Day** is celebrated on 3rd March annually. Kenya commemorated the World Wildlife day on 3rd March 2020 under the theme; "Sustaining all Life on Earth" and was hosted at Homa Bay County's Ruma National Park with involvement of County Government. The aim of the celebration was to celebrate the diverse flora and fauna and raise awareness of the multitude of benefits accruing from their conservation. This event fore so the launch of the Roan Antelope Recovery Plan 2020- 2030 and Tree planting which aims at restoring initial viable Roan antelope population to at least 50 individuals by 2023 and maintenance of a minimum growth rate of at least 5% p.a. henceforth.
- d) **The World Wetlands Day** celebrated on 2nd February 2020 annually, was held in Nakuru County themed; 'Wetlands and Biodiversity'. The aim of this celebration was to mark the adoption of RAMSAR Convention on wetlands, promotion of conservation and sustainable utilization of wetlands.
- e) **The World Day of Combating Desertification** celebrated on 17th June annually, was held last year in Makueni County under the theme; 'let's grow the future together.' The aim of the commemoration was to raise awareness relating to international cooperation to combat desertification and all effects of drought.

f) The **International Day of Biodiversity** marked all over the world on 22nd May each year, as part of the domestication of the United Nations Convention on Biological Diversity (UNCBD) was hosted in Busia County under the theme; 'Our Biodiversity, Our Food, Our Health'.

g) **Other days that are related to the oceans** – World Ocean Day, World Fisheries Day, Earth Day etc.

VI. Mainstreaming environmental education into the National Curriculum

The Sustainable Development Goal (SDG) No. 4 is to ensure equitable and inclusive quality education for all by 2030. In addition, sustainable development demands that every human being acquires the 21st Century knowledge, skills, attitudes and values necessary to shape a sustainable future. On this basis Kenya began a process to reform its national education policy in 2014. The Education Review in 2015 set the stage for reform to Competency Based Education. The new National Competency Based Education Curriculum Policy was 2018 and the Basic Education Curriculum Framework developed in 2019. The Framework is anchored on eight National Goals of Education, the 8th focused on Environmental Education, hence, "*Promote positive attitudes towards good health and environmental protection: - Education should inculcate in the learner the value of physical and psycho-social well-being for self and others. It should promote environmental preservation and conservation, including animal welfare, for sustainable development*".

Basic Education is organised into three (3) levels: Early Years Education (EYE), Middle School Education and Senior School. Environmental education is mainstreamed throughout the three levels. One of the nine learning outcomes for the EYE is Learning Outcome 5: Explore the immediate environment for learning and enjoyment. Noting that Environmental activities are about the relationship between human beings and their environment; these activities enable the child to develop positive relationships, appreciate the surrounding environment and cultural heritage, develop observation and discovery skills, and acquire life skills required to ensure safety in their environment.

For Middle School, out of the nine Learning Outcomes, Learning Outcome 4: Explore, manipulate, manage and conserve the environment effectively for learning and sustainable development. For Senior School, out of the ten Learning Outcomes, Learning Outcome 7 is Protect, preserve and improve the environment for sustainability. These have translated into the respective curriculum designs.²¹

The use of Ocean Literacy Platforms and available materials available from the Intergovernmental Oceanographic Commission are also important in enhancing ocean literacy. There are several Kenyan Schools that are part of the ASPNet (UNESCO Associated Schools Network) and this ensures that oceans are part of their learning.²²

VII. IMPLEMENTATION OF THE NATIONAL EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD) POLICY

A wide range of ESD activities are taking place in Kenya and are being led by the government, civil society organizations, the private sector as well as communities. These activities include raising awareness, providing capacities and skills, and empowering people and communities to create more sustainable futures. Table 3 below summarizes the ESD policy implementation framework.

Kenya has mainstreamed ESD into the new Competency Based Curriculum. Further, NEMA provides resources (approximately KES 7 million per year) to selected RCE for various activities. However, this is not based on a needs assessment. Innovations from CBOs and small community groups do not get adequate support for their projects. In addition, many of these innovations come from groups with limited capacities to draft successful bid proposals to donors. There is need for a national assessment, which will form the basis for resources utilization. Some examples are shown in Table 4 below.

²¹ <https://kicd.ac.ke/curriculum-reform/basic-education-curriculum-framework/>

<https://kicd.ac.ke/cbc-materials/curriculum-design/>

²² <https://en.unesco.org/fieldoffice/venice/oceanliteracy>

Table 4: ESD Policy Implementation Framework

Policy Statement	Strategies	Indicators	Key Actors	Time Frame
Mainstream ESD in all teaching and learning processes	<ul style="list-style-type: none"> Improve pedagogical approaches to teaching. Promote transformative aspects of education Promote competencies for global citizenship Develop appropriate local training resources. Encourage exchange programmes with best practicing institutions. 	<ul style="list-style-type: none"> No. of institutions which has mainstreamed ESD into existing and new curricula No of ESD training centres No of exchange programmes conducted 	<ul style="list-style-type: none"> MOE NEMA MEMR 	2012-2016
Review all curricula to address ESD concerns.	<ul style="list-style-type: none"> Review existing curricula to address ESD concerns Ensure curriculum content allows for local relevance and cultural appropriateness Flexible curriculum frameworks to facilitate entry, exit and continuous learning 	<ul style="list-style-type: none"> No of institutions reviewed curricula to address ESD concerns. Curricula with the desired ESD values in place in all institutions of learning 	<ul style="list-style-type: none"> All institutions of learning MOE MEMR NEMA KIE MoHEST 	2012-2016
Promote partnerships and programmes for sustainable development	<ul style="list-style-type: none"> Establish and strengthen Regional Centers of Excellence Promote public exhibitions relevant to ESD Identify, document and harness indigenous knowledge and projects for economic empowerment Promote production of relevant public education and awareness materials on ESD Integrate Indigenous Knowledge Practices 	<ul style="list-style-type: none"> No of partnerships established No of exhibitions per year Utilisation of IK on research and implementation of ESD programmes No and type of ESD materials produced and distributed. 	<ul style="list-style-type: none"> NGOS Development Partners Bilateral partners MEMR MOE NEMA RCEs Universities 	2012-2016

(Source: NEMA)

Table 5: RCE Activities to implement the ESD in Kenya supported by NEMA

D.	REGION	PROJECT TITLE	INSTITUTION	OBJECTIVES
	Coast Pwani RCE	Conservation and Wise Use of Wetland in Pwani University Botanical Garden	Pwani University	Conservation of wetlands and biodiversity -it can create employment opportunities, -tourist attraction site even. -educational botanical garden
	Eastern Mount Kenya EAST rce	Restoration of Mariara River Basin in Meru County, Kenya	Kenya Methodist University	To restore Mariara River Basin.
	South Rift Mau complex RCE	Climate change project	Egerton University	Enhancing participatory community management in the RCE Mau ecosystem- Awareness creation on impacts of climate change
	North rift RCE North rift	Community Based Climate change adaptations through springs and wetland conservation in Kenya's North Rift Counties	University of Eldoret	Tacking the impacts of climate change
	Nyanza RCE Nyanza	Electronic waste management- developing a system of collection, reuse and recycling of PCs	Maseno University	Reducing the impacts of climate change
	Central RCE Central	Enhancing biodiversity conservation, river sub catchment restoration and awareness creation on gazetted NEMA regulations in Nyeri county.	Dedan Kimathi University	Enhancing conservation of biodiversity

(Source: NEMA).

Indicators used in this assessment

Indicator(s) used in this assessment

- *CBD Target 1 Indicator: Trends in public engagement with biodiversity*
- **SDG Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all:** Target 4.7: By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development: **Indicator 4.7.1:** Extent to which (i) global citizenship education and (ii) education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in: (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment
- Goal 12. Ensure sustainable consumption and production patterns: **Target 12.8: By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature:** **Indicator 12.8.1:** Extent to which (i) global citizenship education and (ii) education for sustainable development (including climate change education) are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment

Please describe any other tools or means used for assessing progress

- Desk top reviews of online and print information, Experts' opinion, and Stakeholders' consultation.
- Comprehensive literature review on ESD, The information was collated from a checklist distributed to ESD stakeholders; an Internet and desktop review of ESD activities in Kenya; site visits to RCEs, and Civil Society Organizations and the UN (UNESCO and UNEP) whose findings form the education for Sustainable Development (ESD) Kenya Country Report 2005 -2012.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

Natural Capital and Biodiversity Atlas of Kenya

ACC Biodiversity Atlas Project
https://www.accafrica.org/our_work/explore_programs/bioinformatics_in_east_africa/kenyan-biodiversity-atlas-project/

Launch of the Biodiversity Atlas – Cabinet Secretary for Environment and Natural Resources Prof. Judi Wakhungu. <https://naturalcapitalcoalition.org/kenyas-natural-capital-a-biodiversity-atlas/>

Kenya Biodiversity Atlas Portal <http://biodiversityatlaskenya.org/>

JRS Biodiversity Foundation: <https://jrdbiodiversity.org/jrs-announces-three-grants-for-access-to-biodiversity-information-in-africa/>

NTV WILD Documentaries and NTV WILD TALK

Wildlife direct annual report 2016 <https://wildlifedirect.org/wp-content/uploads/2017/07/Wildlife-Direct-Annual-Report-2016.pdf>

Selected documentaries:

NTV WILD TALK https://www.youtube.com/results?search_query=NTV+wild+Talk

NTV Wild Talk – Kenya Wildlife Trends https://www.youtube.com/watch?v=R5wX_M-6tS0

Fighting for Forests: <https://www.youtube.com/watch?v=ypl0vcaL8DE>

Disappearing Giraffes <https://www.youtube.com/watch?v=ypl0vcaL8DE&pbjreload=10>

Building the Standard Gauge Railway vs. The Nairobi National Park
<https://www.youtube.com/watch?v=YnML9LkOmNc>

Exploring mangroves and coral gardens <https://www.youtube.com/watch?v=iJjNUGqvYbs>

Conservation education

Nature Kenya, who also host field trip and birdwatching <http://naturekenya.org/>

East African Wildlife Society, who also publish the conservation magazine – SWARA MAGAZINE <https://eawildlife.org/>

Wildlife Clubs of Kenya who support school wildlife clubs <https://www.wildlifeclubsofkenya.org/about-us.html>

Ivory Burn

Video – Statehouse Kenya: <https://www.youtube.com/watch?v=ImiyC4E-TgM>

National Tree Planting Day

<http://www.environment.go.ke/?p=4727>

Mainstreaming Environmental education into the National Basic Education Curriculum.

Basic Education Curriculum Framework

<https://kicd.ac.ke/curriculum-reform/basic-education-curriculum-framework/>

National Curriculum Policy

<https://kicd.ac.ke/curriculum-reform/national-curriculum-policy/>

NEMA CHM

<http://meas.nema.go.ke/cbdchm/>

World Wildlife Day

<http://kws.go.ke/content/triple-celebration-world-wildlife-day-tree-planting-and-launch-recovery-and-action-plan-roan>

World Wetlands Day 2019

http://www.nema.go.ke/index.php?option=com_content&view=article&id=274:wetlands-day-digital-contest&catid=10:news-and-events&Itemid=425

Education and Sustainable Development

<http://www.nema.go.ke/images/Docs/Guidelines/the%20status%20of%20esd%20in%20kenya%20draft%201%20better%20version.pdf>

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Some challenges:

- Information on the indicators available under different forms but not consolidated into a single document.
- There also has been time lag in adopting the policy and implementation of the Programmes.
- Funding has been limited in the implementation of the Programmes.
- There is no proper reporting mechanism for the activities being carried out country wide.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

There is a lack of clear and well-coordinated monitoring framework.

The ESD strategy also needs to be reviewed so as to:

- (i) ensure indicators are clear for all stakeholders,
- (ii) is aligned to related strategies developed in other sectors; and
- (iii) is aligned to the new developments in both the public and private sector port would be possible by establishing a common and binding vision for ESD.

The Sectoral and stakeholder reporting as captured under Clearing House Mechanism by National Environmental Management Authority. However, there is need to link this to the NIMES and CIMES Monitoring systems by developing indicators to monitoring at the respective levels.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)

NEMA CHM

<http://meas.nema.go.ke/cbdchm/>

ESD

<https://www.rcenetwork.org/portal/>

https://www.researchgate.net/publication/235308489_Regional_Centres_of_Expertise_on_Education_for_Sustainable_Development_RCEs_An_overview

4.2 TARGET 2

Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting system

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

12 /3/2020

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

A: PLANNING AND INTEGRATING BIODIVERSITY INTO LOCAL AND NATIONAL DEVELOPMENT

I. The Environment Policy 2013.

The addressed among other things environmental governance, loss of biodiversity, valuation of environmental and natural resources and restoration and rehabilitation of environmental and natural resources. Given that the values of environmental resources were hardly reflected in pricing of marketed goods and services in Kenya, environmental and natural resources were largely considered as public goods hence symptomatic of market failure. Integrating environmental considerations into the behaviour of enterprises and consumers was deemed necessary to reflect a change in consumption and production patterns. Relevant objectives to address this challenge were developed for thus policy hence:

- Promote and support research and capacity development as well as use of innovative environmental management tools such as incentives, disincentives, total economic valuation, indicators of sustainable development, Strategic Environmental Assessments (SEAs), Environmental Impact Assessments (EIAs), Environmental Audits (EA) and Payment for Environmental Services (PES).
- With respect to valuation of biodiversity and ecosystem services, this involves undertaking total economic valuation of national capital which include the review of what is known about the environmental services generated by natural capital, the ways in which humans benefit from those services and the ways in which human activities impact natural capital and change the future flow of services derived from it. This will lead to the green economy.

The Government through this Policy commits to:

- Document and value natural capital and provide periodic assessments to support national accounting and planning.
- Develop and apply instruments and methodologies for environmental accounting into the national accounting and planning processes.
- Promote rational and sustainable use of natural capital to ensure intergenerational equity.
- Promote existing and develop new incentives for the payment of the ecosystem services as a measure to secure and invest in the natural capital.
- Develop a monitoring and reporting framework for a range of stakeholders to monitor their use of natural capital, periodically assess and cost degradation.
- Enhance Natural Capital Value through enhanced conservation activities and capacity building.
- Involve and empower communities in periodic assessments of natural capital.

the Kenyan government has made key steps to recognize the value of biodiversity and incorporate it into national and county level planning processes.

II. EMCA 2015 - The Environmental Management and Co-ordination (Amendment) Act, 2015 (Amendment Act 2015).

The Amendment Act 2015 amended EMCA by introducing section 57A (1) which provides that all Policies, Plans and Programmes for implementation should be subjected to Strategic Environmental Assessment. SEA helps to ensure that many of the environmental issues of global importance are considered in policies, plans and Programmes at different administrative levels (i.e. national, regional, local).

The establishment of Strategic Environmental Assessment (SEA) in Kenya was ostensibly in recognition of the fact that the existing Environmental Impact Assessment (EIA) tool was unable to respond to environmental integration needs at strategic levels of decision-making.

III. LAND USE PLANNING

The National Land Use Policy 2017 provide legal, administrative, institutional and technological framework for optimal utilization and productivity of land related resources in a sustainable and desirable manner at national, county and community levels. The Policy is premised on the philosophy of economic productivity, social responsibility, environmental sustainability and cultural conservation. Key principles informing it include efficiency, access to land use information, equity, elimination of discrimination and public benefit sharing. The Physical and Land Use Planning Act, 2019 enacted by parliament come in force to give impetus to the implementation of the policy. It makes provision for the planning, use, regulation and development of land and for connected purposes.

B. BIODIVERSITY VALUES ARE BEING INCORPORATED INTO NATIONAL ACCOUNTING, AS APPROPRIATE, AND REPORTING SYSTEM

I. Green Economy Strategy and Implementation Plan – Kenya 2016-2030 (GOK 2016)²³

Under Objective 3.1 which seeks to promote the application of market-based instruments and entrepreneurship in natural resource management; GESIP seeks to:

- Develop a natural resource accounting system,
- Pursue application of environment policy measures including Payment for Ecosystem Services, Watershed management, biodiversity, conservation, carbon sequestration and storage,

²³ http://www.environment.go.ke/wp-content/uploads/2018/08/GESIP_Final23032017.pdf

- Promote establishment of nature-based enterprises including ecotourism and community conservancies especially by youth and women groups and people with special needs, and
- Develop and apply tools of benefit sharing to support Payment for Ecosystem Services.

The Key Performance Indicators are Value of NRM-GDP contribution, Adoption of Satellite account of SNA 03, and Number of PES schemes established.

II. Gaborone Declaration for Sustainability in Africa²⁴

The objective of the Gaborone Declaration is to ensure that the contributions of natural capital to sustainable economic growth, maintenance and improvement of social capital and human well-being are quantified and integrated into development and business practice²⁵. One of the priorities for implementation is integration the value of natural capital into national accounting and corporate planning and reporting processes, policies, and Programmes, in agreed efforts, including the appended Communiqué on Natural Capital Accounting. The declaration invited stakeholders to

- develop institutional arrangements to strengthen the implementation of natural capital accounting,
- Develop science-based methodologies on an experimental basis for ecosystem accounting as a complement to GDP and corporate performance, and
- Pilot and demonstrate the economic, social and environmental aspects of scaled up and integrated approaches to natural capital accounting. Further invite the United Nations Statistical Commission to assist in the implementation of the SEEA and to provide support for the training of national accountants, environmental statisticians and national technical staff.

Following the Gaborone Summit, Kenya participated in the International Conference to discuss Valuation and Accounting of Natural Capital for Green Economy (VANTAGE) in Africa from 3-4 December 2013, at UNEP Headquarters in Nairobi, Kenya²⁷. Kenya also participated in the Gaborone Declaration for sustainability in Africa Regional Perspectives on Natural Capital Accounting in June 2016 to set priorities for NCA across the region.²⁸ Kenya has signed the communiqué for natural capital accounting (related to Rio+20).

III. African Ministerial Conference on the Environment

Further the African Ministerial Conference on the Environment, 30th Sept. 2019²⁹ on biodiversity economy and natural capital accounting in Africa, spurred by Africa Agenda 2063 noted that Africa needs to set up valuation of its ecosystems and ecosystem services to build a strong foundation for developing comprehensive natural capital accounts. Methods for recognizing the value of natural capital need to be more widely adopted and integrated into national reporting to reduce reliance on GDP as a measure of growth. An understanding of the value of ecological infrastructure would result in society being more prepared to pay the real cost of conserving it. Hence need for regional standards for natural capital accounting. In addition, National Statistical bureaux and planning ministries to cooperate to embrace natural capital accounting as an integral tool for policy design and implementation. There is also a need to develop a regional cooperation framework on advancing the biodiversity economy that enhances the value of biological goods and services, integrates natural capital accounting and scales up investment in the sustainable utilization of biological resources as part of Africa's transformation;

IV. Natural Capital Accounting in Kenya.

In 2011, the Ministry of State for Planning, National Development, and Vision 2030 released a Poverty and Environment Indicators Report, as part of a broader objective to develop tools for the integration of

²⁴ <https://www.conservation.org/projects/gaborone-declaration-for-sustainability-in-africa>

²⁵ <http://www.gaboronedeclaration.com/>

²⁶ <http://www.gaboronedeclaration.com/nca>

²⁷ https://pfbc-cbfp.org/news_en/items/green-economy-International-conference.html

²⁸ <http://www.gaboronedeclaration.com/s/NCA-Workshop-Report-Compressed-n6jt.pdf>

²⁹ https://wedocs.unep.org/bitstream/handle/20.500.11822/30652/AMCEN_17_5.pdf?sequence=1&isAllowed=y

environment into development plans and budget processes; the report proposed several indicators that could be included in the national monitoring and evaluation framework.³⁰

There are other initiatives on Compensation for environmental services program/Payments for Ecosystem Services (PES) developed through the Vision 2030 project and the Kenya Poverty Environment Initiative that is run by the Ministry of State for Planning, National Development. Some examples of watershed PES programs (managed both through the Ministry of State for Planning, National Development and other projects as well) include a PES for watershed services in Lake Naivasha as well as for wildlife habitat in the Mara ecosystems. In addition, the Kenya Nairobi Water Fund and the Sasumua Water Treatment Plans are examples of different types of watershed PES projects in Kenya as well.

Kenya has prioritized Strategic Environmental Economic Assessments and accounting for water, forests and energy. Examples include the following:

a. Forest Resources Accounts: In 2009, the Kenya Forest Service and the Kenya National Bureau of Statistics (in collaboration with the UNEP and FAO) developed an Environmental Economic Account for Forestry. This was part of the Ministry of Forest and Wildlife's Forest Mainstreaming Initiative under the Miti Mingi Maisha Bora (a bi-lateral program between Finland and Kenya)³¹. The Kenya Forest Research Institute (KEFRI) and the Department of Resource Survey and Remote Sensing (DRSRS) were also involved. The account focused on provisioning services, the timber and non-timber forest products produced by the forests of Kenya. Kenya's Forest Service and the National Bureau of Statistics are discussing how to incorporate annual updates to the forest account into their regular statistics activity.³²

The accounts revealed that forests contributed around 3.6% of GDP versus the 1.1% listed in Kenyan national accounts. The maintenance of the Forest Resource Account will be managed by the Forestry Mainstreaming Committee. Moving forward, the MMMB program will be attempting to move the government towards ecosystem accounting for its forests.

b. National Carbon Accounting System Project: This program is being instituted as part of Kenya's REDD+ work. The program is financially supported by the Government of Australia with technical support from the Clinton Climate Initiative.

There have been various valuation studies. These include:

a. Economic valuation of the Mau Forest Complex: The total economic value of the Mau Forest complex (tourism, hydropower, agriculture, and the tea industry) is as much as USD\$1.5 billion per year. This valuation triggered a multi-million-dollar restoration initiative by the government to restore the Eastern Mau catchment area ("Mau Forest Reforestation Project").

b. Economic analysis of mangrove forests: Funded by UNEP, this case study quantified the total economic value of the Gazi Bay mangrove forest. The total economic value was estimated at USD\$1092 per hectare per year. The lack of primary data and appropriate peer reviewed studies was noted as a limitation of the research.

c. National Forest Programme 2016-2030³³: Under the 8th Cluster on Forest Financing has defined Programme on Forest Resource Valuation whose objective is to determine the total value of forest resources and increase financing to the forest sector. The first intervention strategies is to determine Total Economic Value (TEV) of forest resources so as to increase investment in forestry sector, document TEV by 2020, revise costing and pricing of goods and services from forests and enhance willingness to pay for environmental goods and services. The second strategy is to develop a satellite forestry resource account to document contribution to GDP established and increase resource allocation (county and national government) towards forestry sector.

³⁰ Ministry of State for Planning, National Development, and Vision 2030 (2011) Poverty and environment initiative – Kenya. Republic of Kenya

³¹ Reuter, K.E., Juhn, D., Portela, R., and Venter, J. 2016. Natural Capital Accounting across the Gaborone Declaration for Sustainability in Africa: A Desktop Scoping. Report Prepared for the Gaborone Declaration for Sustainability in Africa: Gaborone, Botswana. Pp. 188

³² WAVES (2015) Forest accounts provide the evidence Kenya needs to drive policy. Available online: <http://www.wavespartnership.org/en/forestaccounts-provide-evidence-kenya-needs-drivepolicy>

³³ <https://kwckkenya.com/download/kenya-national-forest-Programme-2016-2030/a>

Case Study: ECOSYSTEM SERVICES VALUATION IN THREE WATER TOWERS IN KENYA³⁴

The Ecosystem Services Valuation (ESV) study was undertaken by the Kenya Forestry Research Institute (KEFRI) in consultation with several agencies with technical support and funding from US Forest Service and USAID/Kenya & East Africa. The study sought to highlight the significance of the Kenya Water Tower ecosystems to diverse stakeholders and economic sectors through assessment of the critical benefits they provide. The purpose was to support science- and data-driven decision making and investments for natural resource management in alignment with Kenya's sustainable development goals. The ESV study focused on three of Kenya's five main Water Towers – Mau Forest Complex, Cherangany Hills, and Mt. Elgon. Internationally recognized methods to assess ecosystem services both quantitatively and qualitatively were used.

This ESV responded to the Constitution of Kenya (2010), the multi-sectoral policy Vision 2030, the National Environmental Policy (2013) and Kenya National Forest Programme (NFP, 2016-2030). The National Environmental policy highlights the GoK priority actions including documenting and valuing natural capital and providing periodic assessments to support national accounting and planning while the NFP (2016-30) emphasizes innovative strategies for conservation and protection of Water Towers in the country. The NFP (2016) specifically calls for forest resource valuation to be undertaken to capture and document the value of forest products and ecosystem services to increase or spur investment in the forestry sector.

Key Valuation Findings

- The Mau Forest Complex, Cherangany Hills and Mt. Elgon ecosystems provide critical ecosystem services to Kenya's formal economic sectors as well as to the livelihoods of local communities.
- Disaggregated data show that annual TEV contributed by the Mau Forest Complex, Cherangany Hills, and Mt. Elgon ecosystems is estimated to be KES 197 billion (USD 1.97 billion), KES 46 billion (USD 461 million), and KES 114 billion (USD 1.15 billion), respectively.
- The total economic value (TEV) of the three Water Tower ecosystems is estimated to be KES 357 billion (USD 3.5 billion) per year
- The TEV of the three Water Towers is about 5.0% of Kenya's GDP (2017).
- Regulating services (e.g., water storage, water quality, carbon storage and climate regulation) provided by the three Water Tower ecosystems account for the bulk of TEV at 80%.
- The aggregate value of subsistence use by forest adjacent households is KES 22.9 billion per year (Mau: KES 12.5 billion; Cherangany: KES 6.9 billion; and Mount Elgon 3.4). This is about 50% of the total annual value of tea exports (from 2017).
- The three Water Towers support over 250 sawmills, providing 80% of their raw materials (≈ 600,000 m³ of timber).
- The value added by wood processing industries supported by these three Water Towers is estimated at KES 10.7 billion per year.
- At least 35,000 people, are gainfully employed in forest industries, trade, and related services. An estimated 35 million m³ of water valued at KES 3.4 billion per year, is extracted from the rivers within the three Water Towers for irrigation, industry, and commercial uses by various stakeholders.
- Hydropower stations depending on rivers from the Mau and Cherangany Water Towers, currently generate 170.4 megawatts valued at KES 11.9 billion per year with a potential of generating 508 megawatts.
- The Water Towers support agricultural production through soil and nutrient conservation and the provision of habitat for pollinators. The rivers and streams that emanate from the Mau Forest Complex, Cherangany Hills, and Mt. Elgon irrigate 52,030 hectares of land. The agriculture sector supports approximately 80% of the local population surrounding the three Water Towers and national agriculture directly contributes an estimated 24% of Kenya's Gross Domestic Product (GDP).
- Kenya Tourism and travel directly contribute an estimated 3.7% to GDP (2016), and wildlife tourism contributes a significant portion. The three Water Towers support the tourism industry through their

³⁴ Ministry of Environment and Forestry. 2018. Economic Value of the Water Towers in Kenya. Information Brief. <https://www.kefri.org/PDF/Publications/ESV%20Summary%20%20acg%20nms.pdf> Accessed 28.4.2020

unique biodiversity found in national parks, forest reserves, and wetlands. The Mara River – the lifeblood of the Maasai Mara ecosystem – originates in the Mau Forest Complex

The ESV assessment contributed to Kenya's capacity to assess its natural capital, a key recommendation in the Kenya Biodiversity Atlas. As these Water Towers fall under the jurisdictions of various counties, this assessment can inform county-level natural-capital accounting to develop strategies, incentives, and programs that increase the flow of ecosystem services, community empowerment, and sustainable resource use. In partnership with other stakeholders, including community-based organizations, county governments could use this assessment to identify and improve the recording and mapping of ecosystem service flows. The valuation contributes to achieving Objectives 3.1, 3.2, 3.3, and 3.5 under the Sustainable Natural Resources Management Thematic Area of the Government of Kenya's Green Economy Strategy and Implementation Plan, 2016–2030 (GESIP). GESIP specifically outlines the need for a natural resource accounting system, as well as the application of payment for ecosystem services (PES) programs. Quantifying and valuing ecosystem service flows is an important preliminary step to ensure PES effectiveness.

CASE Study: The cost of restoration in Kenya³⁵

Economic analysis was undertaken in the study by applying 'Restoration Economic Modelling and Valuation' analytical tool of the Restoration Opportunities Assessment Methodology (ROAM).

The economic analysis relied on seven broad categories of forest landscape restoration opportunities identified in the National Assessment of Forest and Landscape Restoration Opportunities Technical Report namely: Afforestation or reforestation of degraded natural forests, Rehabilitation of degraded natural forests, Agroforestry in cropland, Commercial tree and bamboo growing on potentially marginal cropland and un-stocked forest plantation forests, Tree-based buffer zones along water bodies and wetlands, Tree-based buffer zones along roads and restoration of degraded rangelands. Based on these broad categories of restoration opportunities twelve specific interventions/options were identified and subjected to economic analysis (Fig.10). The costs and benefits for each restoration transitions were identified from expert discussions, activity restoration budgets and extensive review of various land use literature. The costs and benefits from each restoration transition were modelled using various assumptions over 30-year period. The benefits and costs were valued using market prices, avoided cost/ replacement cost and benefit transfer approaches. The viability per hectare (ha) of these restoration transitions were assessed using: Net Present Value (NPV and Benefit Cost ratio (BCR). Economics of FLR - All proposed restoration transitions have shown positive NPV (7%).

³⁵ Cheboiwo, Joshua & Langat, David & Muga, Meshack & Kiprop, Jonah. (2019). Economic Analysis of Forest Landscape Restoration Options in Kenya Economic Analysis of Forest Landscape Restoration Options in Kenya. https://www.researchgate.net/publication/332671599_Economic_Analysis_of_Forest_Landscape_Restoration_Options_in_Kenya_Economic_Analysis_of_Forest_Landscape_Restoration_Options_in_Kenya/citation/download

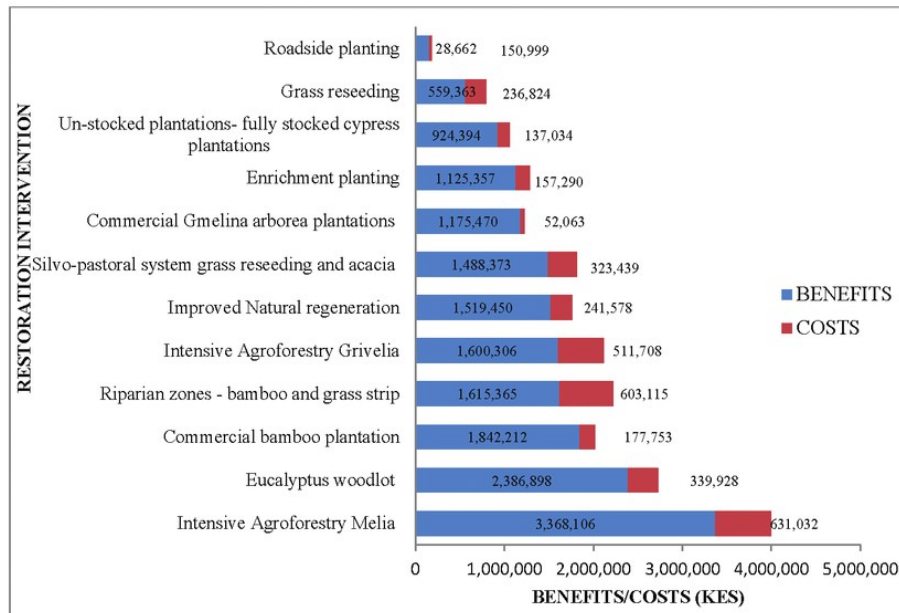


Figure 12: Discounted benefits and costs of restoration (KES)/ha at 7% ³⁶

The most viable restoration transition is achieved by integrating Melia trees in traditional cowpeas farming in the drylands (NPV of KES 1.9 million). This is followed by transition from poorly managed woodlots to improved eucalyptus woodlots at KES 1.6 million and the Silvo-pastoral system at KES 1.2 million. The transition from treeless roads to roads with planted trees has the lowest NPV at about KES 100,000 over the 30-year period. The transition from degraded natural forest to improved natural forest through enrichment planting yielded the second lowest NPV (KES 320,000). 2. The benefit cost ratio (BCR) of the restoration transition ranged from as low as 2.35 (Degraded riparian zones to bamboo and grass strip grass buffer) to highest of 29.2 (Transition from degraded grasslands to reseeded grassland). In situation of resource scarcity, actions should be guided by BCR, and interventions with highest BCR are recommended. From this analysis, grass reseeding in degraded rangelands will yield higher benefits (29.2), followed by intensive agroforestry (Grevillea spp, Maize and Fruit trees) (25.64) in high potential areas, investing in commercial *Gmelina arborea* in marginal areas (24.99) and integrating Melia trees in traditional Cowpeas Farming (22.82). Since all, restoration transitions are viable, prioritization should be guided by the availability of financial resources. 3. The cost of forest restoration using the restoration options selected ranged from KES 30,000/ha to KES 600,000/ha (current values for 2018) depending on the restoration option adopted. Restoration of degraded landscapes (5.1 million hectares) will require KES 1.8 trillion for 30-year period.

Indicators used in this assessment

Partnership (<http://www.bipindicators.net/>) and the Group on Earth Observations Biodiversity Observation Network (<http://geobon.org/>).

i. National Indicators (GESIP)

The Key Performance Indicators are

- Value of NRM-GDP contribution
- Adoption of Satellite account of SNA 03
- Number of PES schemes established

³⁶ Cheboiwo, Joshua & Langat, David & Muga, Meshack & Kiprop, Jonah. (2019). Economic Analysis of Forest Landscape Restoration Options in Kenya Economic Analysis of Forest Landscape Restoration Options in Kenya. https://www.researchgate.net/publication/332671599_Economic_Analysis_of_Forest_Landscape_Restoration_Options_in_Kenya_Economic_Analysis_of_Forest_Landscape_Restoration_Options_in_Kenya/citation/download

ii. CBD Indicators

Trends in incorporation of measures of stock and flow of natural resources into national accounting

- Number of countries implementing natural resource accounts, excluding energy, within the System of Environmental-Economic Accounting (SEEA)

Trends in number of countries that have assessed values of biodiversity, in accordance with the Convention

- Progress towards national targets established in accordance with Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011-2020 (indicator for SDG target 15.9)

Trends in integration of biodiversity and ecosystem service values into sectoral and development policies

- Number of countries that have integrated biodiversity in National Development Plans, poverty reduction strategies or other key development plans

Please describe any other tools or means used for assessing progress

- Desk top reviews,
- Experts' opinion, and
- Stakeholders' consultation.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

Gaborone Declaration

<https://www.conservation.org/projects/gaborone-declaration-for-sustainability-in-africa>

<http://www.gaboronedeclaration.com/>

<http://www.gaboronedeclaration.com/nca>

Green Economy International Conference

https://pfbc-cbfp.org/news_en/items/green-economy-International-conference.html

Gaborone Declaration Workshop

<http://www.gaboronedeclaration.com/s/NCA-Workshop-Report-Compressed-n6jt.pdf>

AMCEN

https://wedocs.unep.org/bitstream/handle/20.500.11822/30652/AMCEN_17_5.pdf?sequence=1&isAlloWed=y

Poverty and Environment Initiative Kenya

Ministry of State for Planning, National Development, and Vision 2030 (2011) Poverty and environment initiative – Kenya. Republic of Kenya

Africa Review on the Gaborone Declaration

Reuter, K.E., Juhn, D., Portela, R., and Venter, J. 2016. Natural Capital Accounting across the Gaborone Declaration for Sustainability in Africa: A Desktop Scoping. Report Prepared for the Gaborone Declaration for Sustainability in Africa: Gaborone, Botswana. Pp. 188

WAVES WORKSHOP 2015

WAVES (2015) Forest accounts provide the evidence Kenya needs to drive policy. Available online: <http://www.wavespartnership.org/en/forestaccounts-provide-evidence-kenya-needs-drivepolicy>

National Forest Programme 2016-2030

<https://kwakenya.com/download/kenya-national-forest-Programme-2016-2030/a>

Economic Valuation of Water Towers in Kenya

Ministry of Environment and Forestry. 2018. Economic Value of the Water Towers in Kenya. Information Brief. <https://www.kefri.org/PDF/Publications/ESV%20Summary%20%20acg%20nms.pdf> Accessed 28.4.2020

See footnotes

Other valuation studies have been undertaken and initiatives implemented such as:

Various studies have been undertaken in Kenya including:

- Economic Valuation of Water Towers in Kenya. Ministry of Environment and Forestry. 2018. Economic Value of the Water Towers in Kenya. Information Brief. <https://www.kefri.org/PDF/Publications/ESV%20Summary%20%20acg%20nms.pdf> Accessed 28.4.2020
- Valuing mangrove biodiversity and ecosystem services: A deliberative choice experiment in Mida Creek, Kenya Ecosystem Services, Volume 40, December 2019. <https://doi.org/10.1016/j.ecoser.2019.101040>
- Case studies during the preparation of the Kenya Strategic Investment Framework for Sustainable Land Management <http://www.environment.go.ke/wp-content/uploads/2018/08/KSIF-Kenya-Strategic-Investment-Framework-on-SLM-2017-2027.pdf>
- Valuing Tana River Water Resources https://africa.wetlands.org/wp-content/uploads/sites/4/dlm_uploads/2017/08/Tana-Delta-TEEB-Policy-Brief.pdf
- Tana Delta Land Use Plan https://issuu.com/nature_kenya/docs/tana_delta_lup_final_print/188

Sectoral and stakeholder reporting as captured under Clearing House Mechanism by National Environmental Management Authority <http://meas.nema.go.ke/cbdchm/>

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

KNBS

EMCA ACT

NEMA is receiving SEA reports for review. The number of SEA reports submitted to NEMA has increased. However, there are inadequate experts to write SEA reports and inadequate background information to support decision making. NEMA has already developed SEA guidelines and Training Curriculum. Sectoral and stakeholder reporting as captured under Clearing House Mechanism by National Environmental Management Authority

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

- The Monitoring Framework for GESIP, KNBS and the NFP are useful sources for this data.
- Data sets from the Forestry, Fisheries and Water Sector are not easily available.
- The SDG monitoring framework through NIMES and CIMES may be useful sources.
- The national target is not yet set so the monitoring framework is not clear.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)

NEMA

Sectoral and stakeholder reporting as captured under Clearing House Mechanism by National Environmental Management Authority

<http://meas.nema.go.ke/cbdchm/>

KNBS Publications

https://www.knbs.or.ke/?page_id=3142

Gaborone Declaration implementation

<http://www.gaboronedeclaration.com/>

Kenya Water Towers Agency

<https://watertowers.go.ke/>

Kenya Forest Service

<http://www.kenyaforestservice.org/>

4.3 TARGET 3

Target 3: By 2020, at the **latest, incentives, including subsidies**, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.

Progress towards target but at an insufficient rate

Date the assessment was done

13 March 2020

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

Substantial and widespread changes to subsidies and other incentives that are harmful to biodiversity are required to ensure sustainability. Ending or reforming harmful incentives is a critical and necessary step that would also generate net socioeconomic benefits. The creation or further development of positive incentives for the conservation and sustainable use of biodiversity, provided that such incentives are in harmony with the Convention and other relevant international obligations, could also help in the implementation of the Strategic Plan by providing financial resources or other motives to encourage actors to undertake actions which would benefit biodiversity.

A. INCENTIVES, INCLUDING SUBSIDIES, HARMFUL TO BIODIVERSITY GENERALLY EMANATE FROM POLICIES OR PROGRAMMES THAT INDUCE UNSUSTAINABLE BEHAVIOUR HARMFUL TO BIODIVERSITY

Negative Subsidies

Subsidies on importation and purchase chemical Fertilizers for use in agriculture have negative impacts on conservation of biodiversity. Kenya introduced its national fertilizer subsidy in 2009 in line with its Vision 2030. The subsidy is being implemented as a three-tiered fertilizer cost-reduction Programme called the "Fertilizer Cost-Reduction Initiative". This initiative, popularly known as "the national fertilizer subsidy", is a state-driven fertilizer subsidy Programme implemented by the Ministry of Agriculture, Livestock and Fisheries. The Kenya Tea Development Agency Management Services (KTDA-MS) has come up with a

fertilizer import scheme for its over 560,000 smallholder farmers, allowing them to buy the input at affordable prices.

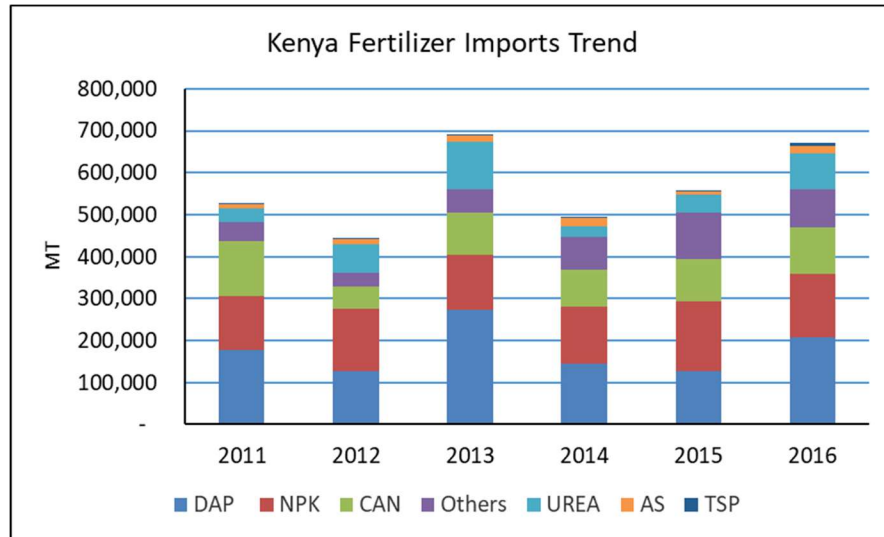


Figure 13: Kenya Fertilizer Imports Trends

Source: Ministry of Agriculture: Kilimodata³⁷

In Kenya, soil acidity is a major problem affecting 13% of land area, covering ~7.5 million hectares under maize, legume, tea and coffee crops, grown by over 5 million smallholder farmers. Currently, the Government of Kenya allocates KES 5 billion, mainly to target increased maize production through fertilizer and maize seed subsidies every year, coming to an estimated subsidy of KES 6,215-8,340 per farmer with an average land holding of ~0.5ha. The subsidy has historically typically included basal dressing fertilizer (Diammonium Phosphate, DAP), top dressing fertilizer (calcium ammonium nitrate, CAN), and improved maize seed. The fertilizers being used are driving soil pH down, and soil acidity has become a major limiting factor for crop production. It is estimated that soil acidity affects ~9 million acres under maize, legume, tea, coffee and other crops, mostly in the Nyanza, Rift Valley and Western provinces. However, most farmers in these areas have not conducted soil tests and are unaware of their soil needs. Using lime to neutralize soil acidity, together with other inputs that match soil needs, such as phosphate fertilizers, could lead to an increased yield of up to 77% in these areas over five years (ASTGS 2019-2029). Currently the industry is fully liberalized and is mainly driven by the private sector, which imports most of the fertilizers. Limited amounts are manufactured locally³⁸.

³⁷ <http://kilimodata.developlocal.org/dataset/fertilizer-imports-2011-2016>

³⁸ (Source: <http://www.kilimo.go.ke/wp-content/uploads/2019/01/ASTGS-Full-Version.pdf>).

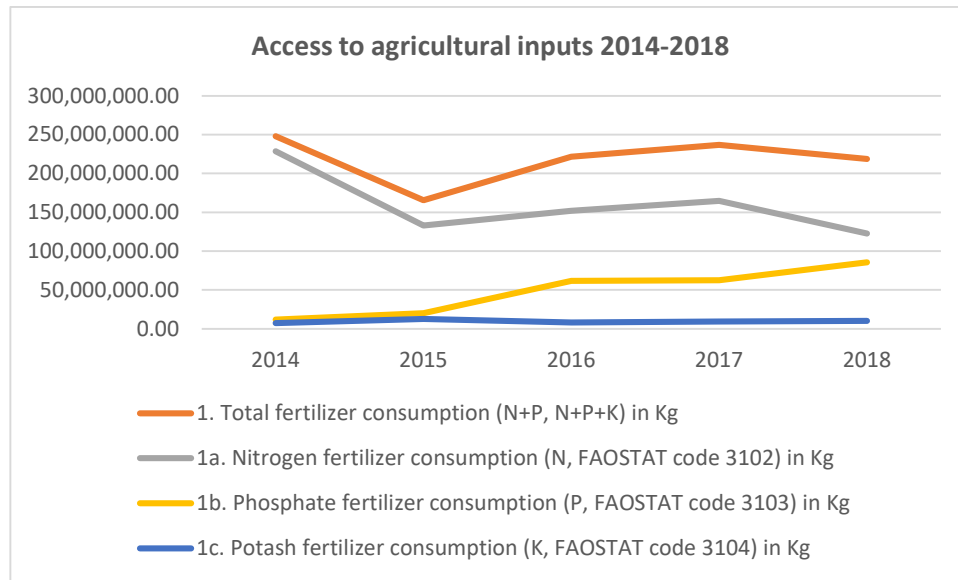


Figure 14: Trends in Agricultural inputs 2014-2018.

(Source: Kilimodata³⁹)

Further, one of the flagship projects under Vision 2030 is to increase the land under irrigation, while the ASTGS has prioritized large scale farming as one of the strategies to transform Agriculture in Kenya.

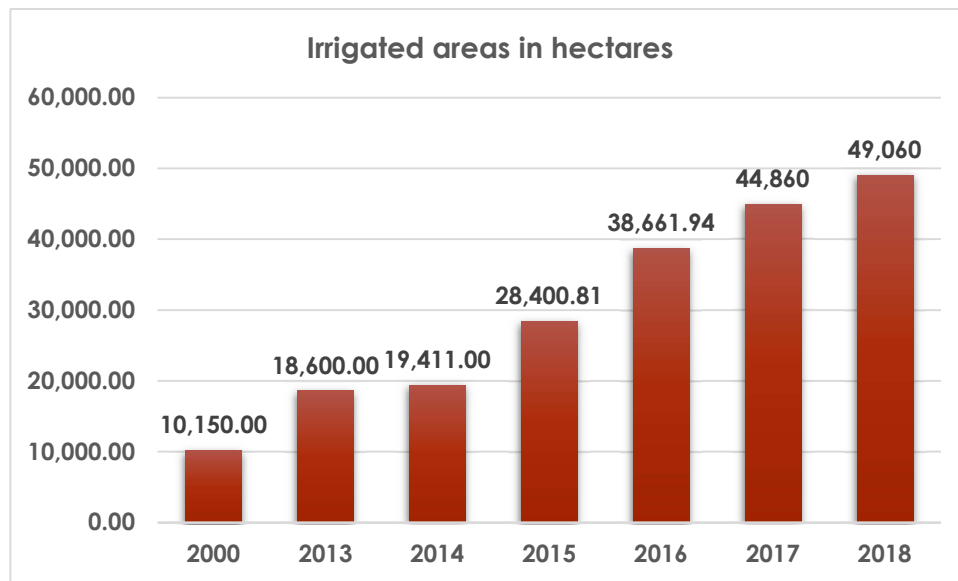


Figure 15: Trends in area under irrigation 2000-2018.

(Source: Kilimodata⁴⁰)

There are also harmful subsidies in fisheries that support other nations to exploit the fisheries of less developed countries.

Positive incentives

Positive incentives in Kenya are economic, legal or institutional measures designed to encourage activities beneficial to biodiversity. Economic instruments include taxes, fees and charges, tradable permits, payments for ecosystem services schemes, and environmentally motivated subsidies which provide signals to both producers and consumers to behave in a more environmentally sustainable way⁴¹. These instruments also provide continuous incentives to achieve objectives in a more cost-effective manner, and most are also able to mobilize finance and/or generate revenue. Positive incentives can include such things as public or grant-aided land purchases or conservation easements.

A few examples include:

(a) Legal instruments

- i. **The Land Act (2012):** On the conservation of natural resources (article 19), the Land Act states that the NLC will provide:
 - Incentives for communities and individuals to invest in income generating natural resource management Programmes,
 - Measures to facilitate the access, use and co-management of forests, water and other resources by communities who have customary rights to these resources,
 - Procedures on the involvement of stakeholders in management of land-based natural resources,
 - Rules and regulations as measures to ensure benefit-sharing to affected communities.
- ii. **Ban on plastics:** The Cabinet Secretary, Ministry of Environment and Natural Resources through a Gazette Notice No.2334 & 2356 banned the use, manufacture and importation of plastic bags used for commercial and household packaging. The penalties for contravening the ban are commensurate to the crime. Section 144 of EMCA states that, "any person who contravenes the provision of the gazette notice shall be liable to a fine of not less than two million Kenya Shillings, and not more than four million Kenya shillings, or imprisonment of a term of not less than one year but not more than four years or to both such fine and imprisonment"
- iii. **EMCA ACT 2015.** NEMA is charged with enforcing EMCA's provisions as well as the subsidiary legislation that has been passed over the last decade. The subsidiary legislation includes water quality, waste management, controlled substances, biodiversity, wetland, river and seashore, and environmental impact assessment (EIA) regulations. Most of the provisions contained in EMCA, as well as the subsidiary legislation, are intended to provide regulations for the usage and type of allowable activity in the different ecosystems and habitats of Kenya. SEIA, EIA and EA mandatory for projects within PAs and outside that are likely to impact biodiversity negatively
- iv. **The 10% Forest Cover Target.** The government has put policies and strategies to in place to attain 10% tree cover hence 10% on farm tree cover rule and 10% national forest cover target by 2022. In order to achieve this target, provision of incentives and awards will be provided to support sustainable conservation and management of forests as identified in the Environment Management and Coordination Act, 2015, Forest Conservation and Management Act, 2016, Climate Change Act, 2016 and others. These include: i) The Ministry of Environment and Forestry and the National Treasury to provide economic and fiscal incentives e.g. tax rebates that promote efficiency in wood conversion and utilization. ii) Payment for Ecosystem Services, including water, carbon, and tourism levies; iii) Provision of affordable credit facilities to businesses engaged in forest development; iv) Provision of grants to communities for forest development. Other incentives directed at counties, institutions, schools, media houses, communities, individuals and institutions who excel in forestry conservation and management include; i) Trophies; ii) Certificates; iii) Cash and in-kind prizes; iv) Recommendation to the Head of States for decoration

³⁹ <http://kilimodata.developlocal.org/dataset/kenya-national-access-to-agriculture-inputs-and-technologies-data-for-2014-2018>

⁴⁰ <http://kilimodata.developlocal.org/dataset/kenya-national-access-to-agriculture-inputs-and-technologies-data-for-2014-2018>

⁴¹ <http://www.oecd.org/environment/resources/tracking-economic-instruments-and-finance-for-biodiversity-2020.pdf>

- v. **Logging Bans:** Ban on logging effected to develop systems for sustainable harvesting of forest plantations
- vi. **Charcoal rules**
- vii. Environmental Management and Coordination (toxic and hazardous chemicals and materials management) regulations 2019 enacted.
- viii. National policy and legislation that safeguard biodiversity exploitation locally and internationally (Wildlife management and conservation Act 2013) e.g. CITES licensing and national mechanism well established to ensure managed international and local use of wildlife resources
- ix. Enactment of Private Public Partnership Act.
- x. Green Economy Strategy and Action Plan by 2016-2030
- xi. Land use planning informed by Strategic Environmental Plans that ensures balance between conservation and development – e.g. Case study Tana delta and Yala Swamp Land Use plan

(b) Economic Instruments:

- i. **NEMA – e.g. Pollution taxes, Discharge licences and permits.**
- ii. **Forest taxes, permits and fees e.g.** Land rates exemptions for those engaged in private forestry
- iii. **KWS taxes, permits, fees etc., e.g.** Increased fines/ conviction limits for poachers, bio piracy
- iv. **PES SCHEMES:** A policy framework on PES is being developed in Kenya. The implementation of PES schemes in Kenya has been slow because of many reasons key being inadequate expertise, structures, markets, proper pricing and market enforcement mechanisms. However, in recent years, many PES projects have been piloted in many parts of the country through contractual and conditional payments to landowners. The attraction of PES projects to countries and participants provides opportunities for forest adjacent communities and other landowners to earn extra incomes while conserving their environment. A study by a team lead by KEFRI in 2018 provide a good review of the Kenyan experience⁴². Case Study: Nairobi Water Fund/TNC.⁴³
- v. **REDD+ Projects in Kenya:** The REDD+ mechanism has been introduced by the United Nations as a climate change mitigation strategy. The goal of a REDD+ project is to prevent deforestation and forest degradation by active forest protection and provide alternative livelihoods for local communities living in and around the forest area. The Government of Kenya, led by the Ministry of Environment, Water and Natural Resources has developed a national REDD+ Programme. It is to protect a forest from being destroyed! Making a forest more valuable– By increasing the forests economic value by keeping them alive rather than destroyed. This is done through a stream of revenues paid directly to those communities living near the forest, only if the forest is protected. The Kasigau Corridor project was the first REDD+ project to receive issuance of carbon credits under an internationally accepted carbon standard. There are about 25 REDD Projects in Kenya generating income for communities and many livelihood projects.
- vi. **Clean Development Mechanism (CDM) Projects** There are 20 registered CDM projects in Kenya, which have been issued 0.4 Mt of CERs. Most of these were renewable energy projects (wind, hydro, biomass, geothermal) and 5 were reforestation projects (Fenhann, 2018).
- vii. **Sustainable financing under the Green Economy:** the government seeks to enhance diversification of policy and financial instruments that support the green economy such as green bonds and eco taxes. On the Green bond⁴⁴ Under the Green Bond Programme – Kenya aims to promote financial sector innovation by developing a domestic green bond market, brought together by the Kenya Bankers Association (KBA), Nairobi Securities Exchange (NSE), Climate Bonds Initiative, Financial Sector Deepening (FSD) Africa and FMO - Dutch Development Bank.

⁴² Kangombe J.K., Cheboiwo J.K., Gichu A., Handa C & Wamboi J. 2018. Payment for Environmental Services: Status and Opportunities in Kenya. Journal of Resources Development and Management www.iiste.org ISSN 2422-8397 An International Peer-reviewed Journal Vol.40, 2018
<https://www.kefri.org/PDF/Publications/Journal%20Paper%20on%20PES%20Experience%20in%20%20%20Kenya%202018.pdf>

⁴³ <https://waterfundtoolbox.org/upper-tana-nairobi-water-fund-kenya> and <https://www.futurewater.eu/projects/nairobi-water-fund/>

⁴⁴ <https://www.nse.co.ke/products-services/debt-securities/the-green-bond.html> and <https://www.greenbondskenya.co.ke/>

Other partners who provide technical assistance and guidance include International Finance Corporation (IFC) and the WWF - Kenya. The Green Bonds Programme - Kenya is endorsed by the National Treasury, Central Bank of Kenya and Capital Markets Authority.

Indicators used in this assessment

CBD global indicators

- Trends in the number and value of incentives, including subsidies, harmful to biodiversity, removed, reformed or phased out
- Trends in development and application of incentives that promote biodiversity conservation and sustainable use

Milestones:

If your country has not used indicators to assess progress towards this national target, please tick this box:

No indicator used

To Confirm

Please describe any other tools or means used for assessing progress

- Expert review and Input
- Stakeholder consultation
- Desk Review

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

NEMA

www.nema.go.ke

Kenya Forest Service

<http://www.kenyaforestservice.org/>

Kenya Wildlife Service

<http://www.kws.go.ke/>

Kenya National Bureau of Standards – Publication

https://www.knbs.or.ke/?page_id=3142

Ministry of Agriculture, Livestock and Fisheries – Data sets

<http://kilimodata.developlocal.org/dataset?page=2>

REDD+ Projects

<http://www.reddprojectsdatabase.org/view/projects.php?id=404&name=Kenya&type=project>

<http://www.kenyaforestservice.org/documents/Carbon%20Rights%20and%20Benefit%20Sharing%20For%20REDD%20in%20Kenya.pdf>

<https://www.4cmr.group.cam.ac.uk/filecab/redd-law-project/20140821%20BP%20Overview%20of%20REDD-%20in%20Kenya.pdf>

<https://www.awf.org/projects/chyulu-hills-redd>

CDM

<p>https://cdm.unfccc.int/Projects/projsearch.html</p> <p>http://meas.nema.go.ke/cdm/</p> <p>Nairobi Water Fund/TNC –</p> <p>https://waterfundstoolbox.org/upper-tana-nairobi-water-fund-kenya and</p> <p>https://www.futurewater.eu/projects/nairobi-water-fund/</p>
<p>Level of confidence of the above assessment</p> <p><input checked="" type="checkbox"/> Based on partial evidence</p>
<p>Please provide an explanation for the level of confidence indicated above.</p> <p>The country has not established a national target. However, there are various sectoral reports, documents and anecdotal evidence provided by experts to contribute to this assessment. References and websites are provided.</p>
<p>Adequacy of monitoring information to support assessment</p> <p><input checked="" type="checkbox"/> Monitoring related to this target is partial (e.g. only covering part of the area or issue)</p>
<p>Please describe how the target is monitored and indicate whether there is a monitoring system in place.</p> <p>No Monitoring system in place</p> <p>Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)</p> <p>Kenya National Bureau of Standards – Publication</p> <p>https://www.knbs.or.ke/?page_id=3142</p> <p>Ministry of Agriculture, Livestock and Fisheries – Data sets</p> <p>http://kilimodata.developlocal.org/dataset?page=2</p> <p>NEMA CHM</p> <p>Sectoral and stakeholder reporting as captured under Clearing House Mechanism by National Environmental Management Authority</p> <p>http://meas.nema.go.ke/cbdchm/</p>

4.4 TARGET 4

<p>Target 4: <i>By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.</i></p>
<p>Category of progress towards the implementation of the selected target</p> <p><input checked="" type="checkbox"/> Progress towards target but at an insufficient rate</p>
<p>Date the assessment was done</p> <p>13/03/2020</p>

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

Driven by a commitment to deliver on sustainable development goals, Kenya has adopted several green economy-related approaches and policies, which include implementing renewable energy feed-in tariffs in 2008, embedding sustainable natural resource utilization into its 2010 Constitution and mainstreaming green economy in its Second Medium Term Plan (2013-2017). https://www.greengrowthknowledge.org/sites/default/files/downloads/resource/KenyaGEassessment_UNEP.pdf

In order to enhance efficiency in the use of natural resources and energy, the industrial sector has embraced cleaner production technologies through technical assistance by the Kenya National Cleaner Production Centre. The Centre has built capacity of industries in improving efficiency in the status of production systems/equipment in order to reduce wastage of raw materials and energy aimed at minimizing waste generation at source.

The country is implementing the Green Economy Strategy initiatives that aim to support development efforts towards addressing key challenges such as poverty, unemployment, inequality, environmental degradation, climate change and variability, infrastructure gaps and food insecurity. A green growth path results in faster growth, a cleaner environment and high productivity.

The Minerals and Mining Policy was developed and approved in 2016. The enactment of Mining Act 2016 included development of 14 regulations necessary to operationalize this Act. In addition, the Mining Policy 2016 has put sustainable mining at the core of all extractive industries.

The private sector in Kenya is also championing sustainable consumption and production under the SWITCH Africa Green Project. Several companies have mainstreamed use of biodegradable materials in their production and consumption.

Green Economy Strategy and Implementation Plan (GESIP)

The Green Economy Strategy is geared towards enabling Kenya to attain higher economic growth rate consistent with Vision 2030 while promoting economic resilience and resource efficiency, sustainable management of natural resources, development of sustainable infrastructure and support for social inclusion. The Strategy targets multiple challenges including environmental degradation and climate change and prioritizes natural resource management as one of the five thematic areas. Sustainable Consumption and Production and Resource efficiency are two of the six guiding principles. The rationale for the Strategy emphasizes that full adoption of sustainable development requires prudent exploitation, utilization, management and conservation of the environment to minimize waste and pollution. Key to the attainment of Vision 2030 is sustained economic growth of 10 per cent per annum and creation of a just, cohesive and equitable social development in a clean and secure environment.

The Second Medium Term Plan (MTP II) 2013-2017 prioritized the development of a National Green Economy Strategy to guide Kenya's development trajectory to one characterized by high growth, cleaner environment and high productivity.

Among the key enabling conditions are:

- Framework for extractive industries: a strong governance framework will be established to enhance sustainable extraction, transparent and account sharing, and utilization for accruing benefits.
- Sustainable trade regime in line with international environmental and social standards such as sanitary and phytosanitary measures and eco labelling.

Some highlights include the following:

Thematic Area 1: Promote sustainable infrastructure

Objective 1.6 Develop and enhance agricultural infrastructure: Reduce post-harvest losses by improving efficiency alongside the value chain (transportation, storage, processing and marketing)

Thematic Area 3: Sustainable natural resource management

Objective 3.3 Promote sustainable extractive Industry: Adopt global best practices such Extractive Industry Transparency Initiative (EITI), Emphasize on local content in extractive industry and Embrace value addition at source raw materials

Thematic Area 4: Promote resource efficiency

Kenya lacks a national resource efficiency action plan and indicators. Energy, Water and waste have therefore been prioritized under GSIP to recoup quick wins in resource efficiency. The current legislative framework on energy provides for energy efficiency and conservation. For water, the national target is to reduce non-revenue water. Kenya's Solid Waste Management Strategy 2014 has a guiding principle of zero waste with the aim to achieve 30 per cent waste recovery in the short term.

Under Objective 4.1 -Increase national energy efficiency, the focus is to Develop sector specific energy efficiency indicators and benchmarks; Adopt minimum energy efficiency performance standards for lighting and industrial products; Develop technical and infrastructural capacity for energy efficient audits, equipment, testing and certification and Enhance application of voluntary management approaches to energy efficiency, clean and renewable energy

Under Objective 4.2- Enhance water use efficiency in urban and rural areas, the aim is to Develop water footprint sustainability assessment guidelines at national, county, basin and sector level; Develop and diversify voluntary environmental tools to reduce water footprint; Reduce non-revenue water to at least 10 per cent on the supply side; Review consumption based water pricing to induce a culture of efficiency and conservation; and Roll out demand side water efficiency Programmes in urban, residential, commercial and industrial establishments.

Under Objective 4.3 – manage waste resources; the focus is to Promote voluntary resource efficient and cleaner production instruments for source reduction of waste and industrial symbiosis; Develop and implement landfill policy that eliminates land filling of all recyclable waste; Provide financial incentives to limit waste energy recovery to non-recyclable materials; Build infrastructure and capacity for waste prevention, segregation, recycling and industrial symbiosis; Develop functional markets for secondary raw materials and recycled products through end of waste criteria and recycled content and Develop and implement legislation on extended producer responsibility for sustainable management of emerging waste streams including e waste and plastics.

In response to the GESIP, there is wide range of initiatives, projects and Programmes implemented by a wide range of stakeholders but notably the Kenya Industry Research and Development Institute (KIRDI) and the Kenya National Clean production Centre. For example,

1. SWITCH AFRICA GREEN Project⁴⁵

The Kenya SWITCH Africa Green Implementation Plan was prepared through a consultative process involving the United Nations Environment Programme (UNEP), the United Nations Office for Project Services (UNOPS), the United Nations Development Programme (UNDP), the Ministry of Environment and Forestry (MEF), Kenya Institute for Public Policy Research and Analysis (KIPPRA) and members of the National Technical Coordination Committee (NTCC)..

The aim of this study is to support development of green business and eco-entrepreneurship and use of sustainable consumption and production practices by having in place three components. These are (i) micro, small and medium enterprises, and business service providers that are better equipped to seize opportunities for green business development; (ii) better informed public and private consumers; and (iii) clear policies, sound regulatory frameworks, incentives structures, tax and other market based instruments influencing key sectors of agriculture, manufacturing and tourism.⁴⁶ The Priority projects are Tanneries, agriculture, tourism and forestry⁴⁷.

2. Green economy transitioning in Kenya

⁴⁵ <https://www.switchafricagreen.org/KE/>

⁴⁶ <https://www.switchafricagreen.org/KE/index.php/k2/item/319-ke-policies>

⁴⁷ <https://www.switchafricagreen.org/KE/index.php/questionnaire/project-fact-sheets/4-kenya-sag-project-sheet/file>

Through capacity development measures at the local level, GIZ worked with key institutions to utilize the new toolbox for the creation of development and transition plans for the green economy, and for knowledge management. The collected experiences and knowledge are made accessible by means of a digital knowledge platform⁴⁸.

3. Sustainable Financing Initiative – Kenya Bankers Association. <https://sfi.kba.co.ke/>

Enhancing environmental considerations in the banking sector in Kenya defined by 5 principles. Principle 4 on scarcity and choice: <https://sfi.kba.co.ke/industry-principles>

In meeting present needs, financial institutions should ensure optimal management of resources, including financial resources and natural capital, so as to avoid compromising the future generation's needs. The Guiding Principle is that optimal resource management is realized through productivity and efficient utilization of resources; and is guided by comprehensive opportunity cost assessment.

Cases Study: Safaricom

<https://sfi.kba.co.ke/images/Safaricom%20Case%20Study%20-%20Catalyst%20Awards%202018.pdf>

4. Ministry of Energy:

The Ministry of Energy in conjunction with the Kenya Association of Manufacturers (KAM) established the Centre for Energy Efficiency and Conservation in 2006. The Centre runs energy efficiency and conservation Programmes designed to help companies identify wastage, determine saving potential and give recommendations on measures to be implemented. <http://kam.co.ke/energy-services?>

5. NEMA

The National Environment Management Authority (NEMA) and the Kenya Bureau of Standards (KBS), are exploring options to adopt eco-labelling. An eco-label identifies a product that meets specified environmental performance criteria or standards. http://www.ecolabelindex.com/ecolabels/?st=country_ke

6. Nature Kenya

Through Nature Kenya, Strategic Environmental Assessment for Wind Power and Biodiversity in Kenya currently under development

<http://www.thebiodiversityconsultancy.com/wp-content/uploads/2010/03/Kenya-wind-SEA-v1-1.pdf>

Impacts and Ecological limits: e.g. Study by Dr. Ogutu ⁴⁹
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0163249>

⁴⁸ <https://www.giz.de/en/worldwide/32044.html>

⁴⁹ Ogutu JO, Piepho HP, Said MY, Ojwang GO, Njino LW, et al. (2016) Extreme Wildlife Declines and Concurrent Increase in Livestock Numbers in Kenya: What Are the Causes? PLOS ONE 11(9): e0163249. <https://doi.org/10.1371/journal.pone.0163249>

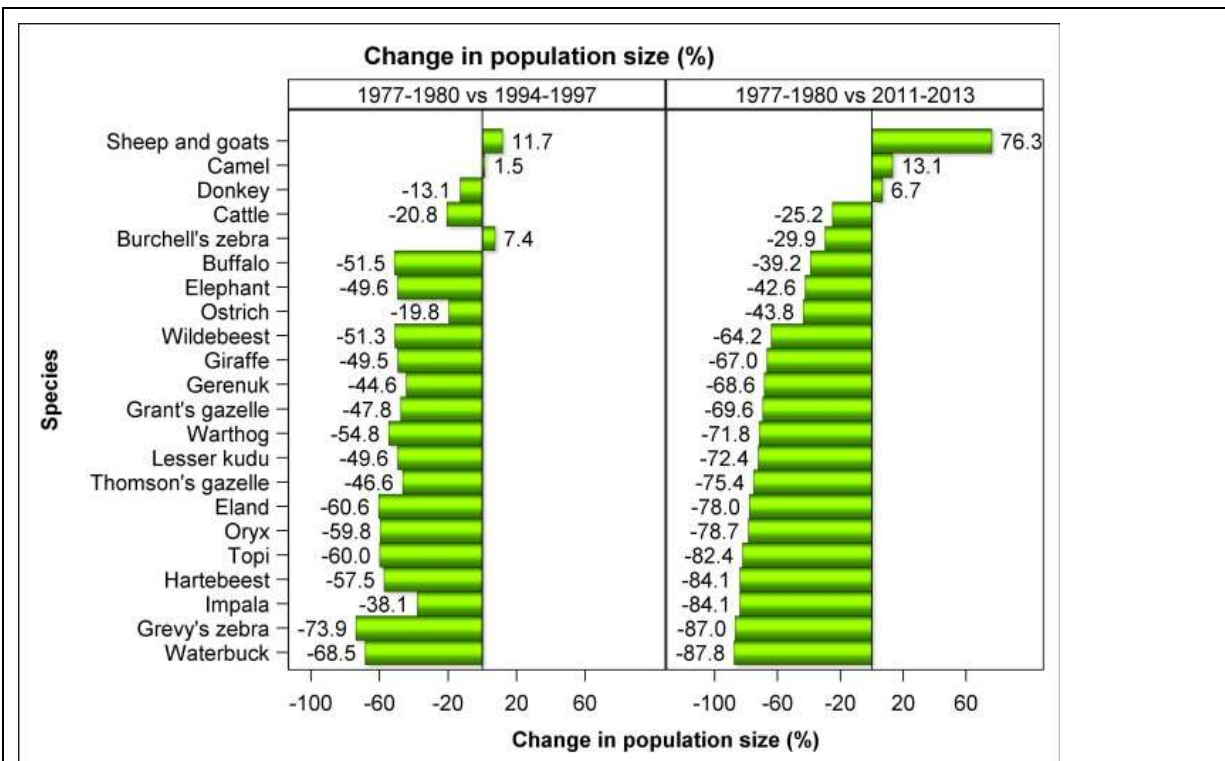


Figure 16: Percentage changes in numbers of each livestock and wildlife species aggregated across all the 21 rangeland counties of Kenya between 1977–1980 and 1994–1997 and between 1977–1980 and 2011–2013.

(Source; <https://doi.org/10.1371/journal.pone.0163249.g002>)

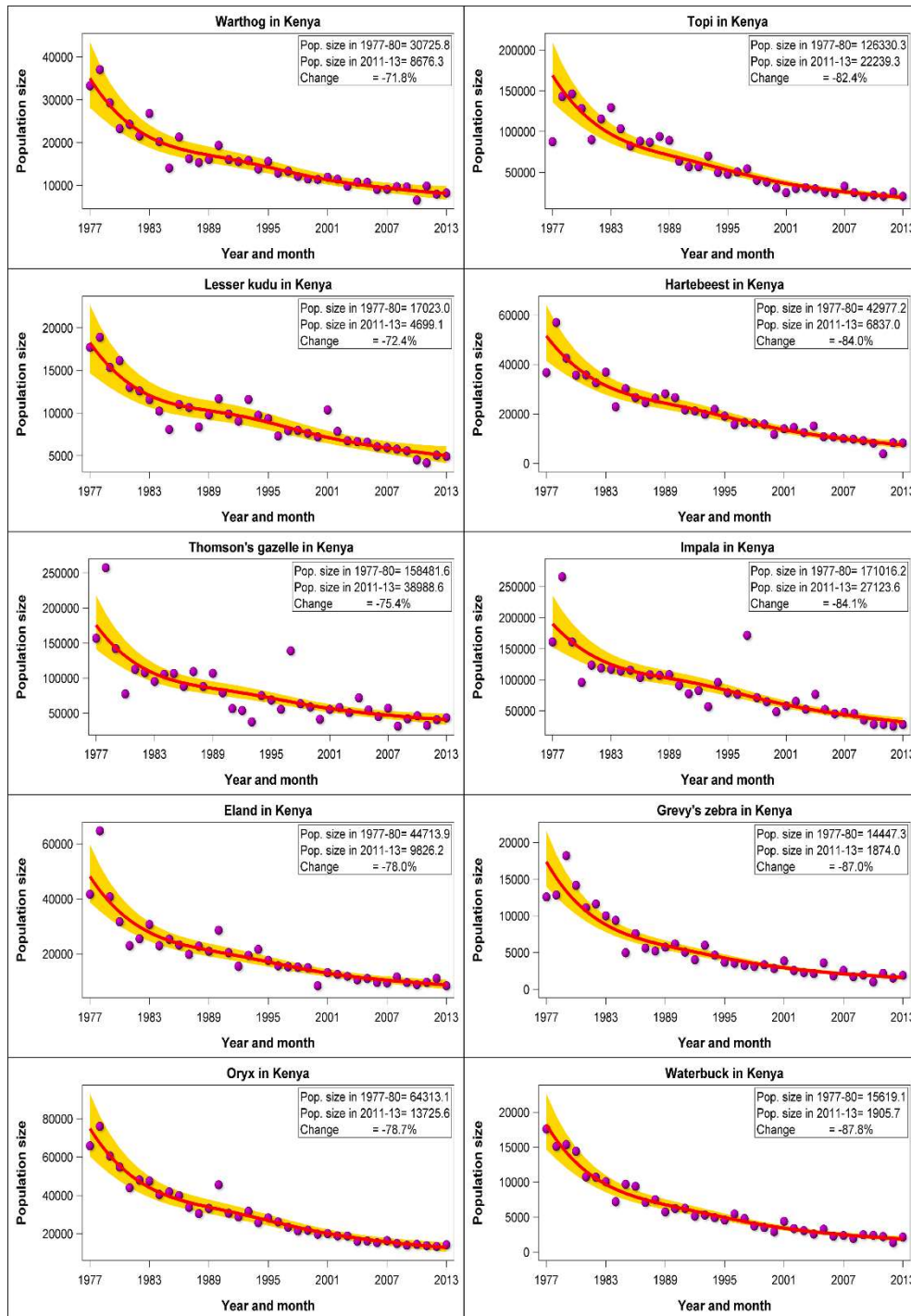


Figure 17: Trends in warthog, lesser kudu, Thomson's gazelle, eland, oryx, topi, hartebeest, impala, Grevy's zebra and waterbuck numbers in the 21 Kenyan rangeland counties ("national" trends) between 1977 and 2016.

Note that the data points do not refer to actual counts but to the sum of the counts in all the counties for the same year. If no survey was done in a county in a given year, then the missing count was predicted by the trend model for the county.

<https://doi.org/10.1371/journal.pone.0163249.g004>

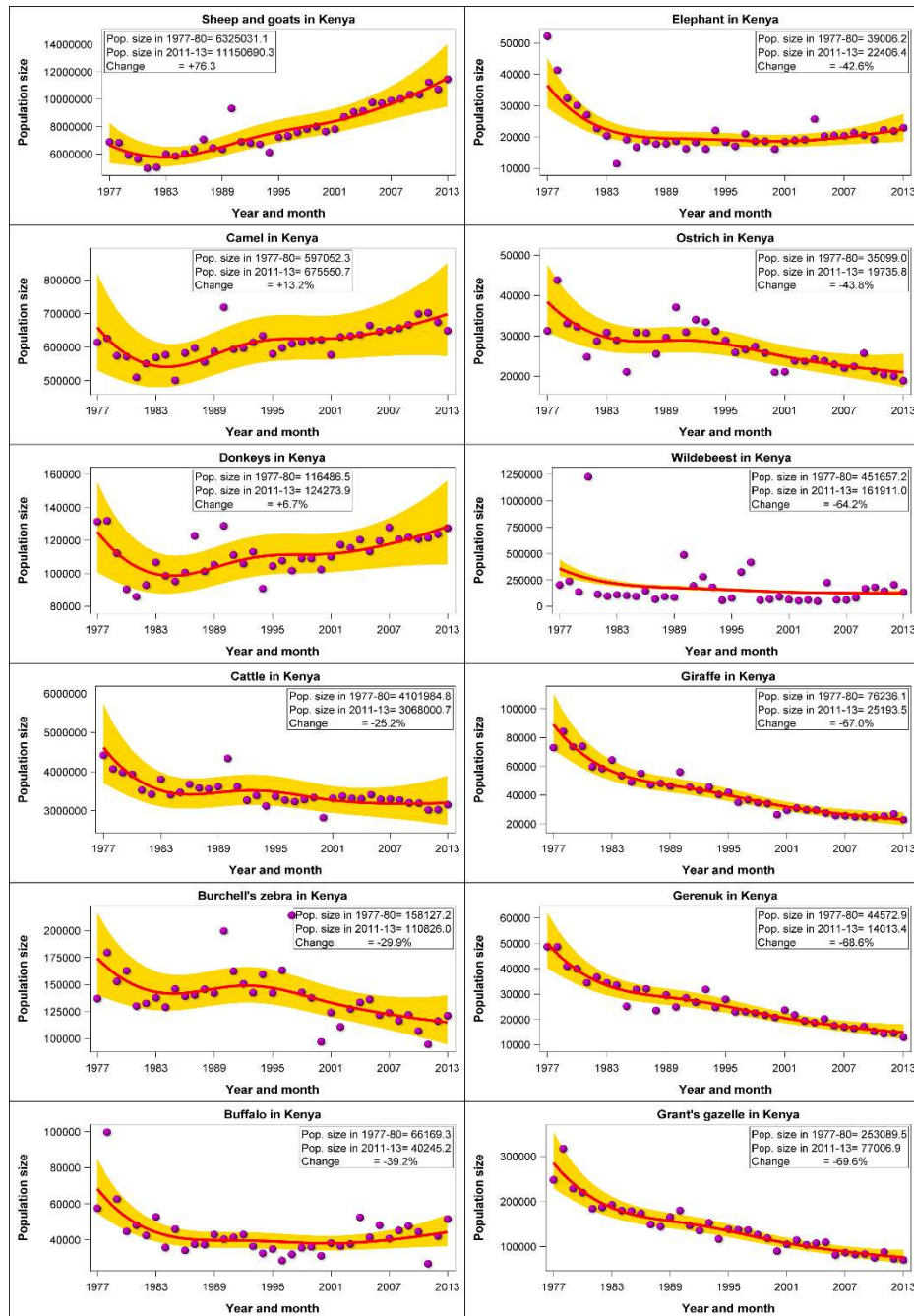


Figure 18: Trends in sheep and goats, camels, donkeys, cattle, Burchell's zebra, buffalo, elephant, ostrich, wildebeest, giraffe, gerenuk and Grant's gazelle numbers in the 21 Kenyan rangeland counties ("national" trends) between 1977 and 2016.

Note that the data points do not refer to actual counts but to the sum of the counts in all the counties for the same year. If no survey was done in a county in a given year, then the missing count was predicted by the trend model for the county.

<http://doi.org/10.1371/journal.pone.0163249.g003>

Indicators used in this assessment

Kenya SDG Indicator (Baseline, 2015-2018)

12.3.1	(a) Food loss index per capita (Kcal)	79	84.6	73.3	79.6	60.3
	food loss per capita derived from Food Balance Sheet (FBS)					

National Indicators (GESIP) – These could be used in future assessments

Increase national energy efficiency

- Number of energy management voluntary agreements
- % of population adopting energy efficient technologies
- % of energy saved
- No. of audits carried out
- No. of energy performance standards developed

Enhance water use efficiency in urban and rural areas

- No. of water footprint reduction schemes
- % reduction in water consumption
- % reduction in water water discharges
- Improved levels of quality of surface and groundwater

Manage waste as a resource

- % reduction in recyclable waste disposal in landfills
- Enhanced recovery from waste
- No. of new businesses created in the waste management sector

Promote sustainable extractive industry

- Standards developed and enforced
- Efficiency in water and energy use
- Proportion of value addition

CBD indicators

Trends in population and extinction risk of utilized species, including species in trade

- Red List Index (impacts of utilization)
- Red List Index for Species in Trade
- Proportion of traded wildlife that was poached or illicitly trafficked (indicator for SDG target 15.7)
- Proportion of national exclusive economic zones managed using ecosystem-based approaches (indicator for SDG target 14.2)

Trends in use of natural resources and/or related concepts

- Ecological footprint
- Material footprint (MF) and MF per capita, per GDP (indicator for SDG targets 8.4 and 12.2)
- Domestic material consumption (DMC) and DMC per capita, per GDP (indicator for SDG targets 8.4 and 12.2)
- Number of countries with sustainable consumption and production (SCP) national action plans or SCP mainstreamed as a priority or target into national policies (indicator for SDG target 12.1)

Ecological limits assessed in terms of sustainable production and consumption

- Human appropriation of net primary productivity
- Human appropriation of fresh water (water footprint)
- Change in water use efficiency over time (indicator for SDG target 6.4)
- Level of water stress: freshwater withdrawal as a proportion of available freshwater resources (indicator for SDG target 6.4)
- Ratio of land consumption rate to population growth rate (indicator for SDG target 11.3)

Trends in extent to which biodiversity and ecosystem service values are incorporated into organizational accounting and reporting

Please describe any other tools or means used for assessing progress

- a) The Kenya Green Economy Assessment Report launched by UNEP in 2014. As provided for in the adopted Green Economy Strategy and Implementation Plan (GESIP) 2016 – 2030.

- b) KNBS statistical abstracts 2019 <https://www.knbs.or.ke/?wpdmpro=statistical-abstract-2019>
- c) Sector Reports
- d) Desk Review
- e) Expert Input
- f) SDG Implementation Report
- g) Vision 2030 Progress Report 2008-2018

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

Green Economy Assessment Report

https://www.greengrowthknowledge.org/sites/default/files/downloads/resource/KenyaGEassessment_UNEP.pdf

Green Economy Strategy

http://www.environment.go.ke/wp-content/uploads/2018/08/GESIP_Final23032017.pdf

GOK 2018: The Presidency - Vision 2030: Marking ten years of Progress (2008-2018):

<http://vision2030.go.ke/inc/uploads/2018/09/Kenya-Vision-2030-Sector-Progress-Project-Updates-June-2018.pdf>

SDG Kenya Forum: <https://sdgkenyaforum.org/about#vision-mission>

The National Treasury and Planning State Department for Planning Projects and Programmes Department.

SDG Progress Report, June 2019. <https://planning.go.ke/wp-content/uploads/2019/10/SDGs-Status-Report.pdf>

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

This target is related to SDG 12.

The government is responsible for tracking and reviews of the SDGs. The monitoring for this target is included the National SDG reporting.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)

GOK 2018: The Presidency - Vision 2030: Marking ten years of Progress (2008-2018):

<http://vision2030.go.ke/inc/uploads/2018/09/Kenya-Vision-2030-Sector-Progress-Project-Updates-June-2018.pdf>

SDG Kenya Forum: <https://sdgkenyaforum.org/about#vision-mission>

The National Treasury and Planning State Department for Planning Projects and Programmes Department.

SDG Progress Report, June 2019. <https://planning.go.ke/wp-content/uploads/2019/10/SDGs-Status-Report.pdf>

4.5 TARGET 5

Target 5: By 2020, the rate of loss of all-natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

12/03/2020

Additional information

In Kenya, habitats continue to be converted to agricultural land with the rising human population, expansion of settlements and infrastructure while loss of biodiversity exacerbated by increasing effects of climate change. The Kenya Wildlife Strategy 2030⁵⁰ reviewed the pressures on ecosystems and highlighted the effects of habitat loss, habitat degradation and fragmentation as illustrated below.

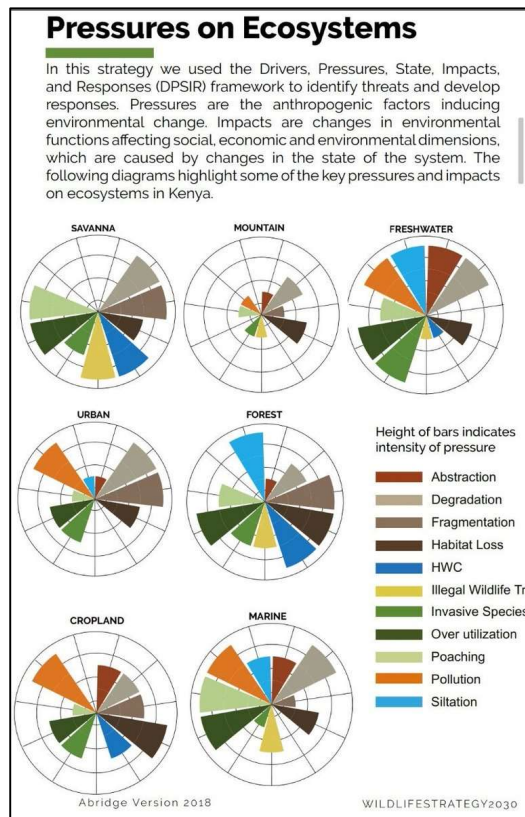


Figure 19: Pressures on Ecosystems in Kenya

(Source: Kenya Wildlife Strategy 2030)

Habitat Loss.

⁵⁰ GOK 2018. Wildlife Strategy 2030. <http://www.tourism.go.ke/wp-content/uploads/2018/06/WILDLIFE-STRATEGY2030-Final-V1-Online.pdf>

Main challenge: Efforts in Kenya are directed towards increasing maize production from the 40 million bags to 67 Million bags through expansion of area under maize production. Potato production is targeted to increase from 1.2 million MT in 2018 to 6.0 million MT in 2022 through increase in cultivated area by subsidized mechanization and increased productivity by use of clean seeds. Rice production will also be increased through subsidized mechanization and inputs. Support to the manufacturing sector will be realized by increasing cotton production from 29,000 bales (2017) to 200,000 bales by 2022; clean coffee production from 40,000 MT to 100,000 MT; tea production and productivity from 1.1 million MT to 1.6 million MT; annual sugarcane production from 4.8 million MT (2017) to 8.5 million MT 2022; and Pyrethrum Production from 300 MT (2017) to 3,000 MT by 2022. Other priority crops are avocado, mango, coconut, cashew nut and macadamia.

Kenya has an estimated irrigation potential of 1.342 million ha and by the end of 2015, approximately 180,503 ha of irrigation had been developed. This is about 13.5% of the potential leaving more than 80% of Kenya's irrigation potential untapped. The Government will expand and rehabilitate land under irrigation and drainage by 400,000 hectares. This will be done through development of community-based irrigation projects and household water pans for irrigation, and rehabilitation and reclamation of 50,000 hectares of degraded land prone to landslides and floods. To increase water availability for irrigation the Government will construct 15 large dams, 125,000 water pans and de-silt 1,000 dams holding 25 million cubic metres.

The Ministry through the implementation of Upper Tana Natural Resources Management Project (UTaNRMP) has put 800 Ha under upgraded small-scale irrigation schemes in Nyeri, Embu, Kirinyaga, Meru and Tharaka Nithi counties. Also implementation of Thwake Multipurpose Water Development Programme to put 40,000 hectares of land under irrigation as well as Lower Nzoia Dykes and Irrigation project which involves the improvement of Flood Mitigation dykes 17km on either side of River Nzoia; and Intake water supply and conveyance for irrigation of 4,000 ha to benefit 2,000 households are ongoing.

Addressing degradation:

While the government of Kenya has made significant commitments toward sustaining natural resources through various agreements (such as UNCCD, UNFCCC, CBD, SDGs), the legislative and policy push has not been sufficient. Kenya's watersheds, agricultural, rangelands and settled areas continued to face extensive land degradation.

The Government of Kenya supported by the World Bank through the Kenya Agricultural Productivity and Sustainable Land Management Project (KAPSLMP) ⁵¹, carried out the Land Degradation Assessment (LADA) ⁵² in 2015 to assess the causes, extent and types of land degradation in Kenya. Remote Sensing/GIS analyses were used to determine the extent of land degradation, the major determinants, the areas undergoing most serious land degradation and the severity of land degradation. Spatial analysis of the LULC changes showed an overall deterioration of vegetation cover over the last 20-year period. There was declining vegetation cover as depicted by NDVI, increasing bare lands, conversion of natural vegetation into agricultural lands and soil erosion. Generally, agricultural/cultivated areas increased by 7.3% and bare lands increased by 2.6%. The lower levels of land degradation in the since 2000 also coincides with the policy change. The study showed at least 61% the total area of Kenya is at high risk of land degradation, while very high degradation affects 27% of the land. Land degradation is especially severe in the arid and semi-arid lands (ASALs). Nationally, Kenya is prone to all seven types of land degradation, namely: soil degradation, biological degradation, water degradation, chemical degradation, physical degradation, climate deterioration, and land conversion.

⁵¹ <https://projects.worldbank.org/en/projects-operations/project-detail/P088600?lang=en&tab=details>

⁵² MINISTRY OF ENVIRONMENT AND NATURAL RESOURCES. 2016. Report of the: LAND DEGRADATION ASSESSMENT (LADA) IN KENYA: Based on a Study of Land Degradation Assessment (LADA) with Remote Sensing and GIS, for Sustainable Land Management (SLM) in Kenya. KENYA AGRICULTURAL PRODUCTIVITY AND SUSTAINABLE LAND MANAGEMENT PROJECT (KASLMP). <http://www.environment.go.ke/wp-content/uploads/2018/08/LADA-Land-Degradation-Assessment-in-Kenya-March-2016.pdf>

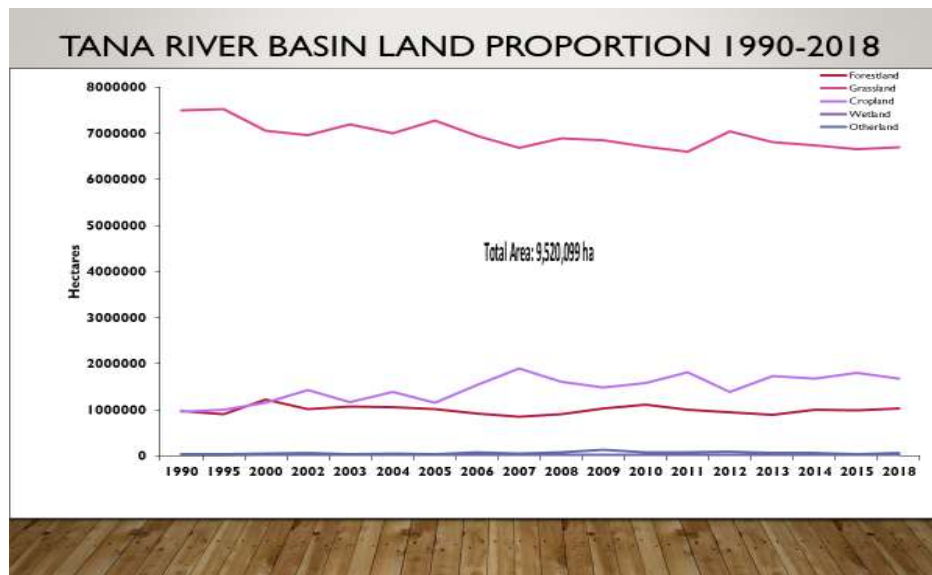


Figure 20: Land Use and Land Cover trends in the TRB
(Source: KFS)

Table 6: Spatial analysis of land use changes in Kenya (1990-2010)

(Source: LADA Report 2016)⁵³

Land use/Land Cover Change	Changed Area (Km ²)	Percent Change
Forest 1990-2000	5199.3	-0.8
Forest 2000-2010	983.2	-0.2
Total Loss of Forest (1990-2010)	6182.5	-1.0
Agriculture 1990-2000	25159.6	+3.9
Agriculture 2000-2010	22237.4	+3.4
Total increase in Agricultural land (1990-2010)	47397.1	+7.3
Rangeland 1990-2000	46399.2	+7.1
Rangeland 2000-2010	12152.8	+1.9
Total increase in rangelands (1990-2010)	58552.1	+9.0
Bareland 1990-2000	26457.1	+4.1
Bareland 2000-2010	9508.5	-1.5
Total change in bare lands (1990-2010)	16948.6	+2.6

The findings fed into the preparation of the Kenya Strategic Investment Framework (KSIF) for sustainable land management (SLM)⁵⁴ to guide in addressing land management issues through effective multi-

⁵³ <http://www.environment.go.ke/wp-content/uploads/2018/08/LADA-Land-Degradation-Assessment-in-Kenya-March-2016.pdf>

⁵⁴ Republic of Kenya. Ministry of Environment and Natural Resources 2016. KENYA STRATEGIC INVESTMENT FRAMEWORK FOR SUSTAINABLE LAND MANAGEMENT 2017 – 2027. <http://www.environment.go.ke/wp-content/uploads/2018/08/KSIF-Kenya-Strategic-Investment-Framework-on-SLM-2017-2027.pdf>

sectoral, multi-stakeholder partnerships and collaboration. The KSIF has a development and environmental objective, hence,

- **Development Objective:** To restore, sustain, enhance and protect the productivity of the Kenya's natural capital through improved investments, sector coordination and scaling up of SLM interventions.
- **Environmental Objective:** To rebuild Kenya's natural capital assets by overcoming the causes and mitigating the negative impacts of land degradation, while also building long-term ecosystem sustainability, facilitating climate change resilience and environmental health.

The Framework outlines clear roles for key sectors and stakeholders to guide and focus interventions which support securing ecosystems and actions for moving Kenya towards land degradation neutrality as part of contributing towards the attainment of Vision 2030 and Sustainable Development Goals (SDGs).

Addressing fragmentation: Biological corridors in rangelands⁵⁵

Kenya's development blueprint – Vision 2030 – recognizes the importance of sustainable resource use and development, especially of land, biodiversity, and ecosystems. Vision 2030 accords prominence to a clean, secure, and sustainable environment under its economic and social pillars, and is inspired by the principles of ecosystem integrity and equitable access to resource benefits. Three of the flagship projects implemented under the Vision 2030 and critical to biodiversity conservation are:

- a) Securing wildlife migratory routes and corridors (especially those impacted by human activities) and reclaiming them as a basis for revenue generation in the tourism sector,
- b) Land cover and land-use mapping (conducting accurate and continually updated land-use maps, and undertaking both livestock and wildlife censuses); and
- c) Water catchment management (rehabilitation of five water towers – the Mau Escarpment, Mt. Kenya, the Aberdare Range, the Cherangani Hills, and Mt. Elgon).

A significant proportion of Kenya's wildlife seasonally or permanently exists outside protected areas and is exposed to increasing human pressures that have negative impacts on species' populations, dispersal areas and migratory corridors. For example, the collapse of wildlife populations in the Athi-Kaputiei area and subsequent curtailment of their movement from the Kajiado plains into Nairobi National Park has been attributed to high-density settlements, fences and subdivision along the Kitengela-Namanga highway. Figure 19 and 20 below highlights the effect of fragmentation and habitat loss on wildlife species in Kenya.

Kenya's Vision 2030 flagship project for securing wildlife dispersal areas and migratory routes/corridors developed a Conservation Connectivity Framework (CCF), which has identified and mapped all the wildlife dispersal areas and migratory corridors in the southern and northern Kenya rangelands and coastal terrestrial ecosystems. The first phase of the mapping process focused on the southern Kenya rangeland ecosystems comprising six contiguous sub-ecosystems while the second phase focused on the northern Kenya rangelands and coastal terrestrial ecosystem comprising the greater Ewaso ecosystem, South Turkana-Mt. Elgon ecosystem, northeast Kenya landscapes, and coastal terrestrial ecosystems.

A total of 58 migratory routes and corridors were identified in the southern Kenya rangeland ecosystems: Maasai-Mara ecosystem (17); Eburu Forest and Lakes Naivasha-Elementaita-Nakuru conservation and ecological area (8), Athi-Kaputiei and Nairobi National Park (7), South Rift (8), Amboseli and west Kilimanjaro (8), and the Tsavo xvii Conservation Area (10). Fifty-two migratory routes or corridors were identified in the northern Kenya rangelands and coastal terrestrial ecosystems, with the majority found in the greater Ewaso ecosystem. More salient routes and corridors used by other wildlife species also exist in the Kenya rangelands, but were not considered and need further investigation.

⁵⁵ <http://www.kws.go.ke/content/report-wildlife-corridors-and-dispersal-areas>

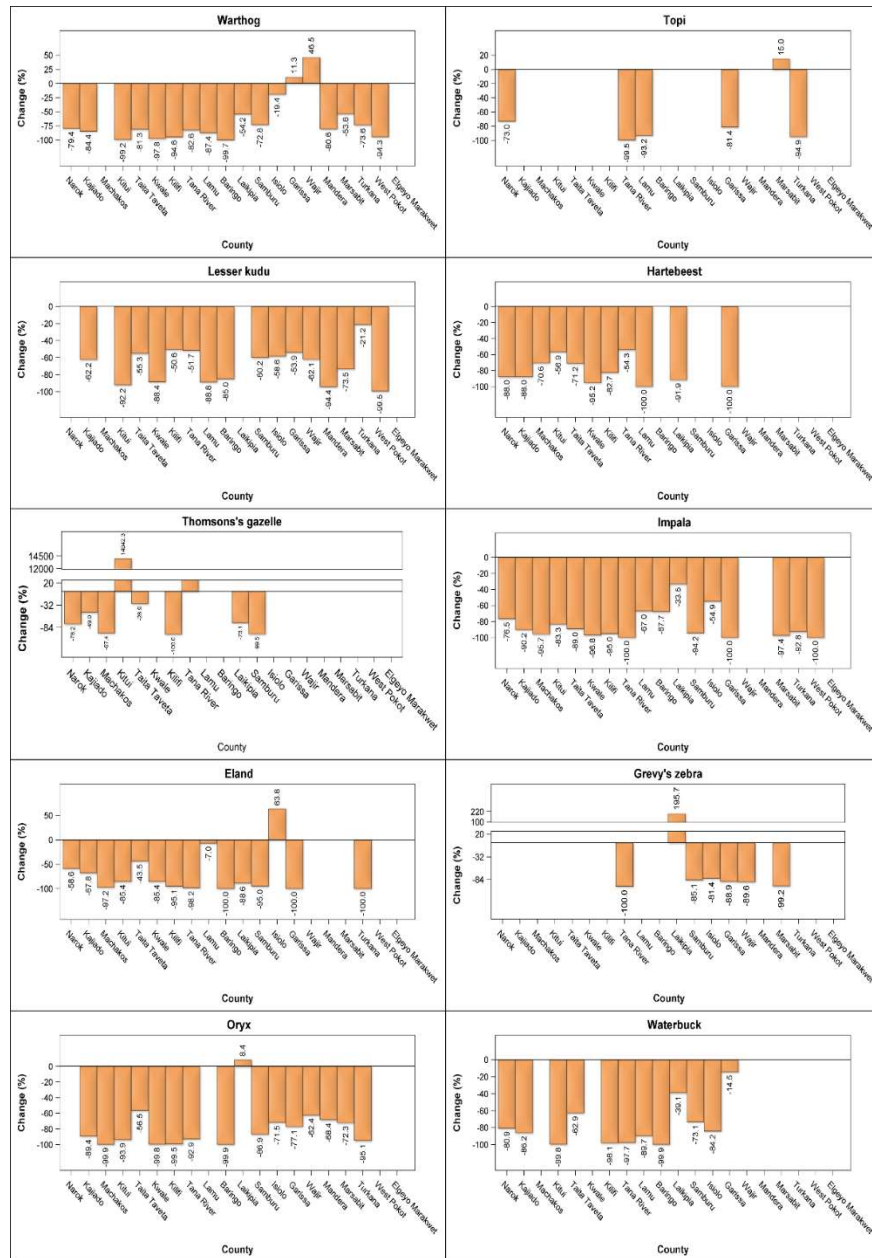


Figure 21: Percentage changes in numbers of warthog, lesser kudu, Thomson's gazelle, eland, oryx, topi, hartebeest, impala, Grevy's zebra and waterbuck in each of the 21 rangeland counties between 1977–1980 and 2011–2016.

<https://doi.org/10.1371/journal.pone.0163249.g007>

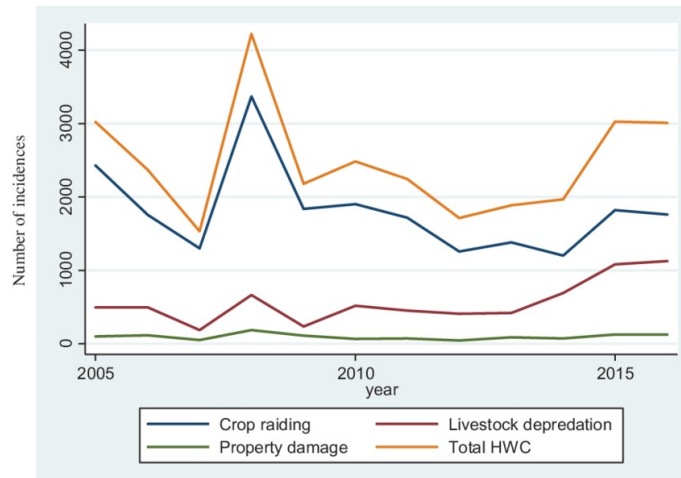


Figure 22: Yearly trends of Human Wildlife Conflict 2005-2015

(Source⁵⁶)

Wetlands

Mara Case Study⁵⁷.

In Kenya, wetlands occupy about 3% to 4% of the land surface, which is approximately 14,000 km² and fluctuates up to 6% during the rainy seasons. Kenya has six wetlands in the RAMSAR list: Lake Naivasha, Lake Baringo, Lake Bogoria, Lake Elementaita, Lake Nakuru and Tana River Delta. The process of listing more wetlands in RAMSAR site is underway to include sites such as Lake Ol Bolossat in Nyandarua county.

The Government of Kenya has made significant strides towards the formulation of Wetlands Conservation and Management Policy 2015 and supported the development of the Kenya Wetlands Atlas (2012) which maps the country's wetland resources. A master plan for the conservation and sustainable management of water catchment areas in Kenya has also been developed to guide practical and transformative actions for the sustainable management of these complex ecosystems. The National Environment Management Authority (NEMA), pursuant to the Environmental Management and Coordination Act (EMCA), Cap 387 has prepared the draft Environmental Management and Coordination (Conservation and Management of Wetlands) Amendment Regulations, 2017 intended to amend the Environmental Management and Coordination (Wetlands, River banks, Lake shores and Sea shore Management) Regulations, 2009.

Further, the Environment Management and Coordination Act, 2015 EMCA has a number of general provisions which well state the sustainable use of wetland resources of Kenya in addition to some specific provisions. Section 42 encompasses a wide range on the stipulations of wetlands. The section prohibits a number of activities like excavation and drilling in wetlands as well as construction unless an approval of such activities had earlier been made by the NEMA Director General. It secondly empowers the environment minister to declare wetlands as protected areas. It thirdly gives an authorization to the minister for the issuances of specific orders, regulations or standards for the sustainable management of wetlands even those facing degradation.

The objectives of the wetland regulations of EMCA include, among others, to provide the sustainable use and conservation of wetland resources and the wetlands, to protect wetlands as habitats of many species, to control and prevent siltation and pollution in addition to providing a framework of public participation in the management of these ecosystems.

The Fisheries Act (CAP 378) Section 8(1) states that without the prejudice to those regulations under this act, no person apart from those fishing for their personal consumption shall assist in catching or catch fish in Kenya fishery waters including wetlands unless issued with a valid license under this act.

The Water Act 2016 (CAP 372) operates under a number of institutional frameworks that offer guidance to water and sanitation management. These institutions include: Water Resources Authority, Catchment Area Advisory Committees, Water Resource Users Association, Water Appeal Board and the National

Water Conservation and Pipeline Corporation in addition to NEMA. WARA together with NEMA are the institutions which protect one resource, wetlands. WARA under section 36 of the act provides that a permit is a requirement for the drainage of any swamp. NEMA on the other and requires that an approval be made before any wetland activities are carried out under section 42 of EMCA.

Mangroves

For a long time, utilization and management of mangrove resources in Kenya was based on harvesting of wood products and not on other essential roles they play in fishery production, climate change regulation, and shoreline protection. The National Mangrove Ecosystem Management Plan covers all gazetted mangrove forest reserves in Kenya and is implemented over 10-year period (2017 – 2027). This management plan addresses the lack of ecosystem-based management approaches for mangroves in Kenya and supports sustainable utilization of mangrove resources while enhancing biodiversity conservation and ecosystem integrity. The Plan has taken cognizance of other existing policies relating to land and land use, tenure, agriculture, fisheries, energy, environment, mining, wildlife, and water. It also embraces collaborative and participatory approaches in natural resources governance that leads to ownership of the initiatives by the stakeholders.

Further, Integrated Coastal Zone Management Policy, 2015 guides actions and policies which are related to the management and use of Kenya's coastal zone resources. This also covers the restoration of the degraded areas and the protection of the resources, the development a legal framework for the purpose of ensuring sustainable conservation and management of the deltas and estuaries; and development of comprehensive research information to aid in the proper conservation and management of said ecosystems.⁵⁸

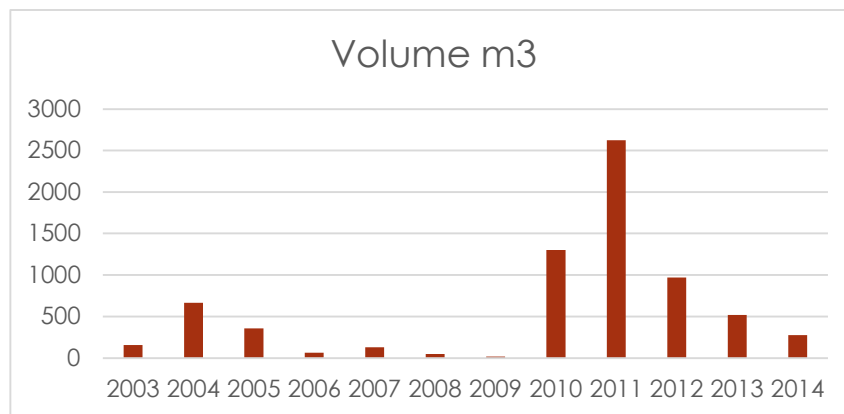


Figure 23: Wood products extracted from mangrove forests in the last 12 years

Source: KFS⁵⁹

Forests

Kenya's constitution 2010 requires that the country should maintain a minimum of 10% forest cover. Between 1990 and 2010, Kenya lost an average of 12,050 ha or 0.32% per year. In total, between 1990 and 2010, Kenya lost 6.5% of its forest cover, or around 241,000 ha. In its reporting to the UNFCC as part

⁵⁶. Huaping Long, Dagne Mojo, Chao Fu, Guoqin Wang, Erustus Kanga, Ayub M.O. Oduor & Linxiu Zhang 2019. Patterns of human-wildlife conflict and management implications in Kenya: a national perspective. DOI: 10.1080/10871209.2019.1695984. https://www.researchgate.net/publication/337487399_Patterns_of_human-wildlife_conflict_and_management_implications_in_Kenya_a_national_perspective

⁵⁷ https://www.researchgate.net/publication/332971520_Vulnerability_and_Adaptation_in_the_Mara_River_Basin

⁵⁸ Nile Basin Initiative: Kenya Wetlands Governance and Management Profile. <http://www.nilebasin.org/wetlands/wp-content/uploads/2019/03/Kenya-Wetlands-Governance-and-Management-Profile.pdf>

⁵⁹ Kenya Forest Service 2017: National Mangrove Ecosystem Management Plan.2017-2027 http://www.kenyaforestservice.org/documents/National_Mangrove_Ecosystem_Management_Plan_Final_170628.pdf

of REDD+, the Ministry of Environment and Forestry in 2019 reported a loss of 103,368ha in 2018. Reforestation efforts have been in place at the rate of 90,477ha per year.

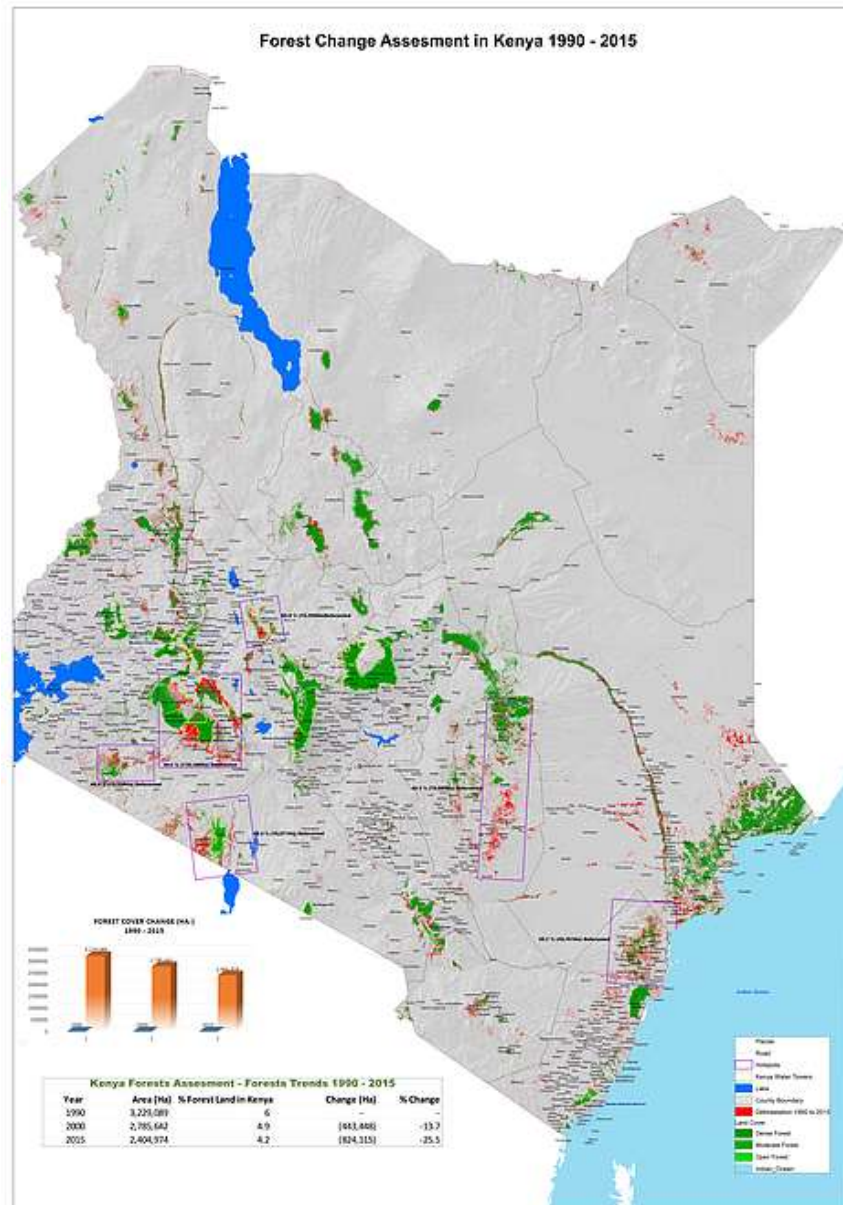


Figure 24: Forest Cover change in Kenya 1990-2015 –

(Source; WWF)60

Kenya's Constitution and Vision 2030 require forest and tree cover to be increased to at least 10% of the total land area. Forest and tree cover increased to an estimated 7.24 per cent in 2016 from an estimated 4.4 per cent reported in 2012. The sector increased the state managed forests from 1.2 million hectares to 2.4 million hectares, developed 115 Forest Management plans, facilitated production of 222,124 bamboo seedlings and 800 million tree seedlings and availed these for planting 500,000 hectares on

farmlands for livelihood improvement. This contributed to climate change mitigation through the enhancement of GHG (forest) sink.

The current forest stands at over 7.4% but it is targeted to be at 10% by 2022. The current forest land use definition for Kenya based on a multi-stakeholder process and taking into consideration international processes and definition. Plantation such as tea and coffee are excluded. (Source: KFS 2020)

The main drivers of deforestation and forest degradation have been clearance for agriculture, which is linked to rural poverty and rapid population growth; unsustainable utilization of forest products, including timber harvesting, charcoal production, and grazing in forests; and past governance and institutional failures in the forest sector. The following three actions were proposed in both NCCAP 2013-2017 and SNC: Restoration of forests in degraded lands; Rehabilitation of degraded forests; and Reduction of deforestation and forest degradation.

The government has taken action to address climate change in the forestry sector, including through tree planting initiatives and preparatory activities to enable the country participate in reducing emissions from deforestation and forest degradation plus (REDD+) role of conservation, sustainable management of forests, and enhancement of forest carbon stocks, as a climate change mitigation process. For example, a taskforce set up in February 2018⁶¹ inquired into, among others, illegal logging; destruction, degradation and encroachment of public and community forests, water towers and other catchment areas; governance and finance; and issues of integrity. They made recommendations on (a) Definitions and monitoring of forest; b) Illegal logging; c) Forest plantations versus indigenous forests; d) Plantation Establishment and Livelihood Improvement Scheme (PELIS); e) Destruction, degradation and encroachment in public and community forests; and, f) Associated impact of illegal logging, destruction and degradation on forest resources.

Evidence on changes in the condition of habitats is incomplete, however, reports on assessment of forest/tree cover indicate positive trends in the last few years⁶². These positive trends may be attributed to:

- i. efforts to increase protected areas so as to enhance connectivity and protection of habitats through gazettment of forest areas (from 1.57m ha in 2003 to 2.59m ha in 2019⁶³ and creation of community wildlife conservancies covering (6.36m ha equivalent to 11%⁶⁴) across the country,
- ii. ban on logging in government forests and charcoal production
- iii. enhanced national reforestation and tree planting efforts,
- iv. enhanced protection through better trained and equipped forest/wildlife rangers,
- v. introduction of community participation in natural resource management (Participatory forest management, community wildlife management, water resource users' associations).

Kenya has developed and enacted several policy and legal instruments related to reduce habitat loss, degradation and fragmentation. Key policy responses include the National Environment Policy 2013 (Pg 36), National Strategy and Action Plan for the Management of Invasive Species in Kenya, The Plant Health Protection Act Cap 324, Agriculture, Fisheries and Food Authority Act. No. 13 of 2013, Environmental Management and Coordination Act 1999 (amendment 2015), Wildlife Conservation and Management Act 2013, Forest Conservation and Management Act 2016 and Fisheries Management and Development Act 2016.

Key policy actions include the following:

- Enactment of Forest Conservation and Management Act 2016, review of the Environmental Management and Coordination Act 2015 and development of the National Forest Programme (2016-2030).

⁶¹ Republic of Kenya. Ministry of Environment and Forestry 2018. Taskforce Report on Forest Resources Management and Logging Activities in Kenya <http://www.environment.go.ke/wp-content/uploads/2018/08/Forest-Report.pdf>

⁶² <http://www.fao.org/3/a-az251e.pdf>

⁶³ <http://www.kenyaforestservice.org/documents/STATUS%20OF%20GAZETTED%20FORESTS%20IN%20KENYA.pdf>)

⁶⁴ (<https://kwcakenya.com/conservancies/>)

- Imposition of a moratorium by the Government of Kenya on logging in public and community forests in February 2018.
- National commitment to restore 5.1 million ha of degraded forest and other landscapes.
- Review of Charcoal Rules and Regulations (2009), development of Private Forests and Gums & Resins Rules & Regulations.
- Development of a Strategy to Increase the Country's Tree Cover to 10%.
- Development of REDD+ Strategy and Action Plan.
- Development of Commercial Forestry Policy to provide alternative source of wood products and increase vegetation cover thus reducing the direct pressure on natural habitats (forest, wetlands, wood lands, shrub lands, among others).

There have been efforts in mapping wildlife migratory corridors with an effort to safeguard them ensuring their continued existence⁶⁵. Examples in implementation include the Wildlife Works Rukinga Corridor Kenya REDD+ Project⁶⁶. However, greater effort is required in achieving the protection/restoration of wildlife corridors nationally being among the flagship projects of Kenya's Vision 2030⁶⁷ since some of the main wildlife migratory corridors has been lost and are others under encroachment. The Key Biodiversity Areas in Kenya are 67 with 45 of the sites covered under various legal protection instruments (Forest reserve, National Park/Reserve, National Monument, Ramsar, Wetland). A number of sites have double gazettement such as Mt. Kenya, Shimba Hills,

Trend Data: Case Study: Mau Forest⁶⁸

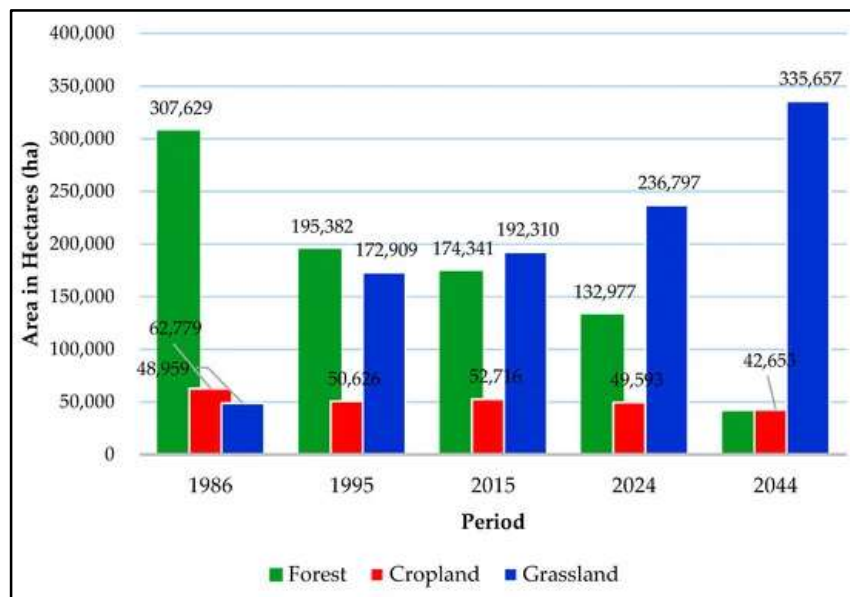


Figure 25: Pattern of land cover change in Mau Water Tower, 1986–2044

(Source: Odawa and Seo 2019).

⁶⁵ (<http://www.kws.go.ke/content/report-wildlife-corridors-and-dispersal-areas>).

⁶⁶ (<https://www.wildlifeworks.com/kenya>).

⁶⁷ (<http://vision2030.go.ke/project/secure-wildlife-corridors-and-migratory-routes/>)

⁶⁸ Odawa S. & Seo Y. 2019. Water Tower Ecosystems under the Influence of Land Cover Change and Population Growth: Focus on Mau Water Tower in Kenya. *Sustainability* **2019**, 11(13), 3524; <https://doi.org/10.3390/su11133524> accessed from <https://www.mdpi.com/2071-1050/11/13/3524/htm>

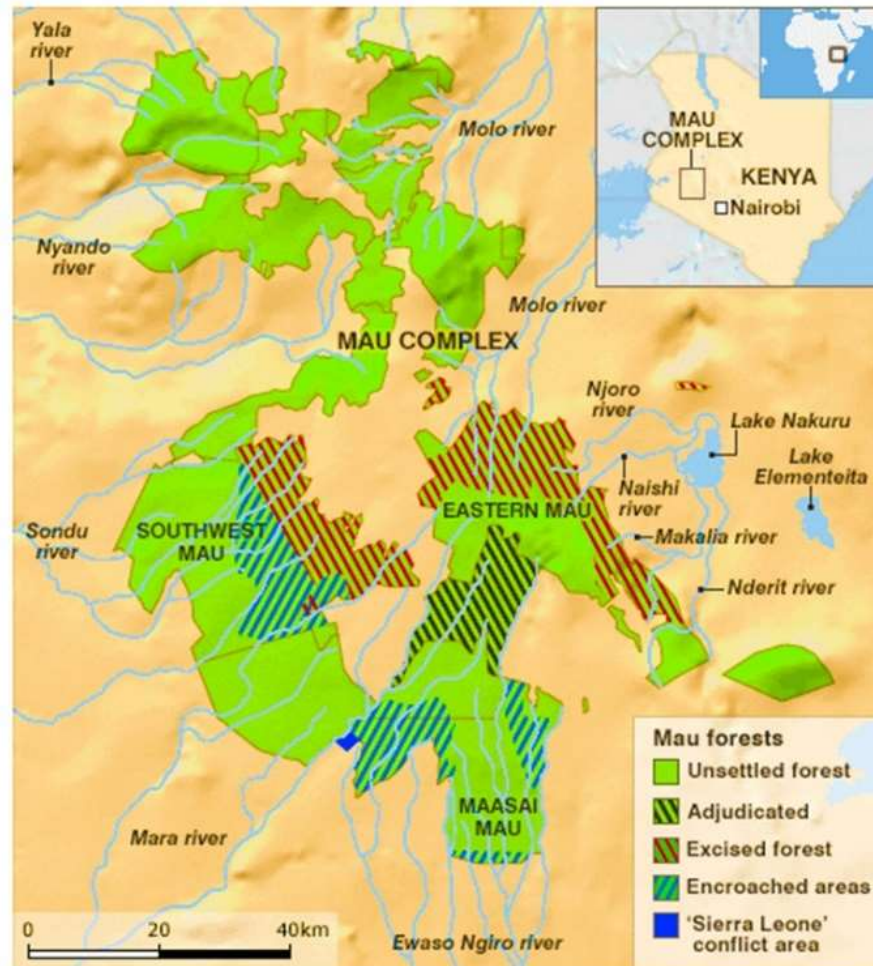


Figure 26: Location and extent of Mau Water Tower, Kenya in 2009.

(Source:69.)

69 Odawa and Seo 2019 – Originally Government of Kenya (GoK). *Rehabilitation of the Mau Forest Ecosystem; A Project Concept* prepared by the Interim Coordinating Secretariat, Office of the Prime Minister, on Behalf of the Government of Kenya; Government Printer: Nairobi, Kenya, 2009

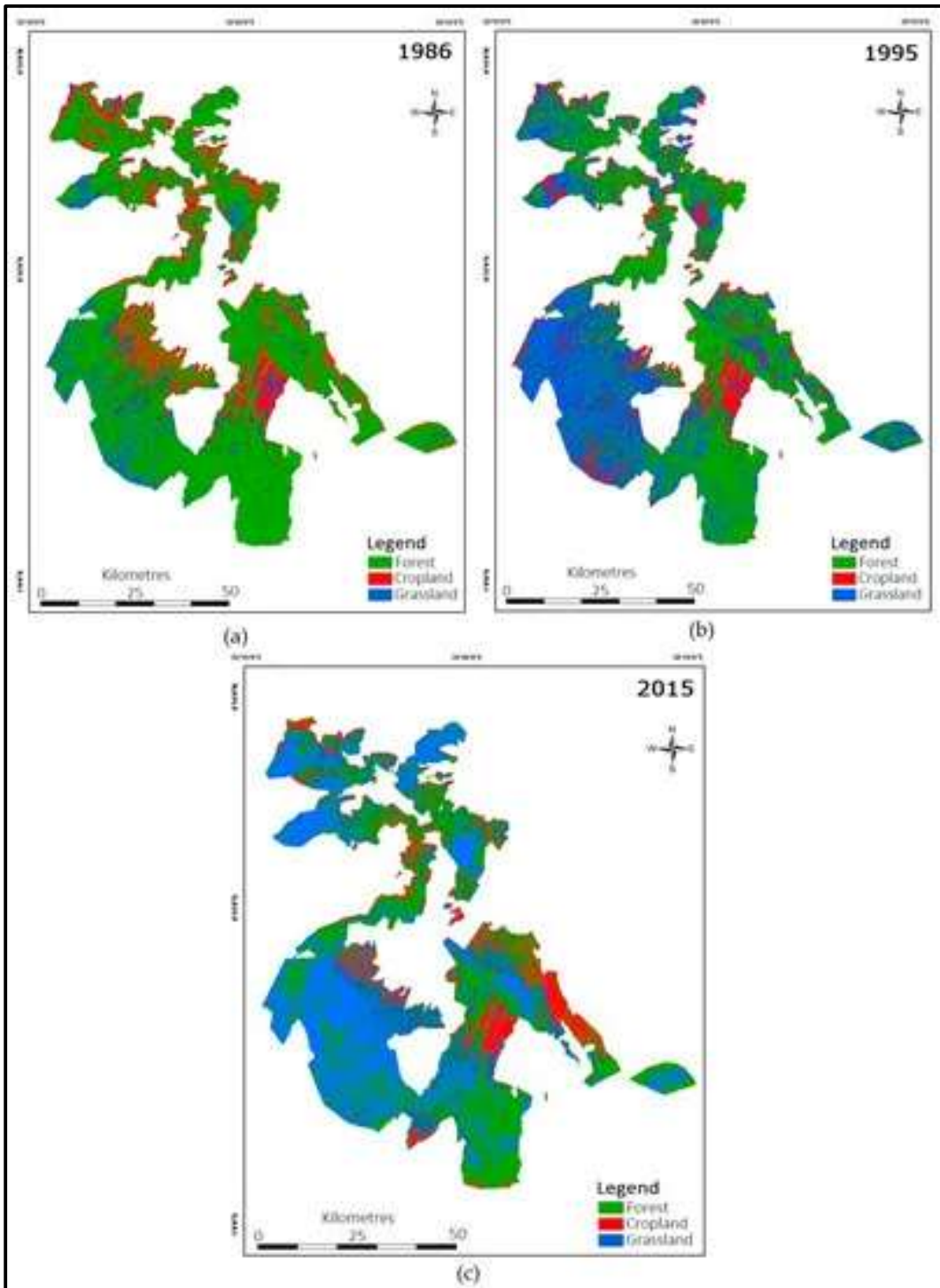


Figure 27: Mau Water Tower land cover map for the year; (a) 1986, (b) 1995 and (c) 2015.

(Source: Odawa and Seo 2019)

Indicators used in this assessment

CBD indicators

Trends in extent of forest

- Trends in tree cover
- Forest area as a percentage of total land area (indicator for SDG target 15.1)
- Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type (indicator for SDG target15.1)
- Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type (indicator for SDG target15.1)
- Progress towards sustainable forest management (indicator for SDG target 15.2)

Trends in extent of natural habitats other than forest

- Change in the extent of water-related ecosystems over time (indicator for SDG target 6.6)
- Natural habitat extent (land area minus urban and agriculture)
- Wetlands extent

Trends in fragmentation of forest and other natural habitats

Trends in degradation of forest and other natural habitats

- Proportion of land that is degraded over total land area (indicator for SDG target 15.3)

Trends in extinction risk and populations of habitat specialist species in each major habitat type

- Red List index (forest specialists)

Please describe any other tools or means used for assessing progress

Forest Assessments:

In the late 1990s, the forest cover of Kenya was reported to be 1.7%. This was based on a forest definition with a minimum canopy cover of 40% used by the United Nations Environment Programme. Later, the forest definition of the FAO with a minimum canopy cover of 10% was largely used, leading to an upward revision of the forest cover to 6.2%. The 1st multi stakeholder comprehensive forest mapping exercise was undertaken in 2010 using big data resulting in 6.9%. Through REDD+ financing, another process was undertaken using revised methodology and technology for the period 2000-2018 and the figure noted as 5.9% in 2019. The Forest cover statistics have varied from 3% to 2.7%, 6.9% and 7.4% and 5.9%. This is a reflection of the lack of long-term monitoring data.

The current forest stands at over 7.4% but it is targeted to be at 10% by 2022. This was established through wall to wall forest resource assessment through a partnership of DRSRS, World Resources Institute and KFS. This is in line with Aichi Targets 5, 7, 8, 10. The current forest land use definition for Kenya based on a multi-stakeholder process and taking into consideration international processes and definition. Plantation such as tea and coffee are excluded. (Source: KFS 2020).

FOREST DEFINITION			
➤ Kenya's definition is informed by global reporting standards(FAO,UNFCCC)			
Organizations (Main Contributors)	A single minimum tree crown cover value	A single minimum land area value	A single minimum tree height value
KFS, DRSRS, KEFRI, REDD+, SLEEK, MEF,CCD	15%	0.5 ha	2 m

With the new definition adopted by KFS, the forest cover in the country was further revised upwards to 7.4%. The Forest Conservation and Management Act, 2016 (FCMA) defines a forest as land which is declared or registered as a forest, or woody vegetation growing in close proximity in an area of over 0.5 of a hectares including a forest in the process of establishment, woodlands, thickets. For Land Use Land Cover Classification, the IPCC Classification has been adopted for Kenya as shown in Figure 26 below. The accuracy assessments have been used for checking the correctness of the final forest map.

Figure 28: Land Use and Land Cover Mapping System in Kenya (Source: (KFS)

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

GOK 2018. Wildlife Strategy 2030. <http://www.tourism.go.ke/wp-content/uploads/2018/06/WILDLIFE-STRATEGY2030-Final-V1-Online.pdf>

MINISTRY OF ENVIRONMENT AND NATURAL RESOURCES. 2016. Report of the: LAND DEGRADATION ASSESSMENT (LADA) IN KENYA: Based on a Study of Land Degradation Assessment (LADA) with Remote Sensing and GIS, for Sustainable Land Management (SLM) in Kenya. KENYA AGRICULTURAL PRODUCTIVITY AND SUSTAINABLE LAND MANAGEMENT PROJECT (KASLMP). <http://www.environment.go.ke/wp-content/uploads/2018/08/LADA-Land-Degradation-Assessment-in-Kenya-March-2016.pdf>

Nile Basin Initiative: Kenya Wetlands Governance and Management Profile. <http://www.nilebasin.org/wetlands/wp-content/uploads/2019/03/Kenya-Wetlands-Governance-and-Management-Profile.pdf>

Kenya Forest Service 2017: National Mangrove Ecosystem Management Plan.2017-2027 http://www.kenyaforestservice.org/documents/National_Mangrove_Ecosystem_Management_Plan_Final_170628.pdf

Republic of Kenya. Ministry of Environment and Forestry 2018. Taskforce Report on Forest Resources Management and Logging Activities in Kenya <http://www.environment.go.ke/wp-content/uploads/2018/08/Forest-Report.pdf>

Republic of Kenya. Ministry of Environment and Natural Resources 2016. KENYA STRATEGIC INVESTMENT FRAMEWORK FOR SUSTAINABLE LAND MANAGEMENT 2017 – 2027. <http://www.environment.go.ke/wp-content/uploads/2018/08/KSIF-Kenya-Strategic-Investment-Framework-on-SLM-2017-2027.pdf>

Republic of Kenya 2017. Report on Wildlife Corridors and Dispersal Areas. <http://www.kws.go.ke/content/report-wildlife-corridors-and-dispersal-areas>

Wildlife Works Rukinga Corridor Kenya REDD+
• <https://www.wildlifeworks.com/kenya>

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

The assessment is based on information from sector reports and mandated institutions.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

Department of Resource Surveys and Remote Sensing – DRSRS, is tasked with collecting data for various environmental indicators. Working closely with the Kenya Forest Service and the Kenya Wildlife Service among other institutions census and trend data is collated and analyzed accordingly.

There is a monitoring system of the key biodiversity areas spearheaded by Nature Kenya working together with the Kenya Forest Service, Kenya Wildlife Service, National Environment Management Authority and other institutions <https://naturekenya.org/our-work/species-site-and-habitat-conservation/>.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)

<http://www.environment.go.ke/wp-content/uploads/2018/08/Forest-Report.pdf>

Kenya Forest Service: Status of Kenyan Forests:

- <http://www.kenyaforestservice.org/documents/STATUS%20OF%20GAZETTED%20FORESTS%20IN%20KENYA.pdf>

KWCA Conservancies in Kenya

- <https://kwcakenya.com/conservancies/>

Nature Kenya: Trends of Key Biodiversity Areas in Kenya

- <https://naturekenya.org/our-work/species-site-and-habitat-conservation/>

Department of Resource Surveys and Remote Sensing – DRSRS

<http://www.environment.go.ke/?p=49>

4.6 TARGET 6

Target 6 By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

Category of progress towards the implementation of the selected target

On track to achieve target

Date the assessment was done

13TH MARCH 2020

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

The sector supports about 1.1 million people directly and indirectly, working as fishers, traders, processors, suppliers and merchants of fishing accessories and employees and their dependents'. Besides fish consumption provides a rich source of protein especially for riparian communities. The sector is also important for the preservation of culture, national heritage, and recreational purposes. Fish stocks in some Kenyan inland water bodies have been declining over time due to overexploitation owing to excessive increase in fishing effort caused by various factors, namely: rapid population growth; high fish demand; lack of alternative employment opportunities; breakdown of traditional fisheries management systems; ready market for fish including immature ones; destructive fishing practices; and environmental degradation due to catchment activities, invasive weeds such as water hyacinth and exotic species contribute to decline of fish stocks.

The Government during the MTP II period, the key achievements in the maritime and fisheries sub-sectors included:

- development of Fisheries Management Plans; Kenya Tuna Fisheries Development and Management Strategy 2013 -2018,
- enactment of the Fisheries Management and Development Act No. 35 of 2016,

- procurement of an Offshore Patrol Vessel (OPV Doria) for surveillance of deep-sea fishing and two patrol boats one for Lake Victoria and another for Lake Turkana; acquisition of an Offshore Research Vessel (R.V Mtafiti),
- reflagging of four foreign deep-sea fishing vessels (with the Kenyan flag), and
- establishment of a Monitoring, Control and Surveillance (MCS) Centre in Mombasa and installation of a Vessel Monitoring System (VMS).

Other achievements realized during the period include:

- restocking of 135 dams, 11 rivers and 3 lakes with a total of 4,881,663 assorted fish fingerlings to increase productivity,
- mapping and delineation of thirteen (13) critical fish habitats, 5 in Lake Naivasha, 3 in Lake Baringo and 5 in Lake Turkana to protect the breeding areas and thus increase in-situ stock recruitment.

In addition, during the MTP II period,

- a Residue Monitoring Plan for farmed fish was developed and approved by the European Union (EU) and thereby, opening up export markets for farmed fish and fishery products in the EU,
- three Fish Quality Control Laboratories were established in Nairobi, Mombasa and Kisumu; four cold storage and mini fish processing facilities were established in Meru, Kakamega, Nyeri and Migori,
- seaweed farming was developed in Kibuyuni - Kwale County,
- improved local strain of tilapia was developed and transferred to 10 certified hatcheries for mass production of quality seed,
- an intensive Recirculation Aquaculture Systems (RAS) demonstration infrastructure was established in Sagana; and
- an aquaculture curriculum for Advanced Technical and Vocational Education Training (ATVET) was developed.

The fisheries sub-sector contributed about 0.58 per cent to the country's GDP at ex-vessel/farm-gate prices of fish in 2016. The sub - sector overall performance in terms of fish production dropped by 21.3 per cent from 1 63,389 Metric Tonnes (MT) in 2013 to 128,645 MT in 2016.

Fish production in the freshwater dropped by 22.5 per cent from 154,253 MT in 2013 to 119,550 MT in 2016. Lake Victoria continued to make the highest contribution of the freshwater fish production of 82 per cent on average since 2013. The marine fish landed also declined by 0.45 per cent from 9,136 MT in 2013 to 9,095 MT in 2016. Fish production from fish farming declined by 36.4 per cent from 23,501 MT in 2013 to 14,952 MT in 2016. The total value of fish landed during the period under review also declined by 13 per cent from Ksh. 21.281 billion in 2013 to Ksh. 18.517 billion in 2016.

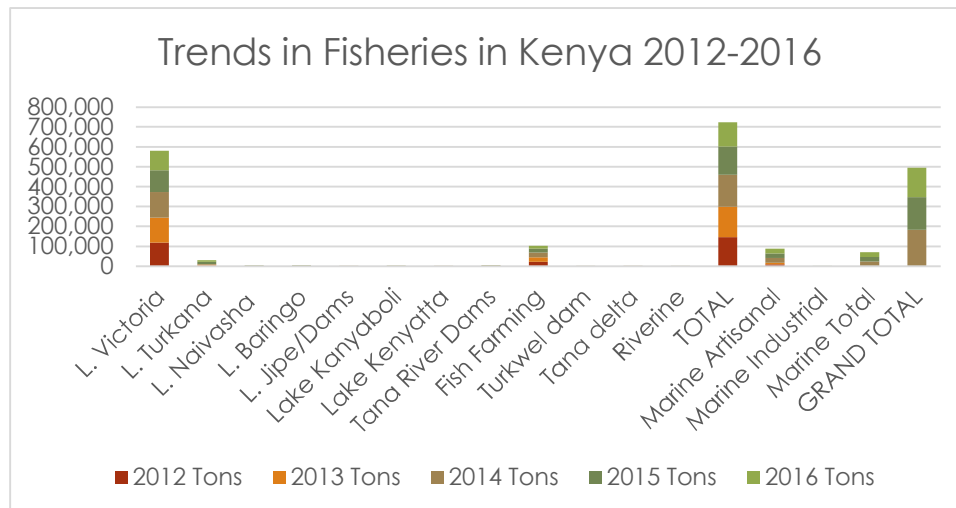


Figure 29:Trends in Fisheries in Kenya 2012-2016

(Source Kilimodata)⁷⁰

The decline was associated to decline in fish production from the shrinking lakes and the Tana dams, excessive and unregulated fishing, climate change, deteriorating environment, inadequate fisheries infrastructure, poor database, use of destructive fishing methods and the presence of water hyacinth particularly in Lake Victoria.

Capture fisheries is confronted by: excessive fishing effort, overfishing, use of destructive fishing gears and methods, ineffective management and extension systems, inadequate information for decision making, high cost of inputs especially fuel and fishing gears, inadequate fisheries infrastructure such as cold storage facilities, landing sites, market access roads and energy. In addition, other challenges include: high post-harvest losses, weak Monitoring, Control and Surveillance (MCS), lack of protocol on information sharing among agencies and states in the region, increased Illegal, Unregulated and Unreported (IUU) fishing activities, ineffective enforcement of fisheries laws and regulations partly due to inadequate capacity, and limited commitment and involvement of stakeholders in management of fisheries resources and protection of critical fish habitats.

For example, in a study of Lake Naivasha, a shallow, freshwater body and a Ramsar site, Njiru et al. 2019⁷¹ assessed the status, challenges and management options for the fishery. Lake Naivasha fishery is based on exotic species that fluctuates depending on fishing regime, lake water level and aquatic plant concentrations.

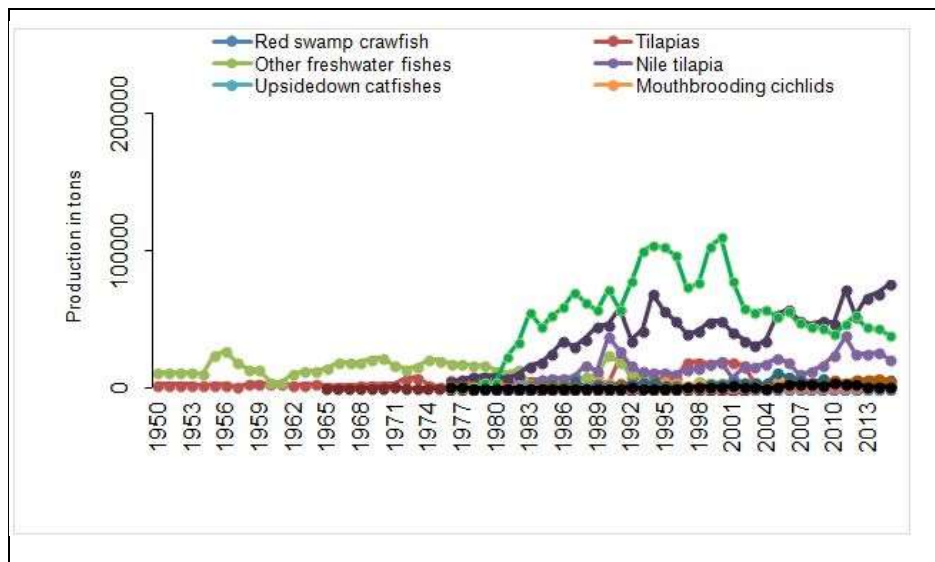


Figure 30: Trends in inland fisheries in Kenya (KMFRI) ⁷²

⁷⁰ Kilimodata. <http://kilimodata.developlocal.org/dataset/fish-production-by-water-bodies-2012-2016>

⁷¹ <https://benthamopen.com/FULLTEXT/TOFISHSJ-10-1#>

⁷² KMFRI <https://www.kmfri.co.ke/index.php?id=26>. Visited 14-05-2020. And

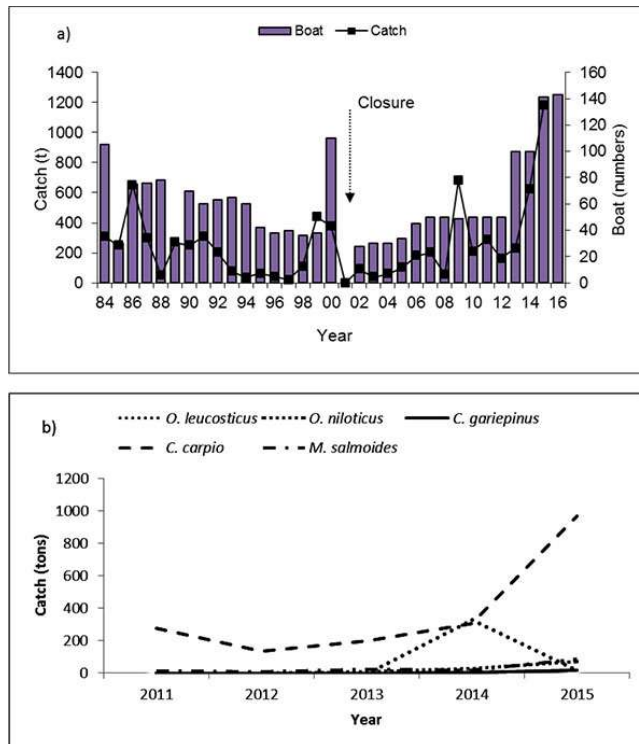


Figure 31: Lake Naivasha Fisheries Trends⁷³

The fishery has been dominated by different species with the current catch contribution consisting mainly of common carp, *Cyprinus carpio*, Nile tilapia, *Oreochromis niloticus*, blue-spotted tilapia, *O. leucostictus* and African catfish, *Clarias gariepinus*. The minimum and maximum catch of 21 t yr⁻¹ and 1181 t yr⁻¹ was reported in 1997 and 2015, respectively. The main threats to the lake fishery are anthropogenic influences emanating from within the lake and its basin. The factors include intense fishing, exotic species introductions, water abstraction, lake level fluctuations, wetland utilization, eutrophication, and land degradation. There are also several conflicts of interest amongst the stakeholders in agriculture, fisheries, wildlife, tourism, conservation and geothermal electricity generation. There is fear that if the current trend persists, the lake and its fishery may be headed for extinction. The management measures instituted in the lake do not seem to have arrested reduction in fish catches nor reversed deterioration in water quality. For sustainable utilization of Lake Naivasha and its fishery, they recommended a holistic ecosystem approach of the basin management. Additionally, all the relevant stakeholders should be involved in formulation and implementation of the decisions to manage the fishery.

The inshore waters, which are fishing grounds for artisanal fishermen, are over-exploited and degraded due to demand created by the increasing population pressure and reliance on the fisheries for both food and incomes. The artisanal fishermen have limited fishing capacities for semi-industrial and industrial fisheries in deep waters.

Case study: In the Marine sector, the Kenya Marine and Fisheries Research Institute (KMFRI) has partnered with local shrimp fishing industry ITTICA Limited and ALPHA Limited to evaluate the Turtle Excluder Device (TED) as an additional component of their trawl nets to save turtles and other large species mainly sharks and rays from being accidentally caught in the trawls. The project BY-Catch Assessment and Mitigation in Western Indian Ocean Fisheries (BYCAM) <https://bycamwio.weebly.com/> is financed by the Western Indian Ocean Marine Science Association (WIOMSA) and is aimed at promoting the reduction of undesired catch in fisheries by assessing and testing innovative technologies in fisheries of the region⁷⁴.

The Fisheries Management and Development Act 2016 provides for the conservation, management and development of fisheries and other aquatic resources to enhance the livelihood of communities that depend on fishing. It gives guidance on the import and export trade of fish and fish products, fish quality and safety among other provisions that support sustainable utilization of marine products in Kenya.

Aquaculture is faced with: low extension capacity; high cost and inadequate supply of inputs such as quality seeds and fish feeds; low uptake of technology; lack of agro-ecological specific fish strains; and hatcheries especially for marine aquaculture thus compelling farmers to rely on wild seeds which are seasonal. Three mini fish processing and cold storage facilities which provide diverse services including cold storage, value addition and marketing of farmed fish have been constructed. In addition, ten aquaculture products marketing outlets in various parts of the country have been established in collaboration with private fish vendors. The establishment of a fish quality laboratory is expected to facilitate the capacity to conduct the full spectrum of fish tests required to access the European and other high-quality markets. This is to reduce pressure on capture fisheries.

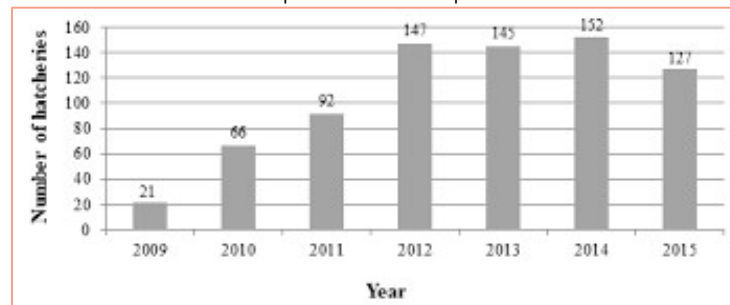


Figure 32: Trends in aquaculture

(Source KMFRI)

Marine fishing had an annual fish potential of 350,000 metric tonnes in 2013 worth Ksh90 billion (KMA) yet the region only yielded a paltry 9,134 metric tonnes worth Ksh2.3 billion. Therefore, the full economic potential of marine resources has not been exploited, yet Kenya has a maritime territory of 230,000 square kilometers and a distance of 200 nautical miles offshore.

Promotion of local deep-sea companies through joint ventures, reflagging of foreign fishing vessels and chartered fishing vessels is one of the country's strategies in developing the Exclusive Economic Zone (EEZ). Towards this end, a deep-sea fishing fleet development plan for a total of 73 deep sea fishing vessels have been developed and lodged with the Indian Ocean Tuna Commission. To facilitate the landing of the catch by the deep-sea fishing vessels on the Kenyan soil, the Government has identified three berths designated for the fish port under the Lamu Port Southern Sudan - Ethiopia Transport (LAPSSET) corridor Flagship Project.

Under Blue Economy, the priorities are:

- 56 sub-catchment management plans developed, and 236 sub-catchment management plans implemented to assist local communities to protect wetlands, lakes, and other water catchment areas.
- Integrated catchment approach and ecosystem-based adaptation structural/ mechanical design, such as structural catchment protection, especially in the upper catchments;
- Livelihood systems improved on 60,000 hectares of degraded land through the development of water pans and ponds; and
- Rehabilitating and restoring mangrove forests; and

⁷³ Njiru J., Waitthaka E & Aloo P.A. 2019. An Overview of the Current Status of Lake Naivasha Fishery: Challenges and Management Strategies. The Open Fish Science Journal. ISSN: 1874-401X — Volume 12, 2019. DOI: [10.2174/1874401X01710010001](https://doi.org/10.2174/1874401X01710010001). <https://benthamopen.com/FULLTEXT/TOFISHSJ-10-1#>

⁷⁴ <https://www.kmfri.co.ke/index.php/about-us/research-centres/sagana-aquaculture-centre/13-news-and-events/118-kenya-at-the-centre-of-a-regional-initiative-for-sustainable-fisheries>

- Conserving at least 15% of coastal and marine areas, especially areas of importance for biodiversity and ecosystem services.
- Develop the Blue Economy Master Plan (BEMP) to provide a blue print to guide the long-term holistic development of the Blue Economy;

MTP III (2018-2022)

The priority actions under MTP III include the following:

Research:

- Assessment of stock status of key fisheries species to enhance capture fisheries management,
- Research on promotion of investments in the Blue Economy,
- Diversification and commercialization of aquaculture species,
- Establishment of a centre for biosecurity and fish disease surveillance in aquaculture,
- Fish feed formulation and testing,
- Biophysical assessment and mapping of major aquatic ecosystems and associated biodiversity,
- Assessment of the vulnerability of aquatic ecosystems to climate change and related disasters,
- Assessment of changes in the socio-cultural characteristics aquatic resource user communities
- Economic valuation of marine and coastal resources,
- Development of innovative technologies for value-addition and reduction of post-harvest losses; and
- Maritime and shipping affairs research.

Policy Development

- Development of Blue Economy Policy
- Development of Aquaculture Guidelines and Standards,
- Development of National Maritime Spatial Plan,
- Development of Blue Economy Master Plan,
- Review of Aquaculture Policy 2011,
- Review of National Aquaculture Strategy and Development Plan,
- Development of Aquaculture Master Plan,
- Development of a Fish Marketing Strategy,
- Review of the Fisheries (Safety of Fish, Fishery Products and Fish Feed) Regulations 2007.

Legal reforms

- Development of Cage Culture Regulations,
- Review of Fisheries Beach Management Units (BMUs) Regulations 2007,
- Undertake miscellaneous amendment of the Fisheries Management and Development Act, 2016,
- Development of the Marine and Inland Fisheries Regulations.

Institutional Reforms

- Implementation of the Fisheries Management and Development Act, 2016.

Indicators used in this assessment

CBD indicators:

- Trends in fishing practices
 - Coverage of fisheries with management measures to effectively manage bycatch and reduce discards
 - Number and coverage of stocks with adaptive management systems / plans
 - by countries in the degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing (indicator for SDG target 14.6)
 - Amount (spatial extent, gear type, intensity) of fishing effort within vulnerable habitats
 - Number of countries with ecosystem impact monitoring and/or assessment Programmes
 - Number of countries with legislation allowing for actions for the protection of vulnerable habitats (including VMEs), and addressing threats to ecosystem structure and function
 -

- Trends in proportion of fish stocks outside safe biological limits
 - Proportion of fish stocks within biologically sustainable levels (indicator for SDG target 14.4)
- Trends in catch per unit effort
 - Estimated fisheries catch and fishing effort
 - Progress by countries in the degree of application of a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries (indicator for SDG target 14.b)
- Trends in certified sustainable fisheries
- Trends in proportion of depleted, target and bycatch species with recovery plans
- Trends in population and extinction risk in target and bycatch species

Please describe any other tools or means used for assessing progress

The methods included but were not limited to Catch Assessment (CA)

- Frame Surveys (FS) that deal with the harvests and means of harvesting respectively,
- Hydro-acoustics, Trawl Surveys (SA), Biological and Environmental surveys that examines the status of the fish stocks, their biology and interactions among themselves and with the environment.
- Stock Assessment synthesizes all the generated information and provides a common understanding on the status of the stocks, fisheries and environment of the lake. Lake Victoria Fisheries Organization (LVFO)

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

KEMFRI 2017. Kenya Aquaculture Brief

https://www.kmfri.co.ke/images/pdf/Kenya_Aquaculture_Brief_2017.pdf

KEMFRI 2020. Freshwater Systems - Webpage

<https://www.kmfri.co.ke/index.php?id=26> accessed 15/5/2020

ASCLME/SWIOFP 2012..**Transboundary Diagnostic Analysis for the western Indian Ocean. Volume 2: Diagnostic Analysis**

GOK 2018: The Presidency - Vision 2030: Marking ten years of Progress (2008-2018):

<http://vision2030.go.ke/inc/uploads/2018/09/Kenya-Vision-2030-Sector-Progress-Project-Updates-June-2018.pdf>

GOK 2018. Vision 2030 MTP III. Sector Plan for Blue Economy

<https://planning.go.ke/wp-content/uploads/2020/02/SP-7144-SECTOR-PLAN-FOR-BLUE-ECONOMY.pdf>

Kenya Marine Fisheries Research Institute

<https://www.kmfri.co.ke/>

Kenya Maritime Authority

<https://kma.go.ke/>

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

There is no national target. Under the Blue Economy Sector Plan, key Programmes are under development, hence:

- i. Development of the blue economy Programme including the Blue Economy master plan.
- ii. Fisheries and Maritime infrastructure Development Programme

- iii. Exploitation of living resources under the blue economy Programme
- iv. Aquaculture business development Programme
- v. Kenya Marine Fisheries and Socio – economic development Programme.

However, some key Milestones include:

- Marine biodiversity assessment
- Efforts in marine biodiversity monitoring ongoing e.g monitoring Programme for Illegal unreported and unregulated fish
- Formation of coast guards
- Development of marine and inland fisheries regulations ongoing
- Various management plans for both marine and inland waters developed
- National Mangroves ecosystem management plan in place
- Mangroves strategy development ongoing
- Beach management regulations
- Vessel monitoring systems along the coast

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

Target 6 is monitored by regular scientific surveys supported mainly for inland fisheries. Evidence and information is available in the national economic survey undertaken by the annual Kenya National Bureau of Statistics (KNBS) National economic surveys. Regular monitoring of fish stocks. and provision of scientific data that is published in as Annual Fisheries Bulletin reports from State Department of Fisheries indicating the fish production from Aquaculture.

The status of our fishery in published Synthesis report from, Hydro-acoustic, Stock assessment (SA), Catch Assessment Surveys (CAS) and Frame Surveys (FS) as well as Transboundary Diagnostic Analysis of the large marine ecosystems of western Indian Ocean

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)

GOK 2018. Vision 2030 MTP III. Sector Plan for Blue Economy

<https://planning.go.ke/wp-content/uploads/2020/02/SP-7144-SECTOR-PLAN-FOR-BLUE-ECONOMY.pdf>

Ministry of Agriculture, Livestock and Fisheries Statistics.

Kilimodata. <http://kilimodata.developlocal.org/dataset/fish-production-by-water-bodies-2012-2016>

Kenya Marine Fisheries Research Institute

<https://www.kmfri.co.ke/>

Kenya Maritime Authority

<https://kma.go.ke/>

Lake Victoria Environmental Management Project-Phase Two (LVEMP-II) Stock Assessment Report Entebbe, Uganda 7th - 9th April, 16

4.7 TARGET 7

Target

Aichi By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	Target 7
Category of progress towards the implementation of the selected target <input checked="" type="checkbox"/> Progress towards target but at an insufficient rate	
Date the assessment was done 12/03/2020	
<p>Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).</p> <p>Kenya has made progress towards the realization of this target through a number of policy and programmatic actions. The Key Policy actions include the National Strategy to achieve the 10% tree cover target, The Green Economy Strategy (GESIP), National Climate Change Action Plan (NCCAP) 2013-2017 and 2018-2022, MTP II and MTP III sector Plans, and various Acts, Policies and Plans for Water for Water, Agriculture and Environment respectively.</p> <p>GESIP provide the policy push under Thematic area 3 on Sustainable Natural Resource Management which encompasses agriculture, forestry, water, wildlife, land use and extractive industries. In order to address the degradation and loss of natural resources, the tools under this thematic area include spatial planning and targeted periodic valuation of natural capital, payment for ecosystem services and environmental accounting.</p> <p>The Forest Conservation and Management Act, 2016 (Section 42) indicates that indigenous forests and woodlands are to be managed on a sustainable basis for, inter alia, carbon sequestration. Section 8 indicates that KFS is to manage water catchment areas in relation to soil and water conservation, carbon sequestration, and other environmental services; and Section 21 notes that County Governments are to promote afforestation activities.</p> <p>The National Forest Programme 2016-2030 defines the national forest framework which is premised on sustainable forest management. The overall goal: "To develop and sustainably manage, conserve, restore and utilize forests and allied resources for socio-economic growth and climate resilience." The first strategic objectives is to increase tree cover and reverse forest degradation through sustainable forest management.</p> <p>In 2030, the highest amount of emissions would come from the energy sector, particularly electricity generation, followed by agriculture and forestry through land use, land-use change, and forestry (LULUCF). According to the baseline analysis of <i>NCCAP 2013- 2017</i> and <i>SNC</i> the <i>LULUCF</i> sector is the second largest contributor to Kenya's GHG emissions after agriculture, accounting for 32.5% of emissions in 2015, largely as a result of deforestation through clearing of forested lands for agriculture; wood harvesting, for fuelwood, charcoal and other wood products; and urban development or settlement. The <i>NCCAP 2018-2022</i> takes cognizance of the impacts of climate change on Kenya's socioeconomic sectors and identifies strategic areas where climate change action over the next five years will be linked to the Big Four Agenda.</p> <p>Forests</p> <p>The Forest Conservation and Management Act (FCMA 2016) provides for the development and sustainable management including conservation and rational utilization of all forest resources. The country banned logging in government forests and also embarked on ambitious tree planting activities, restoration of gazetted forests and water towers, and promotion of efficient/alternative energy sources and technologies to relieve pressure on forests. There has also been improved management and increase in area of the protected sites and increased conservation action through community engagement around protected areas. The size of protected forest area has increased from 1.57 million hectares in 2010 to 2.59 million hectares in 2019 mainly through gazetting of new forests. Over the years</p>	

there have been fluctuations in forest cover characterized by increase and decrease at some points. However, the actions have resulted into sustained increase and since 2015.

The following three actions were proposed in both *NCCAP 2013-2017* and *SNC*: Restoration of forests in degraded lands; Rehabilitation of degraded forests; and Reduction of deforestation and forest degradation. For *NCCAP 2018-2022*, Key result proposed are:

- Reduction in deforestation and forest degradation by rehabilitation and protection of an additional 100,000 hectares of natural forests (including mangroves) by 2022, with an abatement potential of 2 MtCO₂e by 2030,
- Afforestation/reforestation/agroforestry of an additional 100,000 hectares of land by 2022, with an abatement potential of 4.8 MtCO₂e by 2030,
- Restoration of 200,000 hectares of forest on degraded landscapes (ASALs, rangelands) by 2022, with an abatement potential of 13 MtCO₂e by 2030,
- Increasing of area under private sector based commercial and industrial plantations from 71,000 hectares to at least 121,000 hectares, with an abatement potential of 1 MtCO₂e by 2030; and
- Three forest resources efficiently utilized in all counties, especially dryland forests, by 2022.

Further, actions such as financial innovations, including payments through ecosystem services and carbon markets, development of the REDD+ architecture through multi-stakeholder engagements, ecosystem-based adaptation through rangeland and forest landscape restoration and sustainable management. (sites include rangelands, woodlands/forests, wetlands, and croplands) have been prioritized.

Other priorities include:

- 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 function.
- A sustainable charcoal system promoted by encouraging the uptake of efficient kiln technologies to increase yields to 30-42% and, the establishment of a charcoal certification and eco labelling.

Agriculture

The country developed the Agricultural Sector Development Strategy (ASDS) 2010-2020 which committed the government to reform land-tenure, land use and development, and the sustainable conservation of the environment. The country also legislated land through the Land Act, Number 6 of 2012. The Act in section 4 (2) sets out values and principles of land regulation, including security of land rights, sustainable and productive management, and conservation and protection of ecologically sensitive areas. In 2013, the country developed the National Environment Policy to ensure sustainable management of the environment and natural resources, such as unique terrestrial and aquatic ecosystems, for national economic growth and improved livelihoods.

The *Kenya Climate Smart Agriculture Strategy 2017-2026*, seeks, among others, to minimise GHG emissions from these sectors. The Strategy elaborates efforts mainstream sustainable natural resource management into production systems to minimize emissions in agricultural production systems and enhance resilience of agriculture systems to climate change impacts. This involves promotion of agroforestry/farm forestry and adoption of practices that encourage inclusion of trees in the farming systems e.g. conservation agriculture with trees for reduction of emissions from deforestation and forest degradation.

Other priorities include forest conservation, sustainable management of forests and enhancement of carbon stocks, including rangelands. In addition, livestock and agriculture/agroforestry/rangelands, Nationally Appropriate Mitigation Actions (NAMAs) are developed and implemented to mainstream sustainable land management. The use of fire in rangeland and cropland management is minimized to limit emissions. Further, actions to enhance resilience include integrated soil health management to include soil nutrient management, soil and water conservation, and conservation agriculture; restoration of degraded soils and conservation of soil biodiversity; protection of riparian reserves, fish landing stations, wildlife corridors and stock routes.

The Agriculture Sector Transformation Growth Strategy (ASTGS), 2019-2029 aims towards Sustainable Agricultural Transformation and Food Security in Kenya, the Ninth Pillar of the Strategy is to promote a sustainable and resilient transformation. It recognizes managing Kenya's natural resources is at the heart of the country's ability to respond to looming food system risks including climate change and disaster management and acknowledges that addressing these challenges will not only sustainably increase agricultural production and put food on the table today, but it will also ensure that future generations of Kenyans can continue to benefit from agriculture.

The country has also made progress in ensuring sustainable management of land under agriculture through legislations and actions to minimize habitat destruction. Other than legislation and plans, the country has implemented various Programmes geared toward realization of this target. Such a Programme is the Sustainable Land Management (SLM) - Agro-Pastoral Kenya whose goal was to promote economic development, food security and sustainable land use practices while restoring the ecological integrity of the ASALs. The country is also implementing the Kenya Climate Smart Agriculture Project (KCSAP) which focuses on improving water/soil management, especially within smallholder maize systems in the marginal rainfall zones—specifically, in smallholder mixed crop-livestock, crop-livestock-tree (agro-silvo-pastoral) production systems, and in crop forest (agro-forestry) production systems; promoting sustainable, community-driven rangeland management and improved access to quality livestock services in ASALs—specifically, in pastoral/extensive livestock production systems. These efforts have immensely contributed to increasing the area under sustainable agricultural practices. Area under organic farming has increased from 78,438 Hectares in 2009 to 150,479 hectares in 2019.

Mainstreaming biodiversity and Ecosystem Services in agrarian landscapes which aims to strengthen individual and institutional capacities to increase biodiversity and manage ecosystem Services in agricultural landscapes sustainably. It focused on building capacities on integration of Ecosystem services into farming systems, identifying good practices for up scaling and sharing in Panorama platform, reviewing agriculture policies and other relevant policies to ensure agro biodiversity issues are mainstreamed.

NCCAP 2018-2022 takes cognizance of the impacts of climate change on Kenya's socioeconomic sectors. It identifies strategic areas where climate change action over the next five years will be linked to the Big Four Agenda. Under the Food and Nutrition Security Agenda, over the next five years the government shall invest heavily in securing our water towers and river ecosystems to harvest and sustainability exploit the potential of our water resources. The government shall provide, together with other actors, key enablers within the farming process that will address distribution, wastage, storage, and value-addition of agricultural commodities.

In NCCAP 2013-2017 and the SNC, the following three mitigation actions were prioritized for the agriculture sector,

- Limiting the use of fire in range and cropland management, which has mitigation potential of 0.29 MtCO_{2e} by 2030,
- Conservation tillage, which has mitigation potential of 1.09 MtCO_{2e} by 2030; and
- Agroforestry, which has mitigation potential of 4.16 MtCO_{2e} by 2030.s

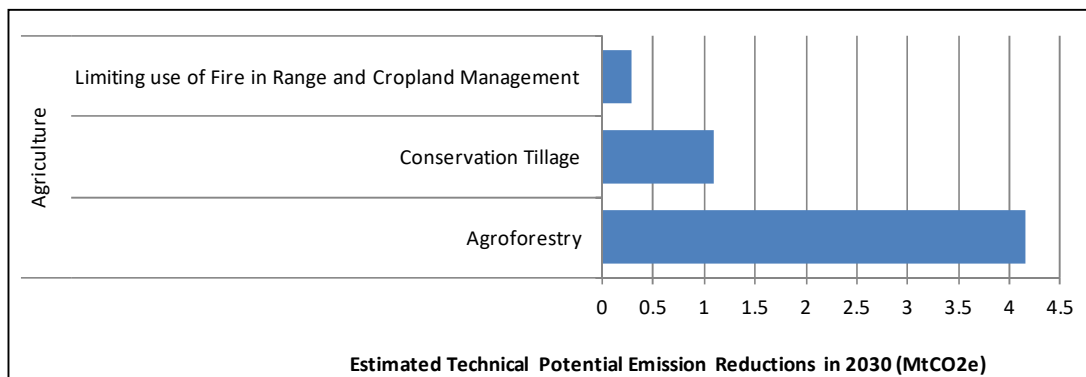


Figure 33: Technical Potential Emissions Reductions in 2030 for Agriculture Mitigation Options (MtCO₂e)

Source: Government of Kenya (2017), National Determined Contribution Sector Analysis Report

Key results include:

- Number of households and acreage under sustainable land management (SLM) increased for agricultural production;
- Support for the reclamation of 60,000 hectares of degraded land,
- Area under integrated soil nutrient management increased by 250,000 acres,
- Farm area under conservation agriculture increased to 250,000 acres, incorporating minimum/no tillage; and
- Total area under agroforestry at farm level increased by 200,000 acres.

Aquaculture

Kenya is endowed with a vast network of aquatic resources comprising freshwater lakes and rivers and an extensive ocean resource base, which provides the country with good aquaculture opportunities. Aquaculture has grown rapidly in Kenya over the last one decade and plays an increasingly important role in national fish supply. Kenya is actually ranked the fourth major producer of aquaculture in Africa with production from aquaculture systems recording a growth from 4,218 metric tonnes (MT) in 2006 to peak at 24,096 MT in 2014, representing 15% of total national fish production.

Fresh water aquaculture involves cold and warm water culture. Cold water culture involves [Rainbow trout](#) (*Oncorhynchus mykiss*) in the Mount Kenya region while warm water fishes comprises of Nile tilapia (*Oreochromis niloticus*) constituting 75%, African catfish (*Clarias gariepinus*), and other species comprising 25%. However, culture of these indigenous species has remained on experimental basis and are not widely adopted by farmers due to low survival and poor yields. Most farmers practice earthen pond based semi-intensive culture system. Commercial intensive culture of Nile tilapia (*O. niloticus*) in cages in Lake Victoria has grown significantly in the last five years with a production of 12 million kg of fish every cycle (about 8 months). Recirculation aquaculture system (RAS) is also gaining popularity mainly in intensive hatcheries. The freshwater cages have been marred by increasing frequencies of fish kills with obvious financial and environmental implications. Although limited information exists on fish disease outbreaks across the country, certain well-known diseases in farmed fish have been reported. These include fungal, mainly saprolegniasis, bacterial, mainly hemorrhagic disease and pop-eye diseases. Parasites have also been documented in farmed *O. niloticus* and *C. gariepinus*. Although prophylactic treatments are used in some hatcheries in order to prevent infections, limited biosecurity measures are in place to prevent diseases in farmed fish. This is because of inadequate knowledge of the economics of fish diseases, poor infrastructure and inadequate human resource specialized in fish diseases. This review describes the aquaculture production and health management practices of farmed fish in Kenya in order to document actions required for effective monitoring and regulation of future fish health problems across the country.⁷⁵

In the National Adaptation Plan 2015-2030, the short-term sub actions for fisheries are:

- Upscale sustainable aquaculture Initiatives

- Promote sustainable fish farming as a means of economic diversification, to reduce over-fishing in inland lakes and rivers, and adapting to climate change

The investment is strengthening the policy framework includes the aspirations in the MTP II and III, hence

- Aquaculture production increased: (see MTP III priority sectors Vision 2030)
- Number of cages for fish farming increased from 3,450 to 8,000,
- Number of fishponds increased by 16,000; and
- Number of farmers using low-carbon (recirculating) aquaculture systems increased from 20 to 180.
- Development of Blue Economy Policy
- Development of Aquaculture Guidelines and Standards,
- Development of National Maritime Spatial Plan,
- Development of Blue Economy Master Plan,
- Review of Aquaculture Policy 2011,
- Review of National Aquaculture Strategy and Development Plan,
- Development of Aquaculture Master Plan,
- Development of a Fish Marketing Strategy,
- Review of the Fisheries (Safety of Fish, Fishery Products and Fish Feed) Regulations 2007.

Indicators used in this assessment

- Trends in proportion of area of agriculture under sustainable practices
 - Areas of agricultural land under organic production
 - Areas of agricultural land under conservation agriculture
 - Proportion of agricultural area under productive and sustainable agriculture (indicator for SDG target 2.4)
- Trends in extinction risk and populations of agro-ecosystem associated species
- Trends in proportion of production of aquaculture under sustainable practices
- Trends in proportion of area of forest production under sustainable practices
- Trends in extinction risk and populations of forest-specialist species in production forest
- Others:
 - Areas of agricultural land under organic production
 - Progress towards sustainable forest management
 - Areas of agricultural land under conservation agriculture
 - Proportion of agricultural area under productive and sustainable agriculture

Case Study: Climate Smart Coffee Sector⁷⁶:

Climate Smart Agriculture for Kenya's Coffee Sector project by Nature Kenya in partnership with UTZ /Rainforest Alliance seek to customize some of the strategies applied in climate-smart farming to suit the needs in the coffee sector. Mainstreaming ensures that farming practices adapt and mitigate to meet the prevailing changing climatic conditions while improving productivity. The target was stakeholders in the coffee sector nationally, and in five coffee growing counties of Meru, Embu, Kirinyaga, Nyeri and Murang'a. Other who were roped into the program include farmers' representatives, coffee society leaders and extension service providers.

Please describe any other tools or means used for assessing progress

⁷⁵ Mary A. Opiyo, Esther Marijani , Patricia Muendo , Rezin Odede , William Leschen , Harrison Charo-Karisa 2018. A review of aquaculture production and health management practices of farmed fish in Kenya. International Journal of Veterinary Science and Medicine. Volume 6, Issue 2, December 2018, Pages 141-148. <https://doi.org/10.1016/j.ijvsm.2018.07.001>
<https://www.sciencedirect.com/science/article/pii/S2314459918300796>

⁷⁶ Climate Smart Agriculture for Kenya's Coffee Sector <http://naturekenya.org/2020/05/06/climate-smart-agriculture-for-kenyas-coffee-sector/>

The approach has been mainly through desk studies involving review of various local, national and international reports and publications. It was also partly informed by expert opinions and stakeholder inputs

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

Ecotourism Kenya 2016. Rating Certification Scheme

<https://ecotourismkenya.org/wp-content/uploads/2017/05/Ecotourism-Kenya-Eco-rating-Certification-Scheme-Sep-2016.pdf>

Fao Data

<http://www.fao.org/3/a-az251e.pdf>

Forest Report 2018

<http://www.environment.go.ke/wp-content/uploads/2018/08/Forest-Report.pdf>

Trends in forests : Coastal Kenya

https://www.researchgate.net/publication/293707302_Trends_in_forest_condition_threats_and_conservation_action_as_derived_from_participatory_monitoring_in_coastal_Kenya

Deforestation in Kenya

<https://rainforests.mongabay.com/deforestation/2000/Kenya.htm>

Status of forests in Kenya

<http://www.kenyaforestservice.org/documents/STATUS%20OF%20GAZETTED%20FORESTS%20IN%20KENYA.pdf>

Trends in organic culture

<https://orgprints.org/17933/1/kledal-et-al-2009-world-organic-agriculture.pdf>

Kenya Organic Culture Network

<https://www.koan.co.ke/wp-content/uploads/2019/07/KENYA-EOA-SECTOR-STRATEGIC-PLAN-2018-2023.pdf>

Review of Aquaculture in Kenya

Mary A. Opiyo , Esther Marijani , Patriciah Muendo , Rezin Odede , William Leschen , Harrison Charo-Karisa 2018. A review of aquaculture production and health management practices of farmed fish in Kenya. International Journal of Veterinary Science and Medicine. Volume 6, Issue 2, December 2018, Pages 141-148. <https://doi.org/10.1016/j.ijvsm.2018.07.001>
<https://www.sciencedirect.com/science/article/pii/S2314459918300796>

KEMFRI 2017. Kenya Aquaculture Brief

https://www.kmfri.co.ke/images/pdf/Kenya_Aquaculture_Brief_2017.pdf

Kenya Maritime Authority

<https://kma.go.ke/>

GOK 2018. Vision 2030 MTP III. Sector Plan for Blue Economy

<https://planning.go.ke/wp-content/uploads/2020/02/SP-7144-SECTOR-PLAN-FOR-BLUE-ECONOMY.pdf>

Ministry of Agriculture, Livestock and Fisheries Statistics.

Kilimodata. <http://kilimodata.developlocal.org/dataset/fish-production-by-water-bodies-2012-2016>

Kenya Marine Fisheries Research Institute

<https://www.kmfri.co.ke/>

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

The assessment is dependent on existing literature particularly reports based on actual field assessments. Most of the material are produced by respected authorities. However, some of the literature are not current and therefore do not reflect the current status of the indicators as they currently are. By referring to secondary data, the systematic and methodology related errors in the source documents are probably transferred to this assessment.

Milestones:

- Constitution sets 10% target for area under forest
- Sustainable forest management
- Participatory forest management/Community forest management
- Climate Smart Agriculture (climate smart technologies and practices)
- WRUAs for water resources management
- Enhanced /increased Protected areas systems
- Community conservation
- Sustainable aquaculture

Indicators for the target includes agricultural and aquaculture ecosystems under sustainable management; the proportion of products derived from sustainable sources; and trends in genetic diversity of domesticated animals, cultivated plants and fish species of major socioeconomic importance

Adequacy of monitoring information to support assessment

No monitoring system in place

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

Except for forest sector, the other thematic areas for biodiversity conservation have no clear monitoring system for target 7. Progress is mainly assessed review and integrating data from studies and assessments by multiple actors at local, national and international levels.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)

https://www.kmfri.co.ke/images/pdf/Kenya_Aquaculture_Brief_2017.pdf

Kenya Maritime Authority

<https://kma.go.ke/>

GOK 2018. Vision 2030 MTP III. Sector Plan for Blue Economy

<https://planning.go.ke/wp-content/uploads/2020/02/SP-7144-SECTOR-PLAN-FOR-BLUE-ECONOMY.pdf>

Ministry of Agriculture, Livestock and Fisheries Statistics.

Kilimodata. <http://kilimodata.developlocal.org/dataset/fish-production-by-water-bodies-2012-2016>

Kenya Marine Fisheries Research Institute

<https://www.kmfri.co.ke/>

Nature Kenya Key biodiversity Areas Programme Status and trends

https://issuu.com/nature_kenya/docs/2017_iba_report_final

Kenya Forest Working Group

<https://www.kenyaforests.org/>

4.8 TARGET 8

Target

Target 8. By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

13.03.2020

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

Article 43 of the Constitution, 2010 gives every person the right to clean and safe water in adequate quantities and reasonable standards of sanitation. Provision of these rights is a shared responsibility between the National and County Governments.

The target requires action to reduce pollution from all sources, with a particular focus on nutrient run-off and deposition from the atmosphere. There are various Policies and Acts that aim at regulating or reducing a pollution and bringing it to levels that are not detrimental to ecosystem function and biodiversity. These include EMCA ACT 2015, Agriculture Act 2013, Polluter pays principle, Water Act 2016, Fisheries Management and Development Act, 2016 (No. 35 of 2016), Wetlands policy 2013, Kenya Agricultural and Livestock Research Act, 2013 (No. 17 of 2013), Agriculture, Fisheries and Food Authority Act, 2013 (No. 13 of 2013), Kenya 10% tree cover strategy, Forest Conservation and Management Act, 2016 (No. 34 of 2016) and Wildlife Conservation and Management Act, 2013 (No. 47 of 2013).

In support of the East Africa Community (EAC) Polythene Materials Control Bill, 2016 which proposes a total ban of plastic bags in the EAC countries. Kenya has already placed a total BAN on plastic bags with effect from August 2017. The Draft Environmental Management and Co-ordination (e-Waste Management) Regulations, 2013 to restrict the prior informed consent chemicals are under consideration. Through NEMA, Kenya monitors chemical and hazardous facilities on their impact on human health and environment.

Further, Kenya is a signatory to and is implementing key conventions:

- The **Basel Convention on the Control of Trans-boundary Movement of Hazardous Waste and their Disposal. In response, Kenya** continually monitors hazardous waste at key entry points; exports several tonnes of hazardous waste for environmentally sound disposal and has also formulated waste guidelines, regulations, and strategies.
- **The Stockholm Convention on Persistent Organic Pollutants (POPS -** in pursuant to the Convention, Kenya has prepared the National Implementation Plan (NIP), supporting Policy Guidelines on Air Pollution Regulations for hazardous industrial chemicals and a Roadmap for chemical management are in place. A Chemical Policy is being developed.
- **The Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade**

Under Vision 2030, the following were achieved:

- National Solid Waste Management Strategy in 2015 developed.
- action plans on waste management and pollution levels for Mombasa, Thika, Nakuru, Eldoret and Kisumu established.

- Plastic Bags Initiative vide Gazette notice No. 2334 of March 2017 implemented
- Municipal and Industrial effluent standards within the Lake Victoria Basin harmonized.
- Sewerage treatment plants in Kisumu, Homa Bay, and Bomet Towns constructed.
- System to monitor Nutrient and Sediment Losses from Land Use and Covers in the Nyando Basin developed.

Urban rivers in Kenya remain highly polluted from dumping of solid and liquid waste including toxic chemicals. Some priority rivers that were rehabilitated included Nairobi and Sosiani Rivers. Some Achievement towards the rehabilitation of rivers were as follows:

- Approximately 270 kms of urban rivers were rehabilitated,
- Reclaimed lands along the riparian zones at the Michuki Memorial Park,
- constructed 2.5 km riverbanks embankment to stabilize them, and
- Planted 270,000 indigenous trees along Mathare, Ngong, Nairobi, and Sosiani riverbanks.

(a) Air pollution

Laws related to air pollution include Environmental Policy , 2013, Air Quality Regulations, 2014 , Kenya Standards Act, Cap 496, Kenya Standard(KS 1515): Code of Practice on Inspection of Occupational Health and Safety Act, 2007, Public Health Act, cap 242, National Transport and Safety Act, 2012 and Energy Act, 2006

(b) Fresh Water pollution

This is mainly through the interaction between river catchment and drainage basins and their impact on fresh-water bodies. There have also been changes in the sediment and contaminant loads carried by rivers and estuaries, with significant impacts on water quality and biodiversity. Blooms triggered by anthropogenic inputs of nutrient enriched waters from agricultural land, with high concentrations of nitrates and phosphates are common in Lake Victoria. Frequent discharge of pollution and nitrates from agriculture land give rise occasionally to algae blooms.

The East African Community has designated Lake Victoria and its Basin as an area of common economic interest and a regional economic growth zone to be developed jointly by the partner states. Accordingly, a joint Programme has been developed for the overall management and rational utilization of the shared resources of the Lake. Benefits include the development of infrastructure and revamping the transport system on and around the Lake. LVBC has completed the following development projects in Kenya under LVWATSAN II Keroka Water Supply; Homa Bay Sewerage Treatment; Kisumu Sewerage Treatment and Kisumu Water Quality Laboratories.

LVEMP is a regional project under EAC implemented in phases by partner states and coordinated by the LVBC. The project is meant to improve collaborative management of the trans-boundary natural resources of the Lake Victoria Basin among the partner states. Secondly, to improve environmental management of targeted pollution hotspots and selected degraded sub-catchments for the benefit of communities that depend on the natural resources of the Lake Victoria Basin. LVEMP I and II are complete whereas preparations for LVEMP III are on-going.

Programmes and Projects being implemented in the basin include the strategy to manage water hyacinth, improved sanitation across the basin, rehabilitation of catchments, community development projects, among others implemented by LVBC is the Lake Victoria Environmental Management Program LVEMP I, II and III as well as the Lake Victoria Water and Sanitation (LVWATSAN) I and II Project, under the Focal Point Ministry.

(c) Marine Pollution

The major threats on coastal and marine biodiversity including pollution by effluent and solid waste, eutrophication, permanent alteration and destruction of habitats, invasive species as well as climate variability and adverse weather patterns. The key sources of pollution affecting coastal and marine environments are industrial discharge and oil spills, while sewage discharge and agricultural activities lead to nutrient enrichment of water bodies resulting in loss of biodiversity. In most of the larger coastal urban centers and their suburbs, the use of septic tanks soak pits, pit latrines and open drains is prevalent due to lack of sufficient sewage disposal systems resulting in the contamination of surface as well as ground water. Solid waste management systems are inadequate. The situation is made worse by the

increasing use of non-biodegradable plastics that end up in the environment as microplastics threatening the health of wildlife and human beings. Large areas of land have been permanently altered by clearing of natural vegetation for agriculture, salt manufacture, mining, and extraction of construction materials without any plans for rehabilitation. The loss of natural vegetation and useful land to invasive plants pose significant risks on livelihoods and the environment, while variations in weather patterns constitute a serious threat to the region's natural environment and the economic and physical systems in which sustainable development and prosperity depends.

Pollution of coastal and marine water quality as a result of inputs from various point and non-point sources, from municipal and industrial discharges, surface run-off, leachates, and dumping of solid wastes are widespread issues of concern throughout the region. Wastewater containing high levels of inorganic nutrients (e.g. nitrogen and phosphate) or a high organic content (with high biological or chemical oxygen demand, BOD or COD) can also contribute towards eutrophication. Other aspects include hydrocarbon pollution, litter particularly plastic litter which also affects biota, as indicated by the levels of plastics in the Stomachs and solid waste and industrial effluents.

The Kenyan government banned "the use, manufacture and importation of all plastic bags used for commercial and household packaging" in February 2017. Different organizations both government (Kenya Wildlife Service and Kenya Marine and Fisheries Research Institute) and Non-governmental organizations (Watamu Marine Association) are working on marine debris projects aimed at understanding the sources and effects of marine litter, the effects of policies and other actions and enhancing public awareness on marine litter pollution on the coastal area.

Soil/land pollution

Soil pollution by pesticides and other agrochemicals, industrial effluents and soil contamination with toxic material, salinization/ alkalinization which causes a net increase of salt content of (top) soil leading to a productivity decline. It is estimated that one-sixth of total arable land in Kenya has been polluted by contaminants. Kenya's demand for agrochemicals has been increasing as the result of a rapid expansion of the agricultural sector. The Pest Control Products Board (PCPB) reports the number of registered and banned pesticides in Kenya based on the international conventions signed by the Kenyan Government (see Fig 32). These registered pesticides are classified into four categories: products for use in crop protection, public health, animal health, and technical grade materials for formulation purposes. Kenya imports insecticides for commercial purposes alone (such as floriculture farms in greenhouse) including fumigants, rodenticides, growth regulators, defoliant, proteins, surfactants and wetting agents. ^{ZZ}

^{ZZ} Loha K.M., Lamoree M. , Weiss J.M. and Boer J. 2018. Import, disposal, and health impacts of pesticides in the East Africa Rift (EAR) zone: A review on management and policy analysis. *Crop Protection*. Volume 112, October 2018, Pages 322-331. <https://doi.org/10.1016/j.cropro.2018.06.014>
<https://www.sciencedirect.com/science/article/pii/S0261219418301698#bib43>

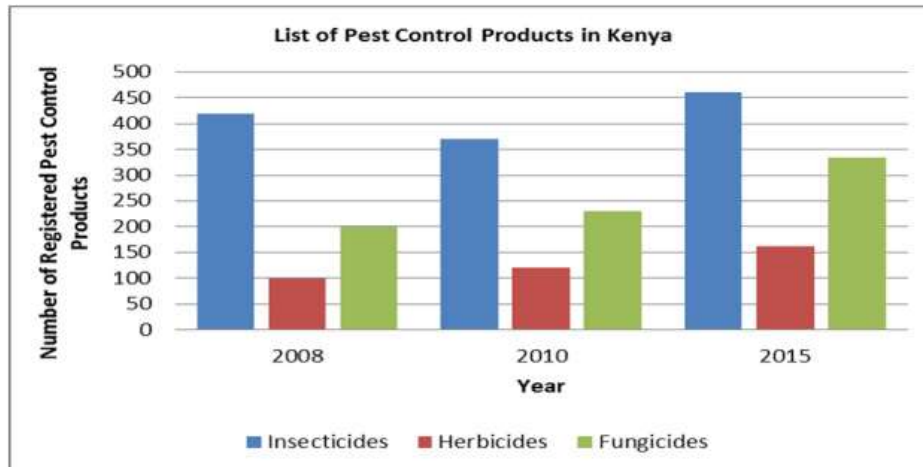


Figure 34: trends in pest control products in Kenya

(Source Loha et.al 2018)

With the heavily used of chemicals such as pesticides various studies carried out in Kenya have confirmed the presence of Persistent Organic Pollutants (POPs) in the environment. These pollutants are one of the causes for the rise of cancer and other diseases cases in Kenya. Tea and coffee estates deposit pesticides, herbicides, and fertilizers in soil because of regular usage. 400 tonnes of pesticides and fertilizers are released every year to the environment from farming activities. These include Agricultural activities (use of organic fertilizers) and Flower Farm and Influx of municipal effluents.

The periodic draining of wastewater ponds in fish farms is another source of nutrient enrichment as this water is rich in phosphates, nitrates and organic matters and may also contain pathogens, antibiotics and pesticides, and can cause eutrophication and harmful algal blooms agricultural activities around dumpsite and sewage area and use.

Case study:

The Mara River Basin is home to one of the most famous tourist destinations in the world: the great wildebeest migration. The globally unique spectacle is completely and utterly reliant on a variable and naturally functioning Mara River Basin. Without the ebb and flow of the Mara River, the great wildebeest migration would cease to exist as we know it. This is just one single example of how the Mara River Basin is the blue heart of Kenya and Tanzania, supporting their economy and society. Although home to only 1.4% of the Kenyan population and 0.7% of the Tanzanian population, "the MRB supports some of the most profitable economic activities in Kenya and Tanzania including tourism, agriculture and mining which collectively contribute between 10-15% to both countries' Gross Domestic Product (GDP)." The delicate natural balance in the MRB that supports the society and economies of Kenya and Tanzania is facing a future that puts the river at risk. Risks range from land-use change in the upper catchment, pollution in the river system and development of infrastructure such as dams, hydropower, irrigation or water supply that may undermine the natural variation in the river flows.

Other risks include extreme climate and variable hydrology in the Mara in the future, as a result of climate change is a major risk for the future of the ecosystems that support the economy and society of Tanzania and Kenya. The Mara Basin has undergone large changes in land cover, particularly in the upper basin covered by the Mau Forest where forests and savannah grasslands have been cleared and turned into land for agriculture and human settlement. In the Amala sub-catchment, the area under cultivation increased from less than 20% in 1960 to more than 51% in 1994. The expansion of agricultural land and therefore subsequent loss of forest has caused increased siltation in the basin (alongside other drivers). This has reputedly caused an increase in the area of the Mara Wetland (387%), causing flooding.⁵ Erosion is also a challenge in the upper catchment of the Mara Basin, where agricultural expansion plans are continuing and growing (tea plantations, irrigated wheat, maize, French beans, cotton). Furthermore, there has been progressive sub-division of land holdings, creating less economic units and reducing small holder farmers to subsistence level⁶.

Water shortages in the Masai Mara and Serengeti may also result in the failure of the wildebeest migration, or perhaps the death of wildlife. This might have a detrimental impact on tourism, a major source of income and employment in the Mara Basin. A significantly low flow in the Mara may result in the water level being too low for the migration of fish into the Mara Wetland, creating challenges for the fisheries sector. The economic and development benefits of additional infrastructure in the Mara River Basin need to be weighed against the benefits of a natural, free-flowing river. These benefits might include tourism from viewing wildlife, food from croplands, fuelwood harvested from forests and shrub lands, grazing from grasslands and shrub lands, water collected from rivers and sewage treatment by rivers. In Bomet for example, the natural capital benefits from the Mara River is estimated to be KES 102 billion per year. This amount pales in significance compared to the total county budget in 2017/18 which was KES 5.6 billion. In Narok, the situation is no different. Narok natural capital benefits from the river is estimated to be KES 129 billion per year, while the Narok county budget in 2016 was KES 9.8 billion.

High sediment due to erosion is non-point source of pollution causing challenges across the basin. Soil erosion prone areas within the basin include the upper catchment due to forest clearing, intensification of agricultural activities and cultivation along the riverbanks and in the grassland zone of the lower reaches due to overstocking of livestock. In addition to soil erosion, pollution from high fertilizer is a challenge in the tea-producing region as indicated by total dissolved Nitrogen (TDN), dissolved organic nitrogen (DON), ammonium (NH₄⁺) and phosphates (PO₄³⁻) being all much higher at Silibwet, a site on the Nyangores River. Urban settlements within the upper Mara catchment including Bomet town, Tenwek Missionary Hospital Community, and Mulot Trading Centre are sources of point source pollution due to lack proper sewerage systems and well organised solid waste collection and disposal practices. Another source of point pollution is mining. On the Tanzania side small- and large-scale gold mining activities rely on toxic chemicals, such as cyanide, arsenic and mercury which can end up in the Mara River. Water used in the operations of the North Mara Mine is pumped directly out of the Mara River to be used in the mining process. While the Mine recycles the resulting waste water back into the mining process, the waste water is not sufficient for all processes as there needs to be a continuous supply of clean water to aid in the gold washing cycle, as well as a supply of water used in the operation of the facility.

https://www.wwfkenya.org/knowledge_hub/our_publications_/?230550/Healthy-Mara-river-is-critical-to-Kenya-and-Tanzania

Indicators used in this assessment

CBD indicators

- Trends in pollutants
 - Trends in emissions, SOX
 - Trends in Emissions, POPs
 - Trends in mercury emissions
 - Trends in pesticide use
 - Index of Coastal Eutrophication (ICEP) and Floating Plastic debris Density (indicator for SDG target 14.1)
 - Mortality rate attributed to household and ambient air pollution (indicator for SDG target 3.9)
 - Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe WASH services) (indicator for SDG target 3.9)
 - Trends in Mortality rate attributed to unintentional poisoning (indicator for SDG target 3.9)
- Trends in extinction risk and populations driven by pollution
 - Red List Index (impacts of pollution)
- Trends in ecosystems affected by pollution
 - Water Quality Index for Biodiversity
- Trends in nutrient levels
 - Trends in nitrogen deposition
 - Trends in loss of reactive nitrogen to the environment
 - Proportion of bodies of water with good ambient water quality (indicator for SDG target 6.3)
 - Percentage of wastewater safely treated (indicator for SDG target 6.3)

Others may include:

Developing specific interventions to monitor and combat the impacts of pollution, with the main focus on the progress

- Water quality assessment – sediment loads, nitrates, phosphorous, dissolved oxygen and pH/effluents
- Monitoring /sediment/nutrient loads in rivers and lakes/oceans
- Mapping areas (Oceans), Socio-economic survey
- Extension – better farming system- climate smart agriculture, forestry
- Reforestation efforts Conservation area
- Integrated pest management (IPM)

Or

- Pollution deterrent legislation
- Water quality regulations and solid waste management regulations in place.
- Environmental standards
-

Please describe any other tools or means used for assessing progress**Tools**

- Water quality assessment monitoring
- nitrogen deposition and water quality in marine and freshwater ecosystems.
- Ecological Footprint and related concepts,
- total nutrient use,
- nutrient loading in freshwater and marine environments,
- and the incidence of hypoxic zones and algal blooms
- EMCA ACT 2015
- Agriculture Act 2013
- Polluter pays principle
- Water Act 2016

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

NEMA – Stockholm Convention on POPs

<http://meas.nema.go.ke/pops/>

Stockholm Convention National Implementation Plan 2012-2019

<http://chm.pops.int/Countries/CountryProfiles/tabid/4501/Default.aspx>

WASREB Reports

https://wasreb.go.ke/downloads/WASREB_Impact_Report11.pdf

SAICM

<https://ipen.org/country/kenya>

Case Study - WWF Mara Basin Report 2019.

https://wwf.panda.org/wwf_news/?353152/Healthy-Mara-river-is-critical-to-Kenya-and-Tanzania

https://d2ouvy59p0dg6k.cloudfront.net/downloads/mara_river_to_the_society_and_economy_of_kenya_and_tanzania_.pdf

Air Pollution

- https://ipen.org/sites/default/files/documents/4ken_kenya_waste_burning_and_incineration-en.pdf
- https://www.who.int/quantifying_ehimpacts/national/countryprofile/en/

- <https://openei.org/wiki/REEGLE - Clean Energy Information Gateway>

Threats facing the lake Victoria include eutrophication.

- http://catalogue.serviglobal.net/Product?product_id=74
- https://www.researchgate.net/publication/229614461_Observations_on_blue-green_algal_blooms_in_the_open_waters_of_Lake_Victoria_Kenya
- <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2028.1989.tb00925.x>
- https://www.researchgate.net/publication/223093435_Estimation_of_water_pollution_sources_in_Lake_Victoria_East_Africa_Application_and_elaboration_of_the_rapid_assessment_methodology
- <https://www.oceandocs.org/bitstream/handle/1834/6938/ktf0012.pdf?sequence=1&isAllowed=y>

Marine Pollution

State of the Coast Report

Government of Kenya (2017) State of the Coast Report II: Enhancing Integrated Management of Coastal and Marine Resources in Kenya. National Environment Management Authority (NEMA), Nairobi. http://www.nema.go.ke/images/Docs/REPORTS/SOC%202nd%20Edition%20final%20report_19%2010%202017.pdf

Others

- <https://www.oceandocs.org/bitstream/handle/1834/7173/ktf0172.pdf?sequence=1&isAllowed=y>
 - <https://www.unenvironment.org/news-and-stories/story/ocean-trash-treasure-tackling-plastic-pollution-kenyas-coast>
 - https://commons.wmu.se/cgi/viewcontent.cgi?article=1935&context=all_dissertations
 - https://www.researchgate.net/publication/286691957_Sewage_pollution_in_the_Coastal_waters_of_Mombasa_City_Kenya_A_norm_Rather_than_an_Exception
- <https://iwlearn.net/resolveuid/40b7d227-fe2c-4472-b632-164f7727b852>

Soil and Agriculture Pollution

<http://www.environment.go.ke/wp-content/uploads/2018/08/LADA-Land-Degradation-Assessment-in-Kenya-March-2016.pdf>

Ministry of environment and mineral resources, M., 2008. Chemical Information Exchange Network-Kenya.[Online]Available at: http://www.estis.net/sites/kenya/default.asp?site=kenya&page_id=30D06175-5173-429F-842A-C3248BD4C519[Accessed 16 November 2016].

International POPs Elimination, P., 2005. A Study on Waste Incineration Activities in Nairobi that Release Dioxin and Furan into the Environment, NAIROBI: Environmental Liaison, Education and Action for Development (ENVILEAD).

Sammy Koskei, Yuanyuan Cheng, Wei-lin Shi (2017) Critical Review of the Current Status of Soil Contamination in Kenya. International Journal of Environmental Monitoring and Analysis 2017; 5(2): 14-24

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

The assessment 'is based on partial evidence' from journal paper of localized studies in the country

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

Monitoring in place for Stockholm, SAICM and Mercury Conventions.

University of Nairobi (UoN) monitoring

NEMA Monitoring

WASREB monitoring

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)

NEMA

<http://meas.nema.go.ke/pops/>

WASREB

https://wasreb.go.ke/downloads/WASREB_Impact_Report11.pdf

UON

http://ccbasiilea-crestocolmo.org.uy/wp-content/uploads/2019/05/Capacity-of-POPs-monitoring_Kenya-C.-Mirikau.pdf

<https://www.cbd.int/doc/strategic-plan/strategic-plan-indicators-en.pdf>

4.9 TARGET 9

Target 9:

By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled ore eradicated and measures are in place to manage pathways to prevent their introduction and establishment of invasive alien species

Target 9

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

12/3/2020

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

Kenya has developed and enacted several policy and legal instruments related to prevention and control of invasive alien species. These include: National Environment Policy 2013 (Pg. 36), National Strategy and Action Plan for the Management of Invasive Species in Kenya, The Plan Health Protection Act Cap 324, Agriculture, Fisheries and Food Authority Act. No. 13 of 2013, Environmental Management and Coordination Act 1999 (amendment 2015), Wildlife Conservation and Management Act 2013, and Forest Conservation and Management Act 2016, and Fisheries Management and Development Act 2016. Further, NEMA has prepared guidelines on Prevention of Invasive Alien Species; Early Detection, Rapid Response and Eradication; Control and Control strategies⁷⁸.

The Wildlife Conservation and Management Act (WCMA, 2013). Part VI- CONSERVATION, PROTECTION AND MANAGEMENT, defines “invasive species” to mean a non-indigenous species trans-located to a place outside its natural distribution range in nature and which dominates other indigenous species or takes over the habitat. The seventh schedule on invasive species lists 1 mammal, 7 reptiles and amphibians, 17 birds, 10 plants and 1 invertebrate. Not listed in the schedule is the now fast spreading noxious weed *Parthenium hysterophorus* that has been documented to threaten biodiversity because of its aggressive dominance. Also missing is the top-level predator Nile Perch (*Lates niloticus*) which has caused extinction or near extinction of several hundreds of native fish species in Lake Victoria. It was introduced in the lake in the late 1950's⁷⁹.

Prevention and Detection.

Some of the common Alien invasive species in Kenya include water hyacinth (*Salvinia molesta*), *Striga* weed, *Prosopis juliflora*, *Azola* species, *Pistia stratoites*, Nile Perch, Indian house crow, Stem borer, Cyprus aphid among others. A total of 97 invasive species are documented for Kenya on the Global Invasive Species Database⁸⁰. Further CABI has documented the invasive alien species in Kenya and the East African region, with database and descriptions available on the GBIF website⁸¹ and CABI invasive species Compendium⁸² as well as Publication of the Guide to the naturalized and invasive plants of Eastern Africa⁸³.

The Kenya Plant Health Inspectorate Service (KEPHIS) ensures that the introduction of plant pests, diseases and noxious weed into Kenya is prevented or delayed. All phytosanitary measures are based on international standards as in International Plant Protection Convention (IPPC) and World Trade Organisation (WTO) Agreement on Sanitary and Phytosanitary (SPS) regulations and guidelines. The Plant Protection Act (CAP 324), the suppression of Noxious weeds (Cap 325) and the Agricultural produce (Export) Act (Cap 319) provide the legal framework through which the authority carries out phytosanitary regulation service. KEPHIS as the secretariat to the Kenya Standing Technical Committee on Imports and Exports (KSTCIE), facilitates the process of risk assessment before introduction of live organisms as per Guidelines for Introduction and Use of Bio Products, biological control agents and related products. These include live biological controls, bio- fertilizers, bio-stimulants, organic fertilizers, their products and other regulated articles. Once risk assessment is complete, products approved for introduction are referred to relevant research institutions for efficacy or registration. Application of importation of genetically modified organism (GMOs), are considered by Kenya National Biosafety Committee (NBC) which draws experts from National Council of Science and Technology, Ministry of Agriculture, KEPHIS, local universities, environmental pressure groups, local and international research institutes. KEPHIS enforces the regulations and guidelines for safety in biotechnology as stipulated by the NBC⁸⁴.

Control

The stages of the biological invasions and the potential management strategies for each stage are outlined in the table below.

Table 7: IAS pathways

Stage of invasion	Management Strategy
Arrival	Risk analysis , International standards , Inspection
Establishment	Detection, Eradication

⁷⁹ KWS 2017: National Wildlife Conservation Status Report 2015-2017. <http://www.kws.go.ke/content/status-wildlife-report-2015-2017>

⁸⁰ Global Invasive Species Database. <http://issg.org/database/species/search.asp?st=sss&sn=&rn=Kenya&ri=19372&hci=-1&ei=-1&fr=1&sts=&lang=EN>

⁸¹ CABI Africa Invasive and Alien Species database <https://www.gbif.org/dataset/23ec2d04-c0eb-4ca4-afb8-a8710e38f641>

⁸² CABI Invasive Species Compendium. <https://www.cabi.org/isc>

⁸³ Witt A and Luke Q. 2017. Guide to naturalized and invasive species of Eastern Africa. CABI <https://www.cabi.org/cabebooks/ebook/20173158959> or <https://www.cabi.org/cabebooks/FullTextPDF/2017/20173158959.pdf>

⁸⁴ KEPHIS <https://www.kephis.org/index.php/2014-03-25-12-07-38/2014-04-01-09-57-26?start=1> visited -19-05-2020

Spread	Quarantine, Barrier zone
Impact	Suppression, Adaptation

Adopted from Tobin (2018) file:///C:/Users/Hp/AppData/Local/Temp/KenyaSoECh4_a.pd

Key players include the Kenya Agriculture and Livestock Research Organization (KALRO), Ministry of Agriculture, Kenya Wildlife Service and the National Museums of Kenya. Kenya Wildlife Services have also identified invasive alien species in protected areas⁸⁵ and developed a strategy on IAS management and control. CABI working with key stakeholders have developed a guide to the naturalized and invasive species of Laikipia⁸⁶. There have been various projects especially on point source pollution and eradication of the water hyacinth in Lake Victoria through the three phases of the Lake Victoria Environment Management Programme (LVEMP)⁸⁷ among others.

The overall measures put in place to control invasive species in Kenya have achieved modest results. The main areas of concern have been the control of *Opuntia* sp., *Prosopis* and water hyacinth. Biological control measures on *Opuntia* has recorded some achievements in Laikipia county *O. stricta*, a native plant of South America, is causing problems for people, domestic animals as well as wildlife. It was introduced in Kenya as an ornamental plant but has since invaded community lands. Scientists are now using a bio-control method in the area to destroy the weed. They have introduced a sap-sucking bug called *Dactylopius opuntiae*, commonly known as cochineal. It was imported from South Africa where it is being used to control the cactus weed in Kruger National Park.

The Indian House Crow Control strategy has been developed by the national House Crow Control Committee in 2018. Indian House Crow control received approval permits to selectively use Starlicide. A survey is ongoing to assess House Crow numbers and locations with teams engaged in Coast and Tsavo to start the control trials. (Ref. Bird Committee Minutes 10th March 2020)

East Africa Community Protocol for the Sustainable Development of Lake Victoria Basin

The Protocol establishes the Lake Victoria Basin Commission (LVBC) with its headquarters based in Kisumu, Kenya. Currently, the EAC has allocated funds to construct the headquarters of LVBC in the land allocated by the Government of Kenya. The objectives and broad functions of the Secretariat is to promote, co-ordinate and facilitate development initiatives within the Lake Victoria Basin.

LVEMP is a regional project under EAC implemented in phases by partner states and coordinated by the LVBC. The project is meant to improve collaborative management of the trans-boundary natural resources of the Lake Victoria Basin among the partner states. Secondly, to improve environmental management of targeted pollution hotspots and selected degraded sub-catchments for the benefit of communities that depend on the natural resources of the Lake Victoria Basin. LVEMP I and II are complete whereas preparations for LVEMP III are on-going.

Programmes and Projects being implemented in the basin include the strategy to manage water hyacinth, improved sanitation across the basin, rehabilitation of catchments, community development projects, among others implemented by LVBC is the Lake Victoria Environmental Management Program LVEMP I, II and III as well as the Lake Victoria Water and Sanitation (LVWATSAN) I and II Project, under the Focal Point Ministry.

LVBC has completed the following development projects in Kenya under LVWATSAN II Keroka Water Supply; Homa Bay Sewerage Treatment; Kisumu Sewerage Treatment and Kisumu Water Quality Laboratories.

In the Lake Victoria, the control of the water hyacinth has been elusive due to the seasonality of the hyacinth and inadequate coordination of Programmes on the Lake Victoria catchment area to reduce on the nutrient flows into the lake.

⁸⁵ KWS Alien Invasive Species <http://www.kws.go.ke/content/priority-ecosystems-and-species>
⁸⁶ Witt, A. Guide to the naturalized and invasive species of Laikipia. <https://www.cabi.org/isc/FullTextPDF/2017/20173158960.pdf>
⁸⁷ LVEMP II <https://www.lvbcom.org/node/48>



Figure 35: Fishermen struggle to wade through the hyacinth filled Lake Victoria.

(The Standard Source⁸⁸.)

Case study: *Prosopis juliflora* - The devastating spread of the woody weed *Prosopis juliflora* in Baringo County, Kenya

Prosopis was introduced in Baringo County in 1982 as part of the Fuelwood Afforestation Extension project to help reduce soil erosion, provide fodder for livestock and help reduce the effects of dust storms. But the species, whose spread can be explained by a number of different factors, including dispersal of seed by livestock and wildlife and extreme climatic events such as the floods of 2013, soon became unmanageable due to their fast proliferation and ability to survive cutting by coppicing. Its' coverage rapidly increased by 2,031 percent in just 28 years as it increased from 882 ha in 1988 to 18,792 ha in 2016. This IAS can only be managed through an integrated management approach based on a combination of chemical, biological and mechanical control measures to reduce density of a weed in the invaded range and to slow down or stop its spread into non-invaded areas.

Figure 36 shows the expansion in range using a combination of dry and wet season **Landsat** satellite data, acquired in a seven-year time interval between 1988 and 2016 and performed a supervised Random Forest classification, to assess the impact of *Prosopis* on land use and land cover (LULC) in the local environment, and its associated impact on (agro)-pastoral livelihoods. In parallel to the striking increase in *Prosopis*-dominated land, LULC classes important for rural people's livelihoods experienced serious losses: grasslands were reduced by 86 percent, irrigated cropland by 57 percent, natural shrubland by 42 percent and rainfed cropland by 37 percent. ⁸⁹

⁸⁸ <https://www.pulse.com.gh/bi/politics/eala-now-takes-issue-with-kenyas-idle-water-hyacinth-harvester-worth-sh81-million/3dks6yb>

⁸⁹ CABI Press Release <https://landsat.gsfc.nasa.gov/containing-a-woody-weed-in-kenya/>

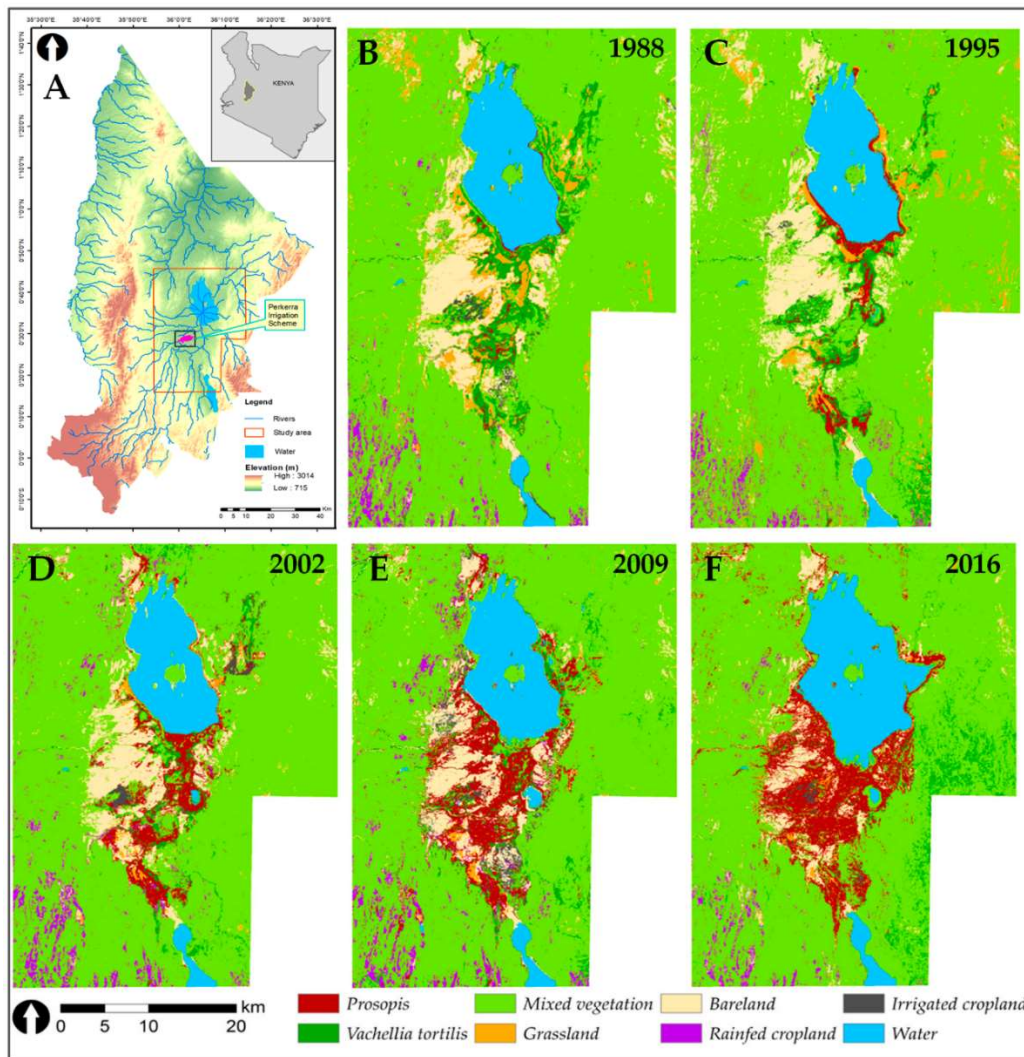


Figure 36: Trends in *Prosopis juliflora* in Baringo. This series of maps show the study area and the Landsat-mapped spread of *Prosopis* in the Marigat subregion of Baringo County, Kenya from the 1988 to 2016.

(Source⁹⁰).

Indicators used in this assessment

CBD indicators

- Trends in identification and prioritization of invasive alien species
- Trends in the distribution and populations of invasive alien species
- Trends in eradication of priority invasive alien species
- Trends in extinction risk and populations driven by invasive alien species impact
- Trends in impacts of invasive alien species on ecosystems
- Trends in the numbers of invasive alien species introduction and establishment event

⁹⁰ Mbaabu, P.R., Ng, W.-T., Schaffner, U., Gichaba, M., Olago, D., Choge, S., Oriaso, S., Eckert, S. 2019. [Spatial evolution of *Prosopis* invasion and its effects on LULC and livelihoods in Baringo, Kenya. Remote Sensing](https://landsat.gsfc.nasa.gov/wp-content/uploads/2019/06/figure1-CABI-pressrelease.png), DOI: 10.3390/rs11101217 (from <https://landsat.gsfc.nasa.gov/wp-content/uploads/2019/06/figure1-CABI-pressrelease.png>)

- Trends in implementation of policy responses preventing the introduction and establishment of invasive alien species

Please describe any other tools or means used for assessing progress

KEPHIS datasets, KWS datasets

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

NEMA 2011. Integrated National Land Use Guidelines. <http://www.nema.go.ke/images/Docs/Guidelines/national%20landuse%20guidelines-nema.pdf>
 Global Invasive Species Database. <http://issg.org/database/species/search.asp?st=sss&sn=&m=Kenya&ri=19372&hci=-1&ei=-1&fr=1&sts=&lang=EN>
 CABI Africa Invasive and Alien Species database <https://www.gbif.org/dataset/23ec2d04-c0eb-4ca4-afb8-a8710e38f641>
 CABI Invasive Species Compendium. <https://www.cabi.org/isc>
 Witt A and Luke Q. 2017. Guide to naturalized and invasive species of Eastern Africa. CABI <https://www.cabi.org/cabebooks/ebook/20173158959> or <https://www.cabi.org/cabebooks/FullTextPDF/2017/20173158959.pdf>
 KEPHIS <https://www.kephis.org/index.php/2014-03-25-12-07-38/2014-04-01-09-57-26?start=1> visited -19-05-2020
 KWS Alien Invasive Species <http://www.kws.go.ke/content/priority-ecosystems-and-species>
 Witt, A. Guide to the naturalized and invasive species of Laikipia. <https://www.cabi.org/isc/FullTextPDF/2017/20173158960.pdf>
 LVEMP II <https://www.lvbcom.org/node/48>
 KWS 2017: National Wildlife Conservation Status Report 2015-2017. <http://www.kws.go.ke/content/status-wildlife-report-2015-2017>

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

<Text entry>

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue).

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

Monitoring is undertaken by KEPHIS, NEMA, KWS

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)

CABI Africa Invasive and Alien Species database <https://www.gbif.org/dataset/23ec2d04-c0eb-4ca4-afb8-a8710e38f641>
 CABI Invasive Species Compendium. <https://www.cabi.org/isc>
 Witt A and Luke Q. 2017. Guide to naturalized and invasive species of Eastern Africa. CABI <https://www.cabi.org/cabebooks/ebook/20173158959> or <https://www.cabi.org/cabebooks/FullTextPDF/2017/20173158959.pdf>

KEPHIS <https://www.kephis.org/index.php/2014-03-25-12-07-38/2014-04-01-09-57-26?start=1> visited -19-05-2020
 KWS Alien Invasive Species <http://www.kws.go.ke/content/priority-ecosystems-and-species>
 KWS 2017: National Wildlife Conservation Status Report 2015-2017. <http://www.kws.go.ke/content/status-wildlife-report-2015-2017>

4.10 TARGET 10

Target 10

By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

13.03.2020

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

Kenya's coral reefs cover an area of approximately 639 km², and can be differentiated into two regions: the southern reef is an almost continuous fringing reef system from Malindi south to Vanga bordering Tanzania; the northern reefs are discontinuous patchy and fore reef slopes from Lamu to the border with Somalia, along the barrier islands of the Bajuni Archipelago. A survey in 2012 showed 239 species in southern reefs, 203 in Lamu and 177 in Kiunga in the north⁹¹.

These reefs have been under threats from a variety of stressors including overexploitation, nutrient pollution, use of destructive fishing methods and more recently, their sustainability is being put at risk by global climate change. Long-term monitoring has been pursued by Kenyan institutions since 1998/99, to follow the trends and status of corals and fish populations at a country level⁹².

Kenya has a wide variety of national coastal and marine environmental legislation that goes back several decades to the 1960s and before, that provide a strong legal base for management of marine and coastal resources. This includes the Fisheries Act has recently been updated (2016), EMCA Act 2015, Agriculture, Fisheries and Food Authority Act, 2013 (No. 13 of 2013), Water Act 2016, Fisheries Management and Development Act, 2016 (No. 35 of 2016), Wetlands Policy 2013, Forest Conservation and Management Act, 2016 (No. 34 of 2016 and Wildlife Conservation and Management Act, 2013 (No. 47 of 2013).

⁹¹ Obura, D.O. (2012) The Diversity and Biogeography of Western Indian Ocean Reef Building Corals. PLoS ONE 7(9): e45013. doi:10.1371/journal.pone.0045013.
https://www.researchgate.net/publication/231815081_The_Diversity_and_Biogeography_of_Western_Indian_Ocean_Reef_Building_Corals

⁹² Jelvas Mwaura, Juliet Karisa, Mohamed Omar Said, Mike Olendo, Jillo Katello, Harrison Onganda, Judith Nyunja, Rose Ambae, Dishon Murage, Stephen Mussembe, David Obura, James Kamula, Noah Ngiasange Stephen Katua. 2017. In: David Obura, Mishal Gudka, Fouad Abdou Rabi, Suraj Bacha Gian, Jude Bijoux, Sarah Freed, Jean Maharavo, Jelvas Mwaura, Sean Porter, Erwan Sola, Julien Wickel, Saleh Yahya and Said Ahamada 2017. Coral reef status report for the Western Indian Ocean (2017). Pages 60-69. Global Coral Reef Monitoring Network. <https://www.icriforum.org/sites/default/files/COI%20REEF%20LR%20F2.compressed.pdf>

Kenyan coral reefs have an average hard coral cover of 18%, with fleshy algae at 34%, across a range of healthy and degraded reefs. Fully protected reef lagoons have higher hard coral cover (15-40%), focal fish species abundance (>100 indiv./ha) and less algal cover (40%), and high coral rubble cover (>10%).

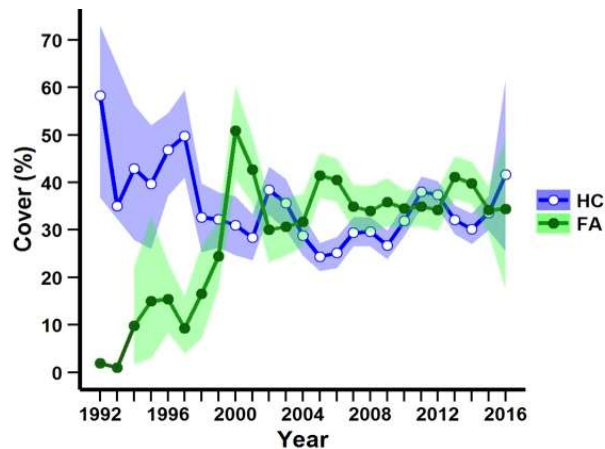


Figure 37: Trend in mean hard coral cover (blue line, open circles) and fleshy algae (green line, closed circles) in Kenya (coloured shaded areas represent 95% confidence limits of the mean).

Source⁹³

A number of policy processes have also been undertaken to improve protection of coral reefs and associated ecosystems. A National Coral Reef Task Force was developed in 2009 under the Regional Coral Reef Task Force (CRTF) of the Nairobi Convention. A Coral Reef and Seagrass Ecosystems Conservation Strategy Plan (2014) was launched for 2015-2019. To reduce the fragmentation among different institutions and their mandates that affect coral reefs, the Integrated Coastal Zone Management (ICZM) Action Plan and Coral Reef and Seagrass Strategy provide ways to bridge the gaps.

Historically, management of coral reefs in Kenya has been the domain of central government, with a network of 4 marine parks (fully protected) and 6 marine reserves (partially protected, allowing traditional fishing) under the management of Kenya Wildlife Service (KWS). In recent years, coastal fishing communities have embraced the concept of community-based conservation and established 12 demarcated CCAs (the local term for Locally Managed Marine Areas, LMMAs), to enhance sustainable fisheries and other livelihood options such as eco-tourism. Key interventions include:

- Project on adaptive management of coral reef in 5 MPAs through a project funded by the Western Indian Ocean Marine Science Association (WIOMSA), Marine for Science Management Program (MASMA).
- Implementation of the National Coral Reef and Sea Grass Ecosystem Conservation and Management Strategy (2014 –2018) supported by the Kenya Coast Development Project (KCDP). The goal of the strategy is to maintain and restore the ecological integrity of coral reef and sea grass ecosystems through improved research and management in partnership with stakeholders. The KCDP project supported the following activities in Kenya's MPAs: monitoring and information management; enhancing stakeholder awareness and participation; and enhancing capacity for coral reef and seagrass ecosystems conservation.
- Development of Management plans 3 coral reef MPA These include: Kisite/Mpunguti, Malindi and Watamu Marine Protected Area Management Plans (2015 -2025. Kenya Wildlife Service will be responsible for implementing these plans.
- Development of the National Mangrove Ecosystem Management Plan also supported by the KCDP project. This is a 10-year management plan spanning from 2017 –2027 period; and with an estimated implementation budget of KES 3.8 billion. The implementation of the Plan will take cognizance of various principles including integrated ecosystem approach, gender parity, participatory management and equity among others.

⁹³ <https://cordioea.net/wio-monitoring/gcrmnwio2017/>

- The ministry of environment through the Kenya Forest Service (KFS) will coordinate this. The main sources of finance will come from the Ministry of Environment and Natural Resources

Coral bleaching:

In 1998, reefs along the entire coast of Kenya suffered widespread bleaching and mortality of corals that reduced hard coral cover to almost 8% (See Fig. 36). Recovery of Kenya reefs from the 1998 coral bleaching event was slow, with cover remaining at 8-10% from 1999 to 2003, following which cover increased slowly to today's level.

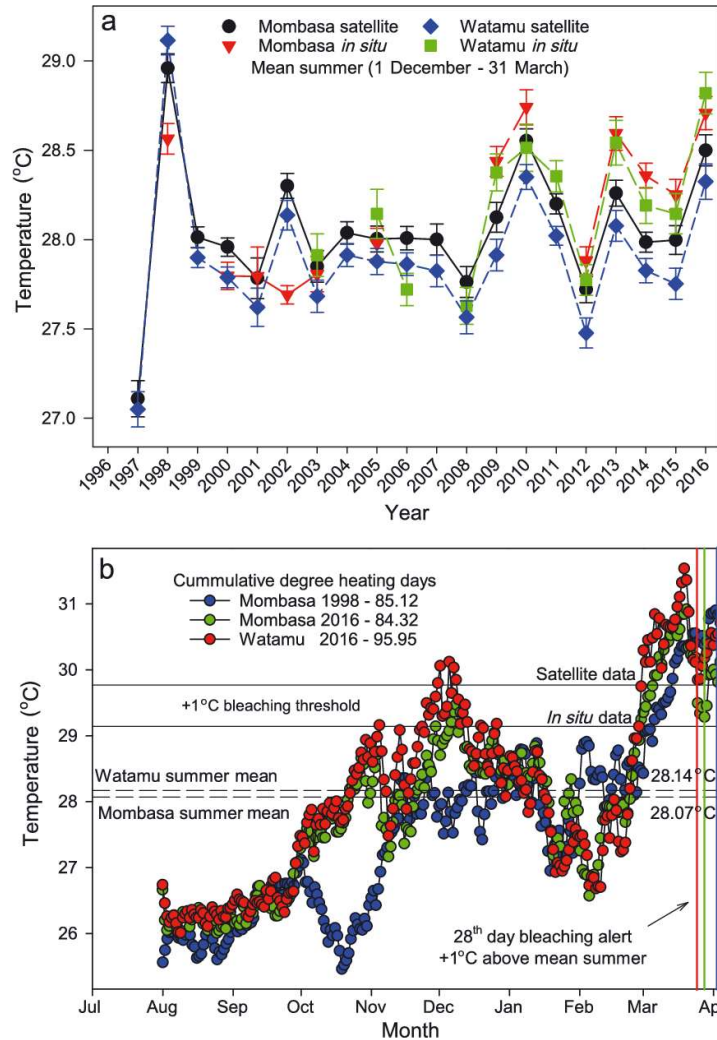


Figure 38: Thermal anomalies in Mombasa and Watamu MCAs 1996-2016

(Source: McClanahan 2017)⁹⁴

The recovery of hard coral cover in the different reefs especially after the 1998 bleaching event was variable, with reefs in MPAs showing slightly higher recovery than open access reefs. Hard coral cover in MPAs has increased to 15 to 40% from about 8-10% following the regional 1997/98 ENSO bleaching event. Compared to fully protected areas, open access reefs show less than 50% of the hard coral cover in MPAs. In 2016, the 3rd global bleaching event impacted the WIO, with 30% of reefs showing evidence of high or

⁹⁴McClanahan T. R 2017. Changes in the sensitivity to thermal anomalies. Marine Ecology Progress Series. Vol. 570: 71–85, 2017 <https://doi.org/10.3354/meps12150>. <https://www.semanticscholar.org/paper/Changes-in-coral-sensitivity-to-thermal-anomalies-McClanahan/b2872b88255702fee7c9aa74ccdfa46bd1009f8f>

severe bleaching, but only 10% showing high or severe mortality⁹⁵. Recovery was slightly better in no-take MPAs, followed by partially protected reserves and community-conserved areas, and least in unprotected areas. Fish abundances show a similar pattern, being highest in no-take areas and lowest in unprotected areas, but with high levels of variation among sites⁹⁶.

Fish abundance varied across protection regimes, with no-take MPAs showing highest abundance, followed by reserves (with partial protection) and community conservation areas, with high variation within each of these categories over time. This difference is most likely attributable to protection status from fishing, with fully protected areas having the highest abundance of commercially important (Lethrinids, Haemulids, and Lutjanids) and herbivorous (Scarids, Acanthurids and Siganids) fish than reserves and CCAs, both of which have only partial levels of protection. Community-based MPAs have higher fish abundance (64 per ha) than unprotected areas, suggesting that they can be a valuable spatial management tool alongside the national protected area system.

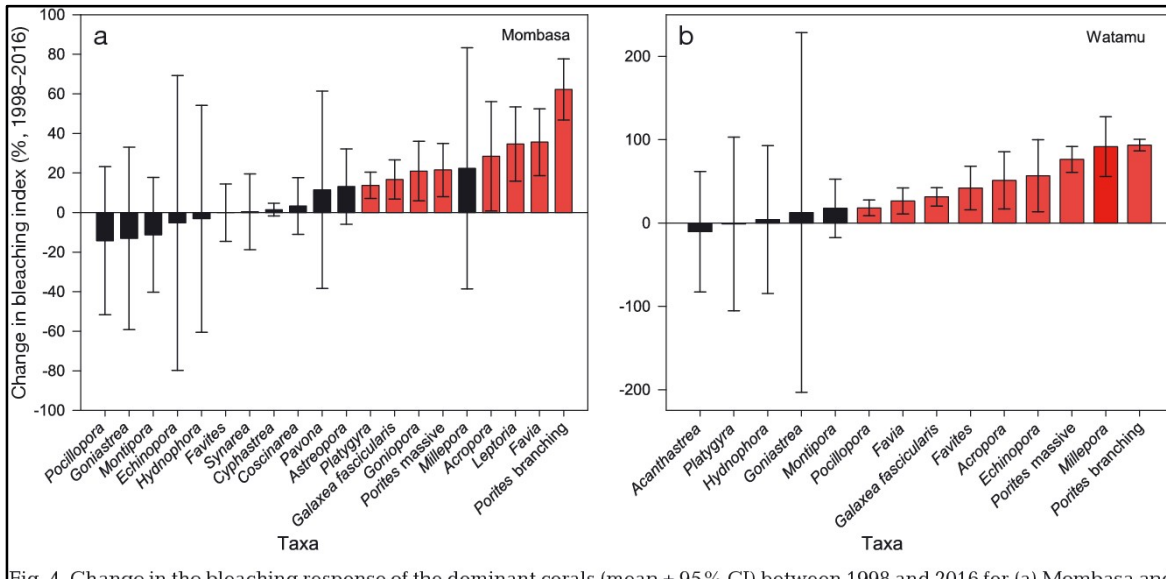


Figure 39: Changes in beaching response in Mombasa and Watamu MCA. (Source: McClanahan 2017)

⁹⁵ Mishal Gudka, David Obura, Jelvas Mwaura, Sean Porter, Saleh Yahya and Randall Mabwa (2018). Impact of the 3rd Global Coral Bleaching Event on the Western Indian Ocean in 2016. Global Coral Reef Monitoring Network (GCRMN)/Indian Ocean Commission. pp. 65. https://wedocs.unep.org/bitstream/handle/20.500.11822/25700/CORDIO_GCRMN2018_Post_Bleaching_WIO.pdf?sequence=2&isAllowed=y

⁹⁶ . Government of Kenya (2017) State of the Coast Report II: Enhancing Integrated Management of Coastal and Marine Resources in Kenya. National Environment Management Authority (NEMA), Nairobi. http://www.nema.go.ke/images/Docs/REPORTS/SOC%202nd%20Edition%20final%20report_19%2010%202017.pdf

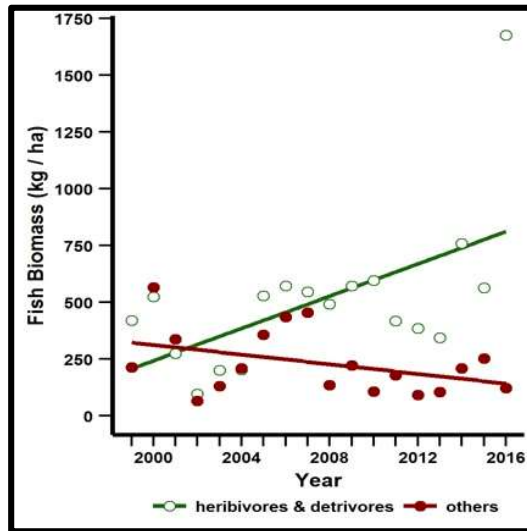


Figure 40: XX Trends in fish biomass between 2006 to 2016. (Source: Kenya GCRMN report 2017)

Coral Reef Status and Trends

Coral reef conservation is still ongoing and recovery process has been recorded. The main pressures are:

- Over-fishing and destructive fishing. The damaging fishing practices include using dynamite, pull-seine nets, poisons, over-exploitation of small fish in small mesh nets and traps, and over-harvesting of octopus, shellfish, sea cucumber and lobster.
- Pollution, mining, deforestation and poor land management practices, and poorly managed and planned tourism are the major stresses damaging coral reefs on the Eastern African coast.
- Excessive and destructive fishing was the major anthropogenic problem for reefs in Eastern Africa in the 1990s until the damaging 1998 El Niño bleaching event.

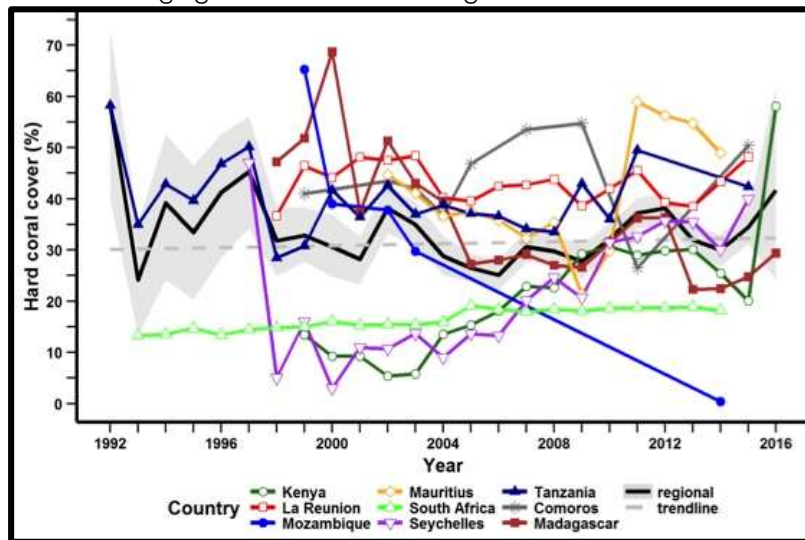


Figure 41: Note Kenya's steady recovery of hard coral until the bleaching episode in 2016. Western Indian Ocean (WIO) countries compared in terms of progress. (Source: WIO GCRMN report 2017)

Coral Reef Management and Recovery

- The National Coral Reef Restoration Protocol (NCRPP) is expected to provide information on replacing dead coral reefs and adversely affected fish breeding grounds along the coastline.
- Kenya Coral Reef and Sea Grass Ecosystems Conservation Strategy 2015-2019 also targets the coral and associated ecosystems recovery.
- Working with local communities to manage local fisheries by reviving traditional fishing closures called "tengefu" within fishing grounds over which local communities have legitimate, hereditary claims
- Promoting conservation and protection of the marine environment and improving income of the local fishing communities
- Strengthening management effectiveness of locally managed marine areas (LMMAs) and MPAs in Kenya
- Development of legislative guidelines for LMMAs, a Training tool kit for LMMA management and a community coral reef monitoring manual that provides practical methods for coastal communities to assess the condition and their coral reefs and hence the effectiveness of their LMMA.

There have been trial experiments to assess the suitability of coral species for culture at the Mombasa Marine Park as well as collaborative initiatives to restore degraded coral reefs involving communities at the south coast of Kenya at Wasini. The collaborative initiatives entail hands-on training on coral gardening as well as development of a step-by-step guidebook on coral transplantation. Initial transplantation trials have given survival rate of 75% and improved fish density by two folds within one year.

Milestones

- Recognizing the important socio-economic and ecological values of coral reefs and their associated ecosystems, the WIO countries (South Africa, Comoros, France / Réunion, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, and Tanzania), through regional cooperation frameworks (Indian Ocean Commission, Nairobi Convention), have aligned themselves with the International Coral Reef Initiative (ICRI) in an attempt to provide solutions to help manage and maintain coral reef ecosystems, including a regional framework for monitoring and reporting the coral reef status through the Global Coral Monitoring Network (GCRMN).
- The countries have implemented measures to reduce fishing pressures, including controls on dynamite, fishing in Tanzania, through joint community, NGO and government pressure, and put a ban on aquarium fish collection in Mozambique until it can be shown to be sustainable.
- All countries are devolving more power to local communities to monitor and manage their own fishery resources, largely through the mediation of conservation and community development initiatives.

Indicators used in this assessment

CBD Indicators:

- Trends in extent and condition of coral reefs
 - Trends in proportion of live coral cover
- Trends in extinction risk and populations of coral and coral-reef dependent species
 - Red List Index (reef-building coral species)
- Trends in pressures on coral reefs
 - Average marine acidity (pH) measured at agreed suite of representative sampling stations (indicator for SDG target 14.3)
- Trends in responses to reduce pressures on coral reefs
- Trends in extent and condition of other vulnerable ecosystems impacted by climate change or ocean acidification
- Trends in species extinction risk and populations or condition of other vulnerable ecosystems impacted by climate change or ocean acidification
 - Climatic Impact Index for birds
 - Red List Index (impacts of climate change)
- Trends in pressures on other vulnerable ecosystems impacted by climate change or ocean acidification
- Trends in responses to reduce pressures on other vulnerable ecosystems impacted by climate change or ocean acidification

Indicator(s) used in this assessment

- a) Water quality trends
 - a. Sediment loads
 - b. pH
 - c. Acidification
 - d. Algal blooms
- b) Trends on coral deaths
- c) Diversity of corals
- d) Destructive fishing trends
- e) Extent of bleaching episodes
- f) Trends in coral reef recovery

Please describe any other tools or means used for assessing progress

- Coral reef monitoring
- Sea grass monitoring
- Socio-economic surveys
- CPUE
- Trophic Index

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

Cordio East Africa Publications:

<https://cordioea.net/high-impact-publications/>

Third Coral bleaching event impact.

Mishal Gudka, David Obura, Jelvas Mwaura, Sean Porter, Saleh Yahya and Randall Mabwa (2018). Impact of the 3rd Global Coral Bleaching Event on the Western Indian Ocean in 2016. Global Coral Reef Monitoring Network (GCRMN)/Indian Ocean Commission. pp. 65
https://wedocs.unep.org/bitstream/handle/20.500.11822/25700/CORDIO_GCRMN2018_Post_Bleaching_WIO.pdf?sequence=2&isAllowed=y

Artisinal Fisheries

Samoilys, Melita A., et al. "Artisanal fisheries on Kenya's coral reefs: Decadal trends reveal management needs." Fisheries Research 186 (2017): 177-191. <https://cordioea.net/wp-content/uploads/2015/08/Samoilys-et-al.-2016-Fish.-Res.-Kenyas-reef-fisheries.pdf>

Kenya State of Coast Report 2017.

Government of Kenya (2017) State of the Coast Report II: Enhancing Integrated Management of Coastal and Marine Resources in Kenya. National Environment Management Authority (NEMA), Nairobi. http://www.nema.go.ke/images/Docs/REPORTS/SOC%202nd%20Edition%20final%20report_19%2010%20017.pdf

Thermal anomalies

McClanahan T. R 2017. Changes in the sensitivity to thermal anomalies. Marine Ecology Progress Series. Vol. 570: 71-85, 2017 <https://doi.org/10.3354/meps12150>.
<https://www.semanticscholar.org/paper/Changes-in-coral-sensitivity-to-thermal-anomalies-McClanahan/b2872b88255702fee7c9aa74ccdfa46bd1009f8f>

Kenya Global Coral Reef Monitoring Report 2017

Jelvas Mwaura, Juliet Karisa, Mohamed Omar Said, Mike Olendo, Jillo Katello, Harrison Onganda, Judith Nyunja, Rose Ambae, Dishon Murage, Stephen Mussembi, David Obura, James Kamula, Noah Ngiasange Stephen Katua. 2017. In: David Obura, Mishal Gudka, Fouad Abdou Rabi, Suraj Bacha Gian, Jude Bijoux, Sarah Freed, Jean Maharavo, Jelvas Mwaura, Sean Porter, Erwan Sola, Julien Wickel, Saleh Yahya and Said Ahamada 2017. Coral reef status report for the Western Indian Ocean (2017). Pages 60-69. Global Coral Reef Monitoring Network. <https://www.icriforum.org/sites/default/files/COI%20REEF%20LR%20F2.compressed.pdf> and <https://cordioea.net/wio-monitoring/gcrmnwio2017/>

Others

- http://commissionoceanindien.org/fileadmin/resources/ISLANDSpdf/Coral_Reef_Monitoring_Manual.pdf
- https://www.crc.uri.edu/projects_page/strengthening-east-african-marine-protected-areas/
- https://www.crc.uri.edu/projects_page/strengthening-east-african-marine-protected-areas/
- <https://measures.wcs.org/Metric-Details/m/2>.
- <http://comred.or.ke/capacity-building/>

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

<Text entry>

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

Coral Reef Monitoring

Methods used

- Belt transect for fish density and sizes.
- Point intercept transect for coral and other substrate cover.
- Belt transect for macro-invertebrate density.
 - Monitoring of reefs in northern parts of Kenya (in the Kiunga Marine Reserve) and in a few fore reef sites in both northern and southern parts of Kenya has been established more recently.
 - Transect surveys of deeper reef sites in the Malindi and Watamu areas are based on sites established between 1995 and 2005.
 - Kenya's network of Marine Protected Areas has also offered a large-scale experiment for studies of the effects of protection on reef ecology and has been the focus of over 15 years of coral reef monitoring and analysis of a variety of threats (Coral Reef Conservation Project).

Monitoring sites

- Within protected areas (Malindi Marine National Park, Watamu Marine National Park,
- Mombasa Marine National Park,
- Kisite Marine National Park)
- Unprotected reefs in Vipingo and Diani Marine National Reserve.

Partners involved in monitoring include:

- Kenya Wildlife Service
- Wildlife Conservation Society
- Coastal Oceans Research & Development (CORDIO) East Africa
- Global Vision International (GVI) Kenya

- Kenya Marine and Fisheries Research Institute.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be

NEMA

http://www.nema.go.ke/images/Docs/REPORTS/SOC%202nd%20Edition%20final%20report_19%2010%202017.pdf

CORDIO

<https://cordioea.net/high-impact-publications/>

KMFRI

<https://www.kmfri.co.ke/index.php/fact-sheet/82-stock-assessment-of-small-and-medium-pelagic-fisheries-along-the-kenyan-coast>

KWS

<http://www.kws.go.ke/content/priority-ecosystems-and-species>

WIOMSA

<https://www.wiomsa.org/publications/>

GCRMN

<https://cordioea.net/high-impact-publications/>

Others

- [www.newsdeeply.com › oceans › articles › 2018/05/31 › meet-the-sm...](http://www.newsdeeply.com/oceans/articles/2018/05/31/meet-the-sm...)
- <https://www.arochea.or.ke/work/scientific-research/marine/>
- <https://www.advance-africa.com/Coral-Reef-Conservation-Project.html>
- http://commissionoceanindien.org/fileadmin/resources/ISLANDSpdf/Coral_Reef_Monitoring_Manual.pdf;
- https://www.researchgate.net/publication/323453604_Coral_Reef_Monitoring_in_Eastern_Africa_A_guide_for_communities

4.11 TARGET 11

Target

By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes.

Category of progress towards the implementation of the selected target

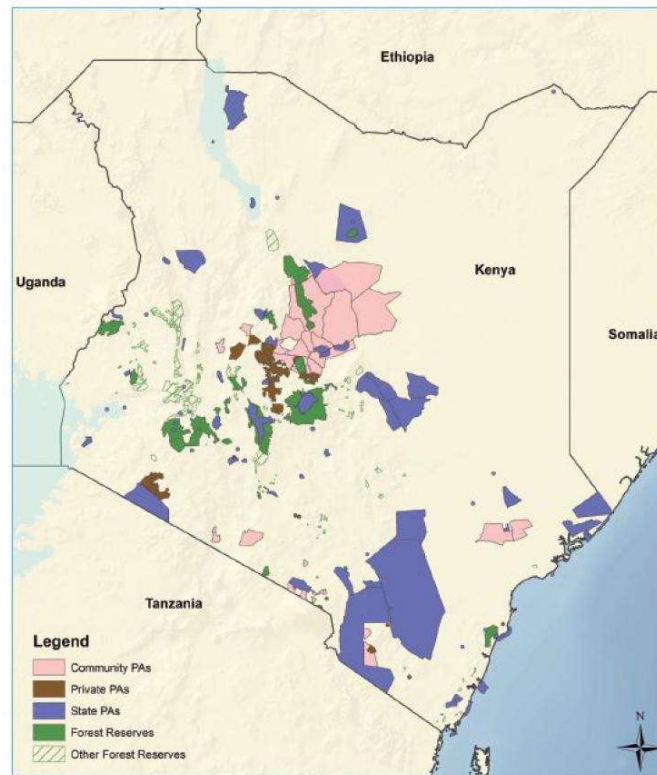
Progress towards target but at an insufficient rate

Date the assessment was done

12/03/2020

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

Kenya has officially protected over 8% of its terrestrial and marine ecosystems with a network of National Parks, National Reserves, Forest Reserves, and Sanctuaries. This is complemented by a further 160 Conservancies, ensuring an additional 11% of Kenya is actively managed for wildlife conservation. These Conservancies are estimated to contain as much as 60% of Kenya's large mammals and protect a diverse array of habitats and other species⁹⁷.



Source: WCMC based on data from WDPA, AWF, KWS, NRT and Space for Giants.

Figure 42: Protected Areas in Kenya.

(Source IUCN/IIED 2018)⁹⁸

Presently, Kenya has 24 terrestrial National Parks which occupy an area of 29,504Km² that is approximately 5.08% of the total area of Kenya. Tsavo East and Tsavo West National Parks -including the Tsavo National Road and Railway Reserve- cover 71.2% of the area occupied by all National Parks. This is followed by Kora (6%), Sibiloi (5.3%) and Malkamari (3%). There are 31 terrestrial National Reserves in Kenya occupying 17,358.8km² which is 3% of the country's total area. Most of the National reserves are managed by county governments with technical advice from KWS. However Marsabit, Mt.Kenya, Mwea, Kakamega and Shimba Hills are managed by KWS.

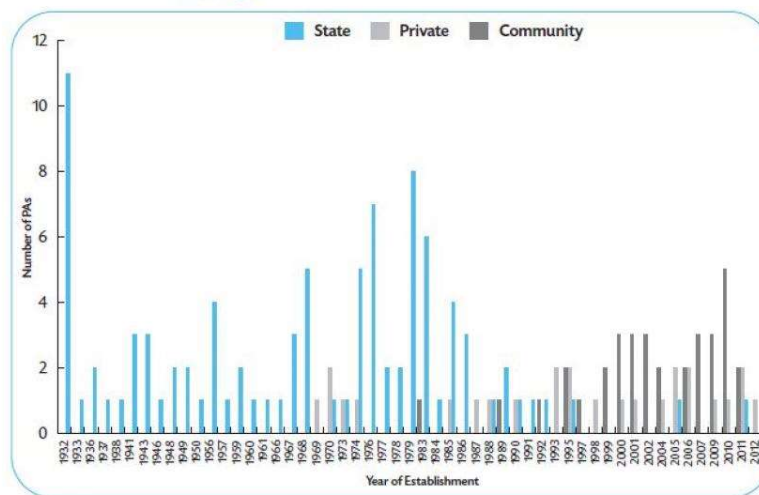
⁹⁷ GOK 2018. National Wildlife Strategy 2030. <http://www.tourism.go.ke/wp-content/uploads/2018/06/WILDLIFE-STRATEGY2030-Final-V1-Online.pdf>

⁹⁸ Phil Franks 2018. An analysis of non State Protected Area Governance in Kenya. <https://www.iucn.org/news/aires-prot%C3%A9g%C3%A9es/201801/analysis-non-state-protected-area-governance-kenya>

Kenya has 257 sites categorized as natural forests which harbor a variety of wildlife species and are also water towers or water catchment areas. These natural forests fall under 4 key management regimes namely; community forests (52 sites covering 180, 245 ha), forest reserves (201 sites covering 2,045, 406 ha), national monuments (3 sites covering 401 ha) and trust land (1 site covering 188,2017ha) with a total area of 24,142.59km² which is 4.2% of Kenya's total area. Marsabit forest ecosystem management plan 2015-2025 is under legal notice No. 1894 of March 2016.

There are 5 National Sanctuaries in Kenya located in Nakuru, Samburu, Kisumu and Homa bay counties. They cover 12.47km² of the country. These sites were designated as Sanctuaries for various reasons amongst them: spectacular views and abundant birdlife; conservation education and rescue centers; or due to historical reasons. Lake Simbi, Ondago swamp and Maralal National sanctuaries fall under the County Government land. Maralal town has encroached fully into the Maralal Sanctuary.

The WCMA, 2013 recognizes conservancies as a form of wildlife land use and according to the WCMA, 2013, any person or community who own land on which wildlife inhabits may individually or collectively establish a wildlife conservancy or sanctuary in accordance with the provisions of the WCMA, 2013.



Source: WCMA using data from WDP, AWF, KWS, NRT and Space for Giants.

Figure 43: Trends on Conservation Areas in Kenya.

Source (IIED 2018)

Since the Regulations for the registration of conservancies is as yet to be gazetted, all conservancies have been operating on an adhoc basis. There are over 160 conservancies covering over 63,600km² representing 11% of the country's area. Of these, 4 are Marine, 76 are community, 58 are private, and 26 are group while 60 are listed under World Database Protected Area (WDP). They mostly operate as Community Based Organizations (CBOs), Trusts or private companies.

The Northern Rangeland Trust (NRT) supports a large number of conservancies especially community-based ones. These conservancies are host to 90% of the global population of Grevy's Zebra and Hirola. The conservancies have administrative and management structures which are defined by their various umbrella associations. The KWCA is the national umbrella body for conservancies. NRT, and the Masai Mara Wildlife Conservancies Association are the largest Regional associations in Kenya. The conservancies are grouped based on areas of region, thus; Amboseli ecosystem, Athi Kapiti, Laikipia, Lamu, Masai Mara, Rift Lakes, Southern rangeland, Northern rangelands, Taita Taveta, Tsavo, Western and North Eastern. The associations deal with the governance, laws, policies and regulations affecting the member conservancies. The Campaign for Nature, in the cited 2020 super year for nature and biodiversity is helping to spearhead an ambitious drive to protect 30% of Kenya's land and seascapes.

The Protected Areas include the Amboseli and Mt. Kenya are designated by UNESCO as Man and Biosphere Reserves (MAB); Tsavo East and West and Central Island are equally designated by UNESCO as World Heritage Sites; while Aberdares, Mt. Kenya, Chyulu and Mt. Elgon are National Water towers. The Sibiloi PA hosts Koobi Fora which is regarded as the cradle of Mankind. Kenya has Ramsar Sites of which include Lake Nakuru designated as a Park, Lake Bogoria is a Reserve while the other 4 (Tana River Delta, Lake Elementaita, Lake Baringo and Lake Naivasha) do not enjoy other protection status. All the parks are required by law to have management plan that are gazetted.

Apart from Ngai Ndehya National Reserve and the 6km² Arabuko Sokoke National Park which in their true sense are now Paper Park, many of the Reserves seem to be heading towards similar direction. These include Losai, Rahole, Arawale and South Kitui. South Kitui is presently the Reserve with the highest number of charcoal kilns while Losai has several villages established inside it. Malka Mari is slowly being settled while its wildlife is being threatened by livestock incursion.

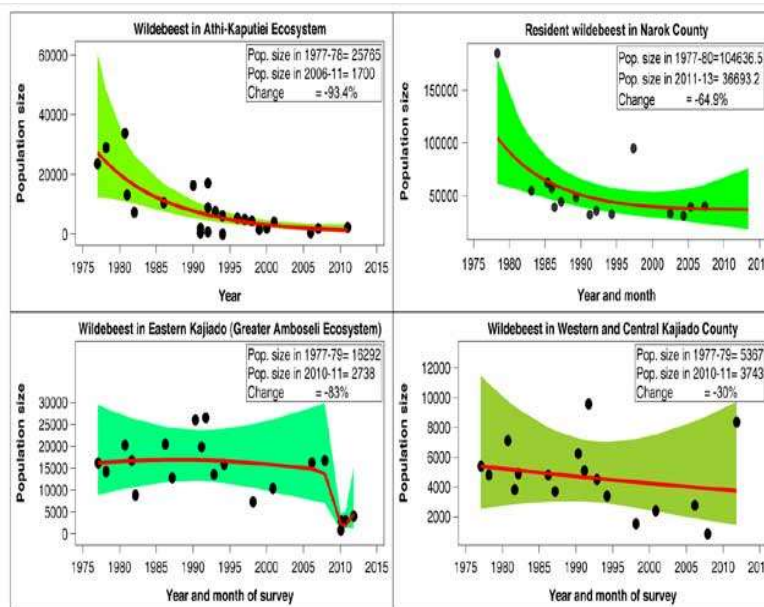


Figure 44: Long term trends in wildebeest population

Source: (Ogotu et al.)

The Wildlife Conservation Management Act of 2013 (WCMA, 2013) provide for the protection, conservation, sustainable use and management of wildlife in Kenya and for connected purposes. The Act requires the Ministry to prepare and present to Parliament a Wildlife Status report which gives the status of: all National Parks and Reserves; Conservancies and Sanctuaries; community wildlife scouts in Conservancies; Management Plans; all listed species in Schedule 6 and 7 and their recovery status.

The 2015/17 National Wildlife Conservation Status Report ⁹⁹ noted that the greatest challenge facing wildlife population increase in the country is encroachment, invasive species, poaching and infrastructure development besides other threats. The resultant effect especially of encroachment has been loss of gazetted wildlife areas, wildlife corridors and dispersal areas leading to fragmentations of wildlife habitats. Wildlife diseases is an emerging major threat.

Amboseli National Park, Sibiloi, South Island and Central Island National parks(2018-2028), Mpunguti (Kisite-Mpunguti), Marsabit National Park and Reserve, Kora National Park management plan 2018-2028,

⁹⁹ KWS 2017: National Wildlife Conservation Status Report 2015-2017. <http://www.kws.go.ke/content/status-wildlife-report-2015-2017>

Watamu Marine National Reserve 2016-2026, The Amboseli Land Owners Conservancies Association (ALOCA) 2016-2026 comprises of seven conservancies, namely; Kilotome, Nailepu, Nalarami, Osupuko, Olepolos, Oltiyani and Elerai. While in the Mara - Olchoro Oirouwa, Olare Motorogi, Ol Kinyei, Mara North Conservancy, Pardamat conservation Area, Management Plans dating between 2017-2023 while the rest are at various stages of development. In addition, all of them have legal notices of their gazettment while a number of them have title deeds. The management plans will form the basis of evaluating the state of conservation areas. The WCMA, 2013 requires that the managers will every year give a compliance report of the management plans. This situation is more pronounced in the Conservancies and National Reserves. Details on the specific PAs is provided on the Status report and the Kenya Wildlife Service Website¹⁰⁰.

There are five marine protected areas covering total area 1,139 Km² managed by Kenya Wildlife Service.¹⁰¹ Kisite-Mpunguti Marine Protected Area Management Plan 2015-2025 was finalized and gazetted through gazette notice no. 1896 of March 2016. Malindi and Watamu were grouped together and both are internationally recognized by UNESCO as Man and Biosphere Reserves. Kenya is also signatory to several international conventions and protocols that advocate the implementations of MPAs as a tool for biodiversity conservation and regulation of fisheries. It includes Convention on Biological Diversity (CBD) and the United Nations Law of the Sea and Chapter 17 of the Agenda 21. The Jakarta Mandate (1995), which outlines the program of action for marine and coastal biodiversity within the CBD.¹⁰²

However, the Kenya Marine conservation areas face numerous challenges by the ever-increasing human populations and demand for natural resources. The ecosystems, marine environment and other service has exhibited degradation due to overexploitation as a result of unregulated use. The Fisheries Act 2016 also provide an avenue for conservation and management of the Marine Protected areas and other aquatic resources to enhance the livelihood of the communities dependent on the resources.¹⁰³

¹⁰⁰ <http://www.kws.go.ke/content/priority-ecosystems-and-species>

¹⁰¹ <http://www.kws.go.ke/marine-national-park>

¹⁰² <http://www.georgewright.org/291tuda.pdf>

¹⁰³

http://kenyalaw.org/ki/fileadmin/pdfdownloads/Acts/FisheriesManagementandDevelopmentAct_No35of2016.pdf

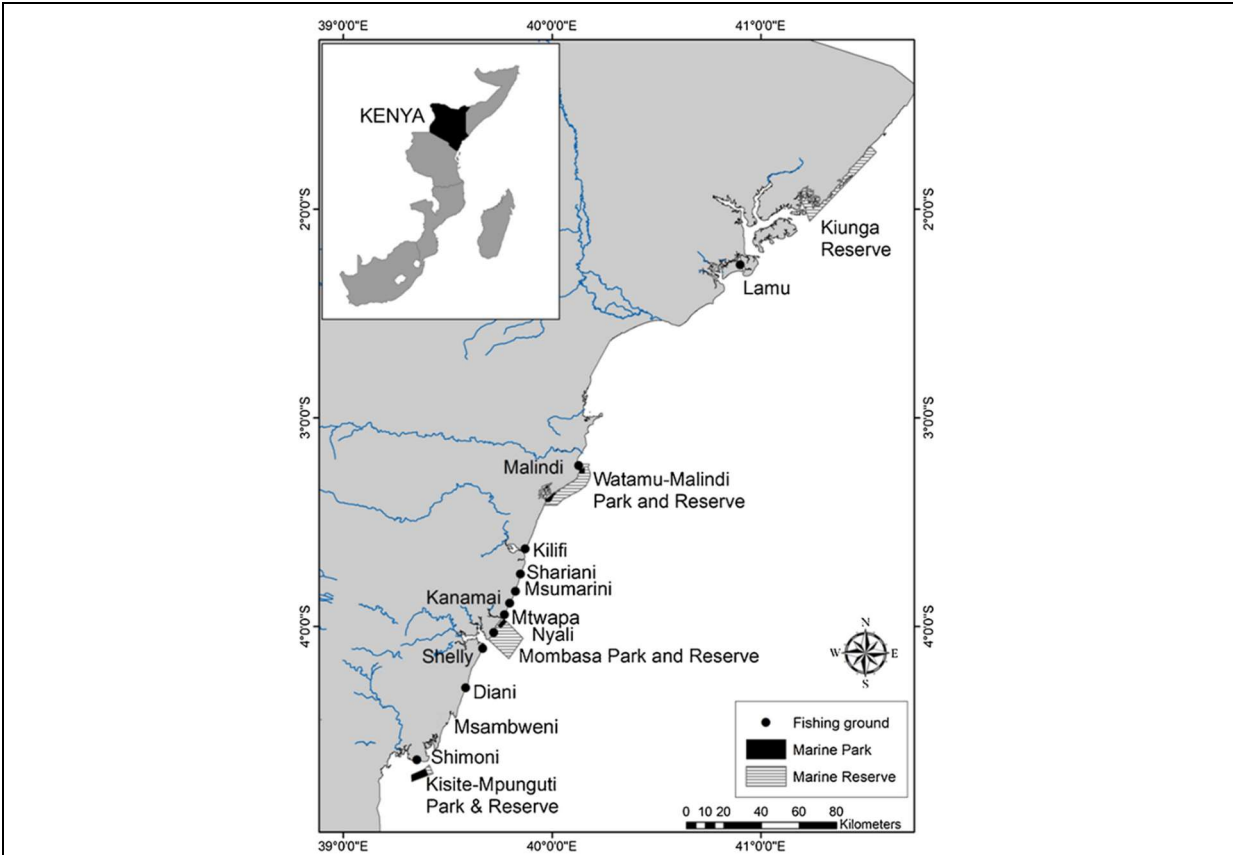


Figure 45: Marine Protected Areas in Kenya

The PA network is not fully representative to protect biodiversity as shown by the cover of the Important Bird Areas and Key Biodiversity Areas. Although Nature Kenya advocating for the conservation of Important Bird Area through working the local communities in capacity building, sustainable livelihood, sound natural resources and partnerships, they still face numerous challenges such as encroachment, destruction of habitats, illegal logging and expansion of agricultural land etc. affects species composition within these important areas. The interventions such as the National Forest programs (2015-2020) provides framework to support sustainable conservation and utilization of forest¹⁰⁴. Therefore, it helps to enhance the conservation and management of the important bird areas improving the species diversity.¹⁰⁵

The Key Biodiversity Areas in Kenya are 67 with 45 of the sites covered under various legal protection instruments (Forest reserve, National Park/Reserve, National Monument, Ramsar, Wetland). A number of sites have double gazettelement such as Mt. Kenya, Shimba Hills, ¹⁰⁶

¹⁰⁴ http://kenyaforestservice.org/index.php?option=com_content&view=article&id=531:national-forest-Programme-launched&catid=81&Itemid=538

¹⁰⁵ http://datazone.birdlife.org/userfiles/file/IBAs/MonitoringPDFs/2011_Kenya_IBA_monitoring_report.pdf

¹⁰⁶ (<https://drive.google.com/file/d/1GAbE-eo3DmriO20b3kclvyzeDsBkp3Uz/view>)

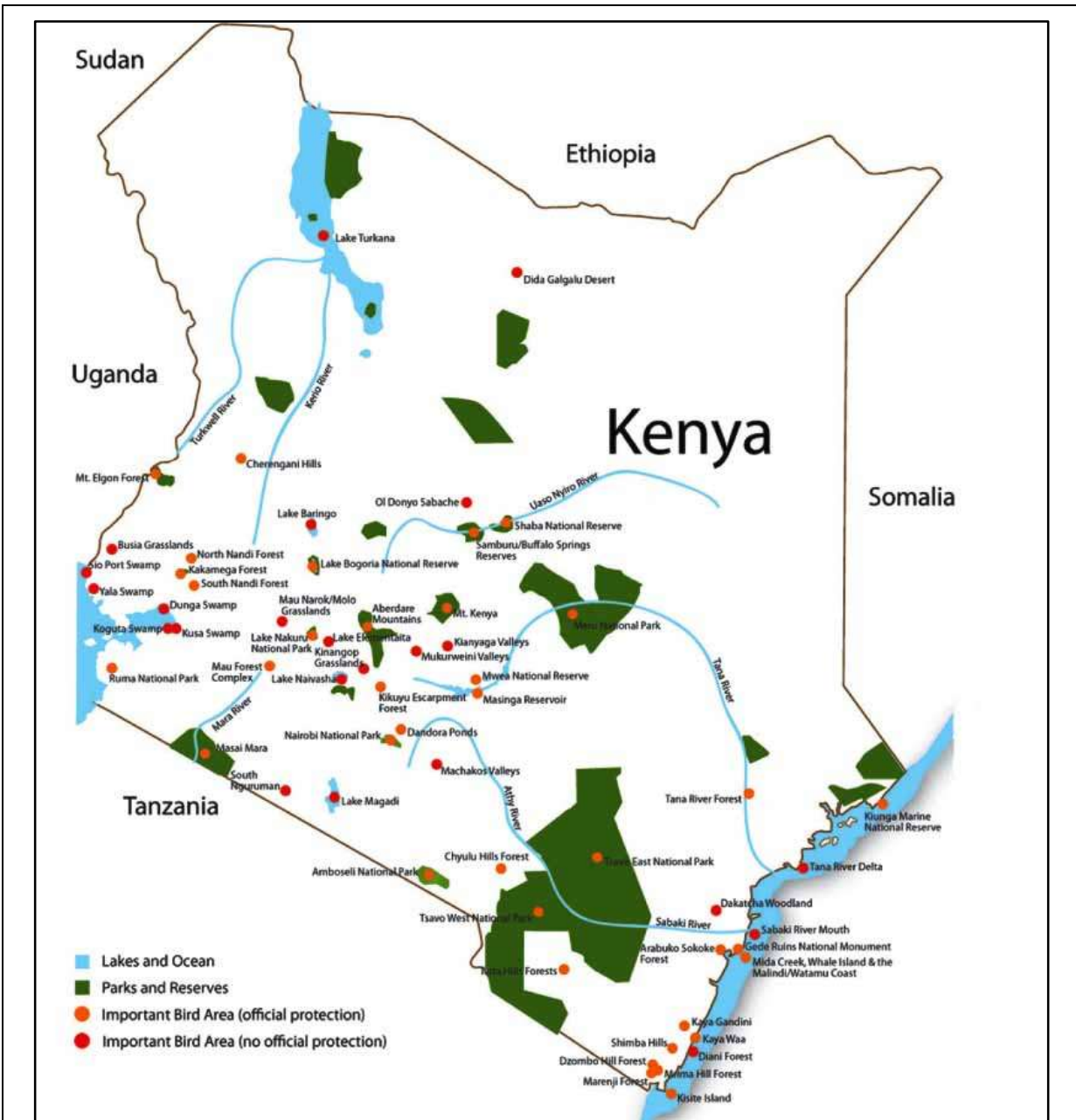


Figure 46: XX Important Bird Areas Map.

(Source: KenyaBirding.me)¹⁰⁷

The Kenya's Important Bird and Biodiversity Areas status and Trends report in 2016 indicates that there were two more additional areas identified which totals up to 67 Areas in Kenya. This is attributed to increase in patrolling and surveillance especially in the protected areas. ¹⁰⁸. Despite these efforts, the status of Key Biodiversity Areas is still unfavourable due to anthropogenic activities and they are located outside the protected areas. One of the highlights from the status and trend report in 2017 recommends that all the biodiversity conservation should be mainstreamed into all development sectors of the economy to ensure effective conservation of the key biodiversity areas within the country. ¹⁰⁹

¹⁰⁷ <https://kenyabirding.me/2011/12/04/kenyas-important-bird-areas/>

Kenya has several wildlife corridors with the major ones being the Amboseli-Kilimanjaro and Mt. Kenya-Lewa downs-Samburu-Meru elephant corridors. The latter is a world heritage site. Other wildlife corridors include:

- The corridors connecting Nairobi National Park with Athi Kaputei (wildebeest migratory corridor & dry season wildlife dispersal area)
- Masai-Mara Serengeti wildebeest migratory corridor. (It includes wildlife dispersal areas especially in the ranches & conservancies)
- The Tsavo National Park Elephant dispersal areas: Chyulu National Park, South Kitui National Reserve, Kibwezi forest reserve, adjacent group ranches which constitute Tsavo ecosystem. Of particular importance are the four key corridors that sustain the ecological integrity of the ecosystem
 - Tsavo East to Mkomazi in Tanzania through Kasigau forest and the community ranches
 - Tsavo East to Arabuko Sokoke Forest Reserve through Galana-Kulalu ranches
 - Tsavo East to Mwaluganje & Shimba Hills through community ranches
 - Tsavo West to Amboseli through Kuku ranch
- In the southern rift ecosystem, the area around Lake Magadi and Natron in Tanzania, Nguruman ranges with Ewaso Ngiro River being the only permanent source of water (Elephant corridor)
- The elephant corridor connecting Aberdares and Mt. Kenya through Sangare /Solio ranch and Kabirotini forest reserve
- The corridor connecting L. Nakuru National Park, with Hells Gate National Park through Elementaita wildlife sanctuary and Naivasha wildlife conservancies(zebra)
- Elephant corridor between Kamnarok National Reserves, South Turkana to Nasolot National Reserves along the Kerio River.

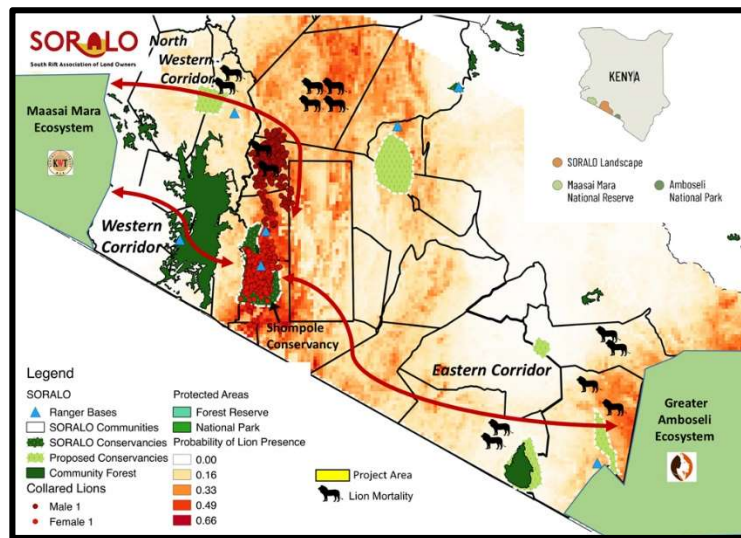


Figure 47: Options for enhancing connectivity in the PA network in Kenya

(Source: Soralo 2020)¹¹⁰

The **National Wildlife Strategy 2030 developed in June 2018** created an enabling environment under pillar one to build resilience for species conservation in the protected areas. It identifies areas of environmental importance through habitat and ecosystem assessment. The strategy also helps to maintain and improve habitat and ecosystem integrity to ensure full range reduce biodiversity loss, protect ecosystem function, enhance connectivity and increase resilience. Under pillar four of the strategy ‘Sustainability and Governance’ it involves policy makers and the local community in the co-management of the habitats

¹⁰⁸ https://issuu.com/nature_kenya/docs/2016_iba_report_final_web

¹⁰⁹ https://issuu.com/nature_kenya/docs/2017_iba_report_final.

¹¹⁰ <https://www.maliasili.org/blog/cattle-culture-and-co-existence-in-kenya>

and ecosystems. It also mainstreams management of the ecosystems and habitats through establishment of conservation funds and other innovative financing streams

The strategy received overwhelming support from the presidency¹¹¹. It provides a follow up to wildlife conservation and management, 2013 including activities in the protected areas, community participation, endangered species¹¹². Most of the targets have been taken up in the national planning framework and appear in Third Medium Terms Plans (2018-2022) towards achieving the country's Vision 2030¹¹³. The task report whose link is attached, highlights potential and benefits of the strategy as regards to sustainability of conservation efforts. It also highlights institutional and challenges towards realization of the strategy¹¹⁴. Inadequate finance and support to implementation of the strategy as highlighted in the strategy. This and other follow strategies require dedicated guidelines and regulations for enforcement where applicable and for joint management involving the local communities.

The National Wildlife strategy 2030, promotes an ecosystem approach and inclusion of biodiversity in totality¹¹⁵. The establishment of County Wildlife Conservation and Compensation Committee under wildlife Conservation and management Act 2013, has improved management and conservation of wildlife at the county level through a participatory approach in land use planning initiatives and in consultation with all the stakeholders with particular regard to critical wildlife habitats, corridors and dispersal areas for better management and conservation of wildlife ¹¹⁶. The (National Wildlife conservation Status Report 2015-2017) outlines measures to ensure sustainable management of protected areas in Kenya. The development of recovery plans for species has contributed to increase number of species such as Rhinos and Elephants¹¹⁷. Kenya Forest Services strategic plan 2017-2022 main goal is to increase forest cover by 1.15 %(670,000hacteres) by the end of the 5 years period¹¹⁸.

The National Forest Programme 2016-2030 identifies loss of protected areas as a challenge towards forest management and conservation. It seeks under its strategy on water shed management to increase acreage of protected areas. It integrates biological diversity in addressing threats to forest conservation. One of the Programme strategies on "improving public awareness of impact of illegal forest activities is aimed at reducing extent of degraded forest areas. It integrates forest management as a tool for sustainability and to achieve forest integrity, productivity, governance, education, training and research among others. It strengthens local community involvement in co-management of forest resources as a follow up to forest Act 2016.¹¹⁹

Through its participatory forest management (PFM) it provides for an ecosystem approach to conservation and integrates the local communities in management and protection. The implementation modality is multi-sectoral and Multi-stakeholder in nature which improves uptake of PFM initiatives. An evaluation report by independent taskforce on Forest Resources Management and Logging Activities in Kenya highlights the challenges in the implementation of the strategy¹²⁰. The Kenya Forest Service Strategic plan 2017-2022¹²¹ has aligned her third strategic objectives "To increase forest cover outside the public forest area by 380,000" to ensure successful implementations of the strategy.

¹¹¹ https://ecotourismkenya.org/wpcontent/uploads/ekdownloads/press_releases/NWS2030%20-%20FINAL%20JUNE%2012%2C%202018.pdf.

¹¹² <http://www.kws.go.ke/downloads>

¹¹³ <https://vision2030.go.ke/publication/third-medium-term-plan-2018-2022/>

¹¹⁴ (<http://www.tourism.go.ke/wp-content/uploads/2019/05/Final-WUTF-Report-Digital.pdf>)

¹¹⁵ <http://www.tourism.go.ke/wp-content/uploads/2018/06/WILDLIFE STRATEGY2030-Final-V1-Online.pdf>.

¹¹⁶ <http://kenyalaw.org:8181/exist/kenyalex/actview.xal?actid=No.%2047%20of%202013>.

¹¹⁷ file:///C:/Users/KWS/Downloads/The%20Status%20of%20Wildlife%20Report%202015%20to%202017_0.pdf.

¹¹⁸ http://www.kenyaforestservice.org/kfc_web/images/documents/Revised_KFC_Strategic_Plan_2017-2022.pdf

¹¹⁹ <http://kenyalaw.org:8181/exist/kenyalex/actview.xal?actid=No.%2034%20of%202016>

¹²⁰ <http://www.environment.go.ke/wp-content/uploads/2018/08/Forest-Report.pdf>.

¹²¹ http://www.kenyaforestservice.org/documents/KFS_3RD_Strategic_Plan_2018-2022.pdf

Although the strategy focuses on Participatory Forest Programs, limited extension officers to capacitate the Community Forest Associations (CFA) affects the realization of the strategy ¹²². Transition implementation plans are identified in the strategy as a means to devolve forest functions to County Governments. However, the uptake of this planning instrument in counties has been low due to lack of framework to operationalize it. Further, few counties have signed the instrument and the process is deemed expensive to undertake¹²³. In order to realize the aspiration of the strategy additional efforts have emerged. A case in point is the National Strategy for achieving and Maintaining 10% Tree Cover by 2022¹²⁴.

Case Study: Amboseli Ecosystem Management Plan¹²⁵

Studies showed Amboseli was rich in wildlife because of its coexistence with Maasai. This area was the first to design conservation programs for the entire migratory area of wildlife and involve communities in benefits sharing from the park and ecotourism facilities on community lands across the ecosystem.

As a result, the community has since the 1970s protected wildlife. Its elephants thrived as a result and become world famous. Although many new conservancies have spread across the ecosystem many pressures including shambas, subdivision and rangeland degradation threaten habitat, livestock and wildlife. As a result, **the Maasai leaders** of Amboseli called for an ecosystem-wide management plan in 2004.

The result was the Amboseli Ecosystem Management Plan (AEMP), drawn up with the support of KWS, researchers, the tourist industry and conservation NGOs. The Amboseli Ecosystem Trust was set up to oversee the AEMP on behalf of the Maasai landowners, supported by KWS, NGOs and tourism industry. AET has since been the main force in promoting the gazetting of the AEMP with the support of KWS, tourism industry and NGOs. Amboseli Ecosystem Management Plan (AEMP) was set up to define the principles and strategies for creating, implementing and managing a sustainable future for the Amboseli Ecosystem by addressing wildlife conservation and management issues in the entire ecosystem to enhance human-wildlife coexistence.

The effort led to the launch a ten-year AEMP plan for 2008 to 2018. This was the first ever ecosystem plan gazetted in law in Kenya coordinated under the Amboseli Ecosystem Trust (AET). The aim of ecosystem plan, the first of its kind, was to maintain the viability of the Amboseli migratory wildlife populations. The plan recognized that pastoral herders also moved seasonally in much the same way as wildlife. With this mind, AEMP defined a Minimum Viable Area for sustaining wildlife and pastoral herds, the threats to the integrity of the ecosystem, and proposed specific mitigation measures.

The renewal of AEMP for a further 10 years has been completed and validated for the period 2018-2028.

Zonation

The overall goal of zoning in Amboseli ecosystem is to separate conflicting land uses while at the same time providing conducive environment for investment in other land use options that are socially and economically acceptable to land users. Zonation is further divided into two.

1. Land use zones that include arable land, tourism zones, wildlife and livestock production zones
2. Tourism Use Zones, High Use Zones, Exclusive Use Zones, Low Use Zone

The management plan consists of the following components:

- Ecological Management Programme
- Tourism Development and Management Programme

¹²² http://www.idpublications.org/wp-content/uploads/2019/09/Full-Paper_INSTITUTIONALIZATION-OF-FOREST-CONSERVATION-PROGRAM-FOR-ENHANCEMENT-OF-PARTICIPATORY.pdf

¹²³ <http://www.environment.go.ke/wp-content/uploads/2018/05/Task-Force-Report.pdf>

¹²⁴ <http://www.environment.go.ke/wp-content/uploads/2019/08/Strategy-for-10-Tree-Cover-23-5-19-FINAL.pdf>

¹²⁵ <http://www.amboseliconservation.org/management-plan.html>

- Community Partnership and Education Programme
- Security Programme
- Ecosystem Operations Programme

The management plan focuses much on land zonation and the five major Programmes that are meant to restore this fragile ecosystem.

Case Study: Kirisia Forest Conservation¹²⁶

Kirisia forest covers an area of 91,944 hectares. Squatters moved into the forest twenty years ago due to perennial conflicts over resources such as water and grazing fields. Climate change is another factor that influenced their move into Kirisia forest. The forest provides pasture for livestock during dry seasons, therefore prolonged drought forces residents into the forest. Gradually, their population grew to about 10,000 squatters and the most affected areas are Tamiyoi and Loikas near Maralal town. Measures undertaken include the following:

- Through sensitization and community engagement the local community voluntarily accepted to move out of the forest.
- The awareness led to formation of Community Forest Association (CFA). Kenya Forest Service (KFS) will work closely with the forest adjacent communities through CFAs in participatory forest management approaches that also include livelihood support to the communities.

Indicators used in this assessment

- Trends in area of particular importance for ecosystem services conserved
- Trends in ecological representativeness of area conserved
- Trends in connectivity and integration of conserved areas
- Trends in area of particular importance for biodiversity conserved

CBD Indicators

- Trends in area of terrestrial and inland water areas conserved
 - Percentage of terrestrial and inland water areas covered by protected areas
 - Percentage of terrestrial and inland water areas and or marine and coastal areas covered by other effective area-based conservation measures
 - Number and extent of important sites for biodiversity that are covered by other effective area-based conservation measures
 - Trends in the appropriate recognition of other effective area-based conservation measures areas and appropriate support provided to them
- Trends in area of coastal and marine areas conserved
 - Percentage of marine and coastal areas covered by protected areas
 - Coverage of protected areas in relation to marine areas (indicator for SDG target 14.5)
- Trends in areas of particular importance for biodiversity conserved
 - Protected area coverage of Key Biodiversity Areas (including Important Bird and Biodiversity Areas, Alliance for Zero Extinction sites)
- Trends in areas of particular importance for ecosystem services conserved
- Trends in ecological representativeness of areas conserved
 - Protected area coverage of terrestrial and marine ecoregions
 - Species Protection Index
 - Protected Area Representativeness Index
- Trends in effectiveness and/or equitability of management of conserved areas
 - Protected area management effectiveness
 - The Wildlife Picture Index (disaggregated by protected area)
- Trends in connectivity and integration of conserved areas

- o Protected Area Connectedness Index

Please describe any other tools or means used for assessing progress

- Stakeholder consultations
- Desk studies
- Case studies
- Expert Input

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

National Wildlife Strategy 2030

GOK 2018. National Wildlife Strategy 2030. <http://www.tourism.go.ke/wp-content/uploads/2018/06/WILDLIFE-STRATEGY2030-Final-V1-Online.pdf>

National Wildlife Conservation Status Report 2015-2017

KWS 2017: National Wildlife Conservation Status Report 2015-2017. <http://www.kws.go.ke/content/status-wildlife-report-2015-2017>

Kenya Wildlife Service – Protected Areas

<http://www.kws.go.ke/content/priority-ecosystems-and-species>
<http://www.kws.go.ke/marine-national-park>

Fisheries Management and Development Act 2016

http://kenyalaw.org/ki/fileadmin/pdfdownloads/Acts/FisheriesManagementandDevelopmentAct_No35of2016.pdf

National Forest Programme 2030

http://kenyaforestservice.org/index.php?option=com_content&view=article&id=531:national-forest-Programme-launched&catid=81&Itemid=538

Kenya KBA monitoring Report

<https://drive.google.com/file/d/1GAbE-eo3DmrlO20b3kclvyzeDsBkp3UZ/view>

Governance of Protected Areas in Kenya

Phil Franks 2018. An analysis of non State Protected Area Governance in Kenya. <https://www.iucn.org/news/aires-prot%C3%A9g%C3%A9es/201801/analysis-non-state-protected-area-governance-kenya>

Community Conservancies -SORALO

<https://www.maliasili.org/blog/cattle-culture-and-co-existence-in-kenya>

Nature Kenya -Important Bird Areas Report 2016 and 2017

https://issuu.com/nature_kenya/docs/2016_iba_report_final_web
https://issuu.com/nature_kenya/docs/2017_iba_report_final

Task Force Report on illegal logging in Kenya Forests

<http://www.environment.go.ke/wp-content/uploads/2018/05/Task-Force-Report.pdf>

Strategy for 10% Tree Cover

<http://www.environment.go.ke/wp-content/uploads/2019/08/Strategy-for-10-Tree-Cover-23-5-19-FINAL.pdf>

Kenya Forest Service - National Mangrove Ecosystem Management Plan 2017-2027

[http://www.kenyaforestservice.org/documents/National Mangrove Ecosystem Management Plan Final_170628.pdf](http://www.kenyaforestservice.org/documents/National_Mangrove_Ecosystem_Management_Plan_Final_170628.pdf)

Kenya State of the Coast Report

http://www.nema.go.ke/images/Docs/REPORTS/SOC%202nd%20Edition%20final%20report_19%2010%202017.pdf

Extreme wildlife losses in Protected Areas

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0163249>

Review of Wildlife Conservancies

<https://bioone.org/journals/Journal-of-Resources-and-Ecology/volume-9/issue-3/j.issn.1674-764x.2018.03.004/The-Development-of-Wildlife-Community-Conservancies-in-Kenya--A/10.5814/j.issn.1674-764x.2018.03.004.short>

Status of Ecosystems and Species in

<http://www.kws.go.ke/content/priority-ecosystems-and-species>

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

There are various institutions established to provide data and evidence based on the indicators provided and also publications which give status on the implementation status of various measures. Some of the institutions established include:

- Kenya Wildlife Service
- National Museums of Kenya
- Kenya Forest Service
- Nature Kenya
- NEMA

The following websites will help to find more evidence to address the same;

Kenya Wildlife Service

- <http://www.kws.go.ke/>

Kenya Forest Service

- <http://www.kenyaforestservice.org/>

Adequacy of monitoring information to support assessment

Please indicate the adequacy of the national monitoring systems in place for this national target.

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

The National Wildlife Conservation Status Report is a requirement in the Wildlife Conservation and Management Act (WCMA, 2013).

Part VI- CONSERVATION, PROTECTION AND MANAGEMENT, section 49 (4) states that: "The cabinet secretary shall report biannually to the National Assembly through the National Wildlife Conservation Status Report on the status of the efforts to develop and implement recovery plans for all nationally listed species and on the status of all species for which such plans have been developed".

Section 87 sub section (b) of the WCMA, 2013 states; "The Service shall maintain registers of- National Parks, National Reserves, Wildlife Conservancies and Sanctuaries established under this Act and management thereof". In section (c) it notes that; "The Service shall maintain registers of all community scouts involved in the Conservation and management of wildlife".

In section (d) it notes- "The Service will maintain registers of- all management plans developed pursuant to the provisions of this Act". The National Wildlife Conservation Status Report gives the status of: all National Parks and Reserves; Conservancies and Sanctuaries; community wildlife scouts in Conservancies; Management Plans; all listed species in Schedule 6 and 7 and their recovery status. Focus is given to the conservation status of endangered listed species, their habitats and factors that influence their population trends.

Besides the introduction the report has seven thematic areas namely:

- Status of Kenya's Wildlife Conservation Areas,
- Status of listed Wildlife species population and trends,
- Threats to Wildlife Conservation,
- Status of wildlife recovery plans,
- Wildlife management,
- Wildlife utilization; and
- Financing in the wildlife sector A short synopsis of the salient issues and concepts captured in the National Wildlife Conservation Status Report is presented.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)

Kenya Wildlife Service

- <http://www.kws.go.ke/>

Kenya Forest Service

- <http://www.kenyaforestservice.org/>

Kenya State of the Coast Report

http://www.nema.go.ke/images/Docs/REPORTS/SOC%202nd%20Edition%20final%20report_19%2010%202017.pdf

National Wildlife Conservation Status Report 2015-2017

KWS 2017: National Wildlife Conservation Status Report 2015-2017. <http://www.kws.go.ke/content/status-wildlife-report-2015-2017>

4.12 TARGET 12

Target 12

By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done12th March 2020**Additional information**

Kenya has documented 4,623 plant species within 1,387 genera, 766 species of bryophytes, 511 ferns and 2,071 species of fungi and lichens ¹²⁷. There are 393 mammal species, 260 reptile species (Snakes, lizards, geckos, skinks, chameleons, tortoise, turtles, terrapins, crocodile) and amphibians (toads, frogs, salamanders) species. Further, 1,105 bird species, of 769 Fish (362 fresh water), of which 5 are likely to be extinct as well as 168 arthropods and arachnids. The 2017 IUCN list of threatened species showed that Kenya had 463 plant and animal species which were threatened. These include 30 mammal, 43 bird, 73 fish and 234 plant species. The broad classification by IUCN while listing threatened species includes. Critically endangered, endangered, vulnerable, near threatened, least concern, data deficient, and not evaluated. (KWS report 2017)

Table 8: Species diversity in Kenya

Category	Species
Vascular plants	7016
Bryophytes	778
Total plants	7794
Vertebrate	
Large Mammals	157
Small mammals	250
Birds	1100
Reptiles	265
Amphibians	110
Fishes	1108
Total vertebrates	2990
Invertebrates	
Dragonflies	194
Butterflies	900
Bees	800
Other insects	21578
Molluscs	297
Crustaceans	343
Corals	183
Total invertebrates	24295
Fungi	863
Slime molds	105
Other Microbes	2000
Total species	38047

(Source: Updated by NMK at Naivasha 6NR Stakeholder Workshop March 2020)

¹²⁷ The Herbarium. National Museums of Kenya.

Table 9: Threatened plants and animals

Species	Critically endangered	Endangered	Vulnerable	(NT-Threatened	Total
Mammals	2	11	16	18	47
Birds	6	16	21	31	74
Reptiles	2	4	2	0	8
Fish	7	4	15	104	130
Plants	24	111	167	67	369
Totals	41	146	221	220	628

Source: Compiled from reports of KWS, NMK, Nature Kenya (Bird Life Data Zone), IUCN, 2018

The Wildlife Conservation and Management Act (WCMA, 2013) in schedule 6 lists 245 wildlife species under various categories of threats ranging from critically endangered to protected species. The Act requires that the status of these species be reported to the National Assembly every 2 years and the recovery measures being implemented to restore the said species be indicated. Focus is given to the conservation status of endangered listed species, their habitats and factors that influence their population trends. Whereas the listed number of species in schedule 6 is 245, only 31 species recovery plans have been developed out of which 13 have since expired.

Table 10: Protected species is an animal or plant, of which the law forbids harming or destroying.

Taxonomic Group	CR	EN	VN	NT	T	Protected	Total
Mammals	7	19	36	0	0	0	62
Birds	2	12	13	30	0	37	94
Fish	7	4	15	0	0	0	26
Trees	0	2	6	0	0	0	8
Insects	1	0	0	0	0	0	1
Reptiles and Amphibians							
Snakes	0	1	1	0	0	10	12
Frogs	1	5	1	0	0	7	14
Toads	0	0	0	0	1	3	4
Tortoise	0	0	0	0	1	0	1
Terrapin	0	0	0	0	0	1	1
Gecko	0	0	0	0	0	2	2
Skinks	0	0	0	0	0	2	2
Lizards	0	0	0	0	0	3	3
Chameleoan	0	0	0	0	0	6	6
Turtles	1	2	0	0	1	4	8
Total	19	45	73	30	3	75	244

Source¹²⁸

¹²⁸ KWS 2017: National Wildlife Conservation Status Report 2015-2017. <http://www.kws.go.ke/content/status-wildlife-report-2015-2017>

The National Wildlife Conservation Status Report 2015-2017 provides an overview of the status and trends of wildlife species in Kenya, the current population and its viability, population trends, breeding success rates, threats, and management interventions undertaken.

For example,

- **Fish:** A total of 355 fish species have been documented as fresh-water fishes but only 332 species are confirmed present. 25 freshwater fish species are listed as endemic, some which though widespread and due to a variety of reasons are now listed as threatened and 8 are extirpated.
- **Toads and frogs:** There are 20 amphibian species listed as endemic but are threatened by human activities such as logging and agricultural expansion, climate change and alien species invasion. Poor waste management leading to pollution of water bodies has also contributed to this decline. Most of these species have a narrow EOO and thus are easily affected by any anthropogenic factors.
- **Plants:** Kenya has 356 plant species listed in appendix VI out of which 23 are critically endangered, 83 endangered, 169 vulnerable and 81 are near threatened. 112 of the threatened species are endemic to Kenya. Taita hills have over 86% of the threatened species.
- **Birds:** Kenya has one of the richest avifauna diversities in Africa, with around 1,105 bird species recorded. Of these, 800 species are year-round residents, 60 species are afro-tropical migrants moving within the continent and 170 are Palearctic migrants that journey from Eurasia each winter. The major migratory flyways in Kenya include the 550km long coastline with its associated creeks, reefs and beaches, and the chain of lakes stretching along the Rift Valley from Turkana in the north to Magadi in the south. Some 170 Palearctic migrant bird species migrate south to Kenya from Eurasia during the northern hemisphere's winter. Eleven of these species have local breeding populations that are year-round residents. By 2017 the listed (Endangered, Vulnerable, rare, Indeterminate, out of danger or insufficiently known) number of threatened bird species in Kenya by IUCN was 43.
- **Sea turtles:** Five species of sea turtles have been reported to either nest, forage or migrate through Kenyan waters. These species include the critically endangered hawksbill turtle (*Eretmochelys imbricate*), the endangered green turtle (*Chelonia mydas*), and the vulnerable olive - ridley turtles (*Lepidochelys olivacea*). The endangered loggerhead turtle (*Caretta caretta*) and the leather back turtle (*Dermochelys coriacea*) occasionally forage and migrate through Kenyan waters.
- **Marine taxa:** Species of conservation concern include those that are rare, endemic or show evidence of local population declines, and are classified by IUCN as critically endangered, endangered, vulnerable, or near threatened. They include marine mammals (Cetaceans and Sirenians), sea turtles, bony fishes and elasmobranchs (sharks and rays), and terrestrial species (mammals, reptiles, birds, amphibians, and plants). Human induced pressures continue to impact on species of conservation concern driven by increasing coastal populations, poverty, shrinking habitats, overexploitation of resources, coastal development and urbanization, and tourism. There are general uncertainties on their status; however, anecdotal evidence continues to indicate declining populations. Nonetheless, there have been concerted efforts since 2009 to document sightings of these species through collaborative monitoring efforts, which has enhanced knowledge on their distribution and enabled the identification of important areas of biodiversity.

Case studies:

- **Montane/Kenyan Dancing Jewel (*Platycypha amboniensis*)** This insect species is listed as critically endangered by the IUCN and WCMA, 2013. It belongs to the African Damselfly (Family Chlorocyphidae) which has about 10 species. It is endemic to the montane forest streams of the Aberdares and Mt. Kenya, between 1600 and 2000m above sea level. The threat of extinction is due to severe habitat loss and degradation. The forest under which its EOO is defined has been cleared leaving only fragmented pockets (AOO) where it presently occurs. The continued illegal logging, charcoal-burning and clear cutting has further aggravated the survival of the species

Case study:

The role of conservancies in supporting wildlife populations is shown by a study by Ogutu *et. al.* as shown in the figures below¹²⁹. The Nakuru Wildlife Conservancy is located in the Nakuru County of Kenya, about 100 km northwest of Nairobi (latitude -0° 27' 54" and longitude 36° 12' 4".) The Conservancy, covering an area of about 1417 km² currently consists of about 33 different properties and is managed by the Nakuru Wildlife Forum (NWF), a grouping of communal, private and public land owners and managers who work together to make landscape-level management decisions for the benefit of the Conservancy. Several small- to large-scale wildlife and livestock ranches, wildlife sanctuaries, national parks and forest reserves are part of the Conservancy.

The parks and sanctuaries include the Hell's Gate National Park (68.25 km², but the counts cover about 65 km² because part of the park is fenced off and used for Geothermal Power Generation and hence has no animals), that adjoins Lake Naivasha to the south and has an access corridor to the lake, and Mt. Longonot National Park (52 km², but the counts cover an additional 29 km² of the adjoining Kedong Ranch and a private Game Sanctuary found on the Crescent Island on the Lake). The fourth largest city in Kenya, Nakuru, is located on the northern edge of the conservancy.

¹²⁹ Ogutu JO, Kuloba B, Piepho HP, Kanga E (2017) Wildlife Population Dynamics in Human-Dominated Landscapes under Community-Based Conservation: The Example of Nakuru Wildlife Conservancy, Kenya. PLOS ONE 12(1): e0169730. <https://doi.org/10.1371/journal.pone.0169730>

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0169730>

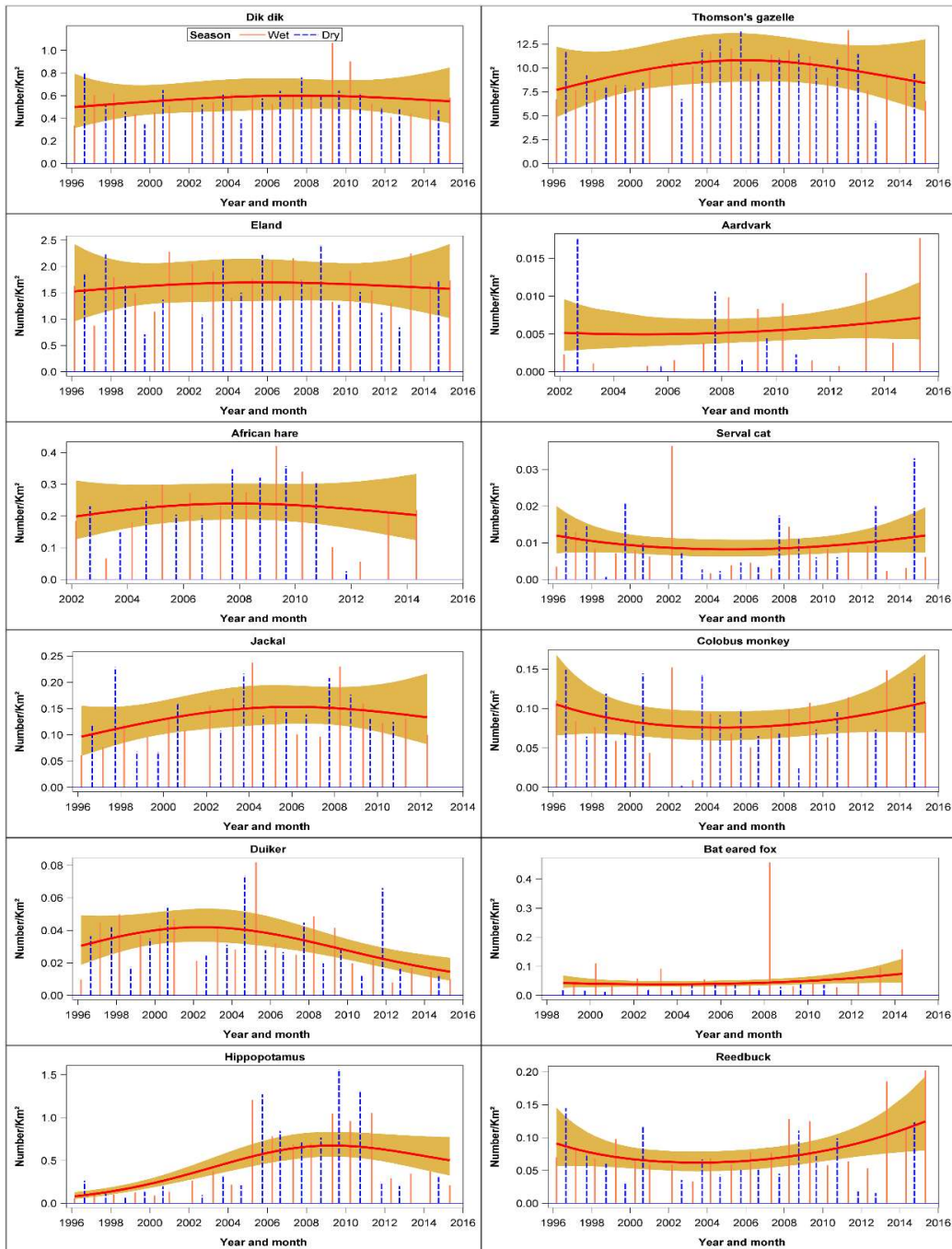


Figure 48: Trends in the density (Number /km²) of steinbuck, bushbuck, hartebeest, Greater kudu, klipspringer, mongoose, oribi, porcupine, cheetah, leopard, ostrich and Sykes monkey for the entire Nakuru Wildlife Conservancy during 1996–2015.

<https://doi.org/10.1371/journal.pone.0169730.g003>

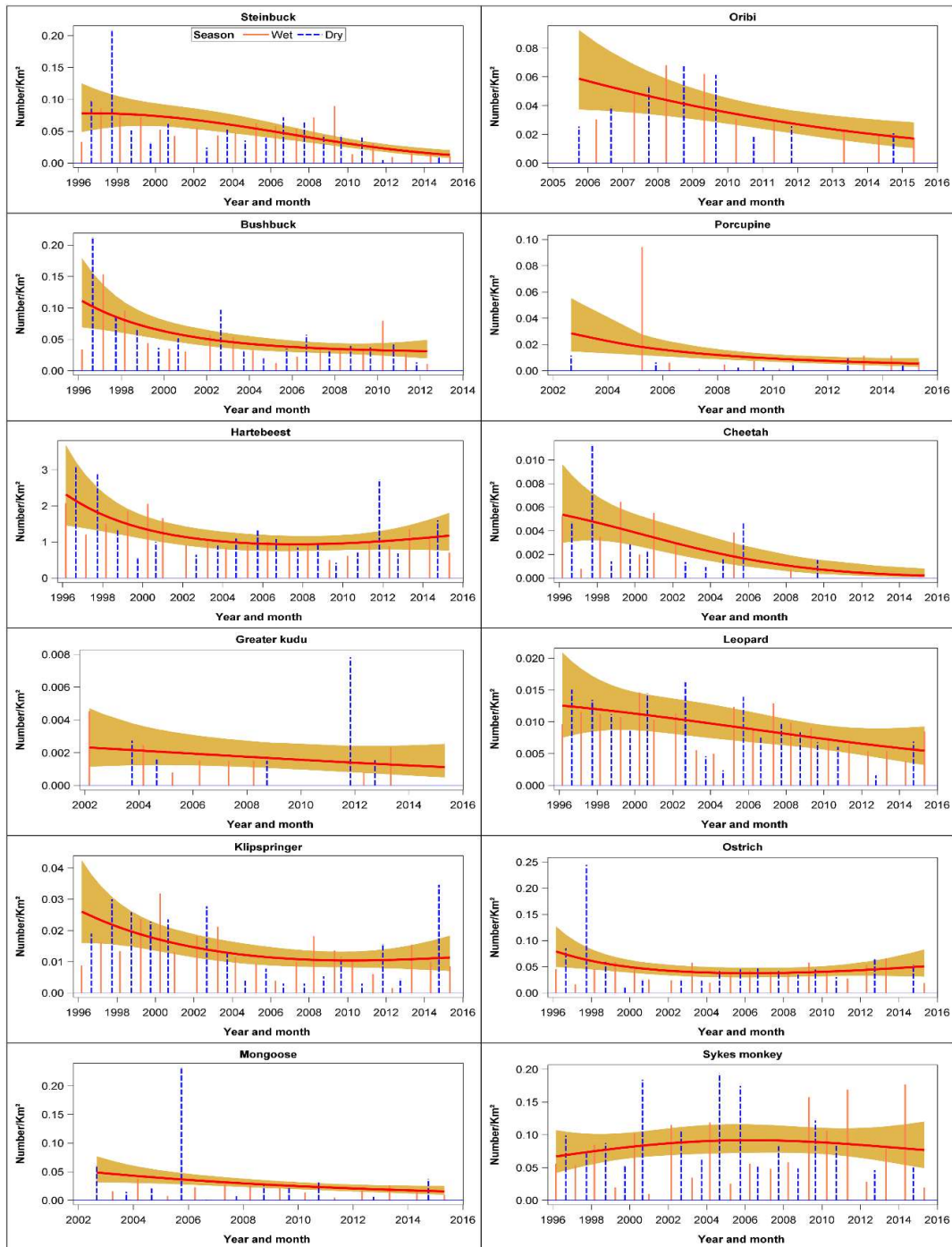


Figure 49: Trends in the density (Number /km²) of steinbuck, bushbuck, hartebeest, Greater kudu, klipspringer, mongoose, oribi, porcupine, cheetah, leopard, ostrich and Sykes monkey for the entire Nakuru Wildlife Conservancy during 1996–2015.

<https://doi.org/10.1371/journal.pone.0169730.g003>

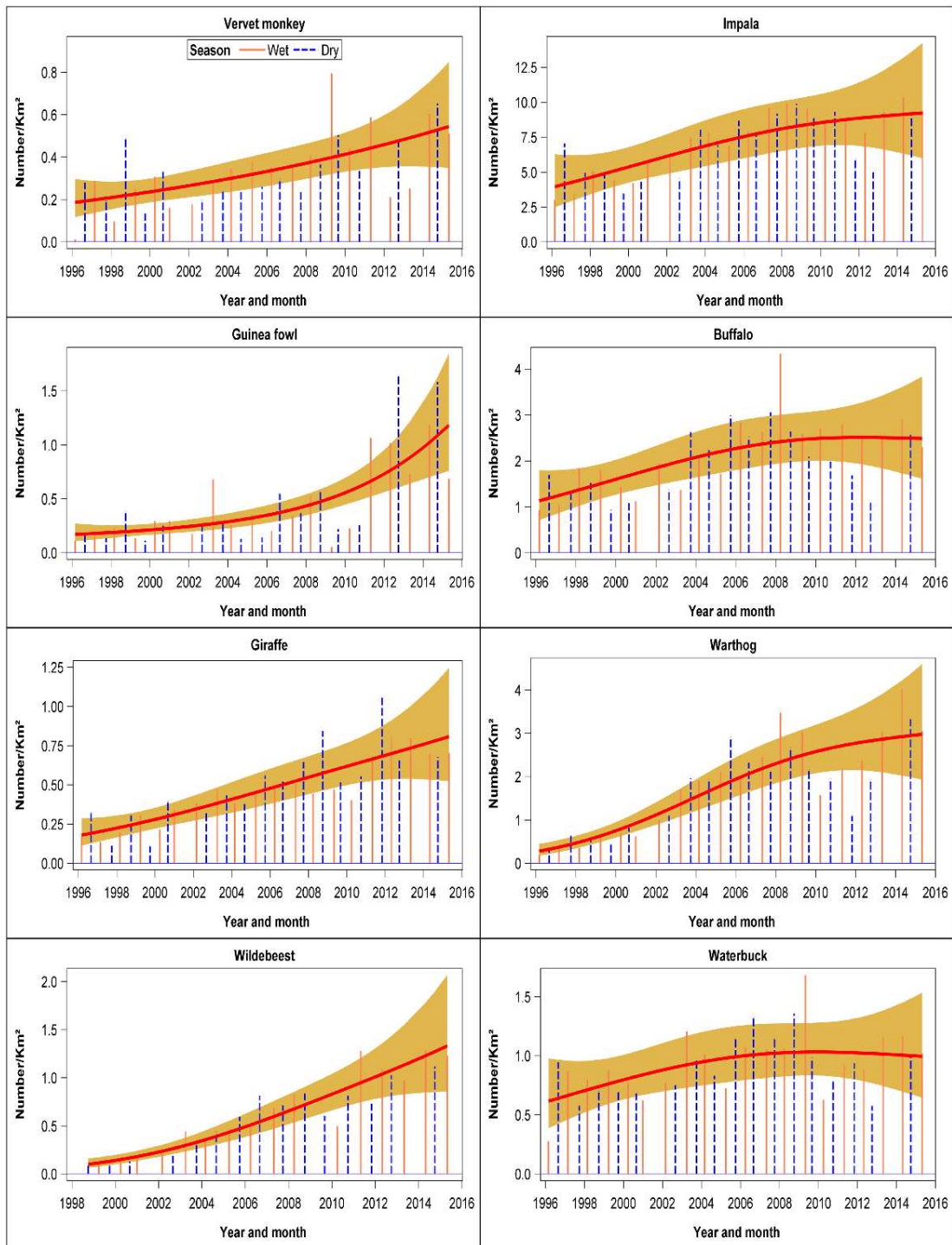


Figure 50: Trends in the density (Number /km²) of vervet monkey, guinea fowl, giraffe, wildebeest, impala, buffalo, warthog and waterbuck for the entire Nakuru Wildlife Conservancy during 1996–2015.

<https://doi.org/10.1371/journal.pone.0169730.g006>

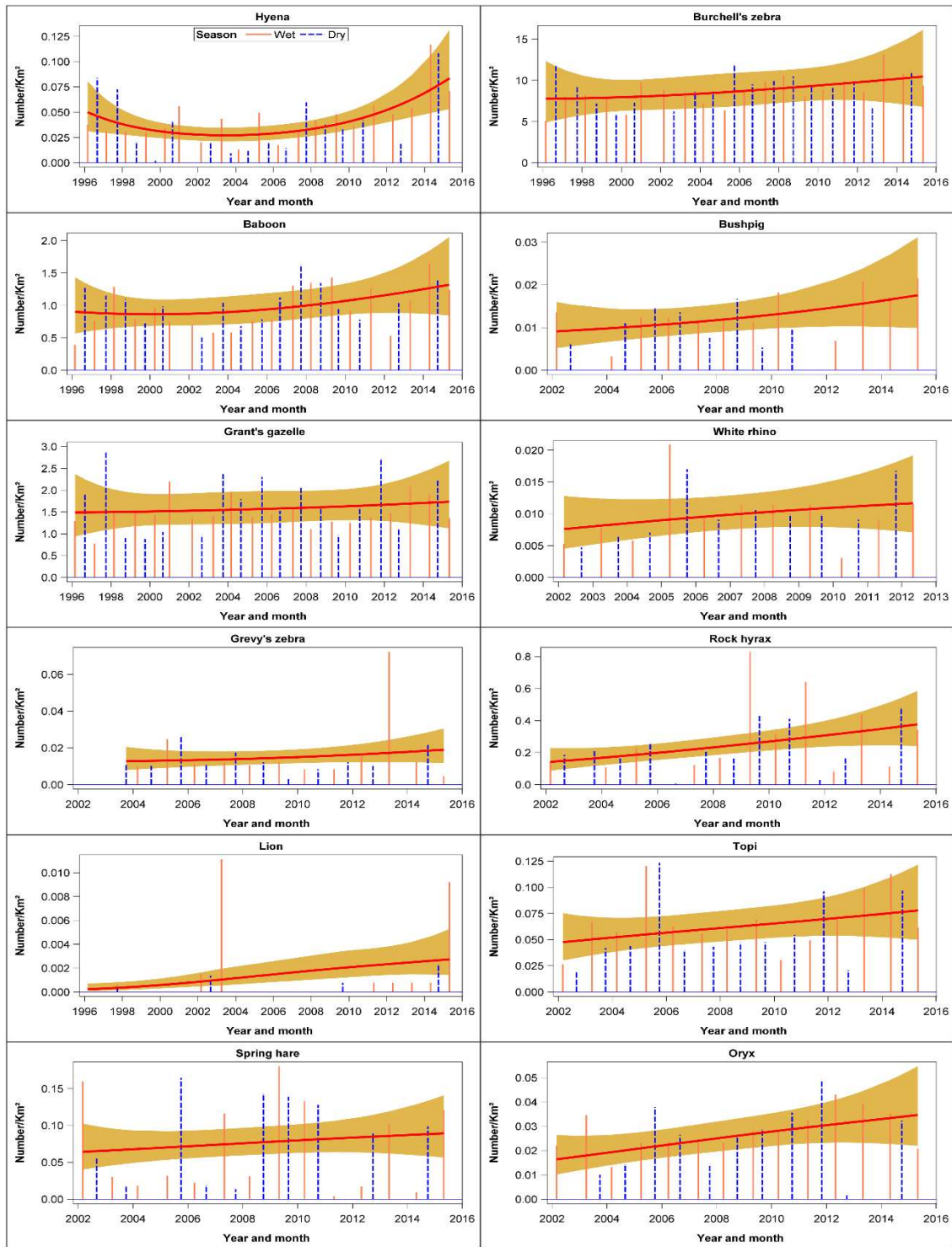


Figure 51: Trends in the density (Number /km²) of hyena, baboon, Grant's gazelle, Grevy's zebra, lion, spring hare, Burchell's zebra, bushpig, white rhino, rock hyrax, topi and oryx for the entire Nakuru Wildlife Conservancy during 1996–2015.

<https://doi.org/10.1371/journal.pone.0169730.g005>

Recovery Plans

Section 49 (4) WCMA, 2013 requires KWS to develop and implement recovery plans for all nationally listed species and on the status of all species for which such plans have been developed. KWS in collaboration with relevant stakeholders has developed and is championing implementation of 19 species specific recovery plans, including for Black Rhino, Elephants, Cheetah and Wild Dogs, Lion and Hyena, Grevy's Zebra, Sea Turtles, sable antelopes, giraffes, Eastern Mountain Bongos, Roan Antelope, Sitatunga, Hirola antelopes. Others include for Sagalla Caecilian, Critically Endangered birds in Taita Hills (Taita Thrush, Taita Apalis), Spotted Ground Thrush (*Zoothera guttata*), Bird, Coral reefs and sea grasses ecosystems, and Aloe, for invasive species, and for bioprospecting. With Partners, others included for Blue Swallow, Lesser Flamingo, Madagascar Pond Heron, Maccoa Duck, Grey Crowned Crane and Lappet-faced Vulture. These are available from the KWS website.¹³⁰

Due to limited human resource and technical capacity on some specific areas, there is inadequate information on some of the listed species thus their population status is listed as data deficient. Remnant population of some of the listed species are non-viable e.g. the Roan antelope and the bearded vulture. The management through the MOE&NR has requested for two herds of roan antelopes and a pair bearded vulture from the People Republic of Tanzania and Ethiopia respectively thus require follow up.

For example:

- **Rhinos:** Three out of five sub-species of rhinos in the world are found in Kenya. The Black rhino – *Diceros bicornis michaeli* is native to the country while the Southern white rhino – *Ceratotherium simum simum* and the Northern white rhino *Ceratotherium simum cottoni* are exotic. In the 1970's Kenya had a population of 20,000 black rhinos widely spread mainly in the protected areas. The upsurge of poaching in the 1970's to mid the 1980's decimated the population to a handful. In the late 1980's the government made a deliberate effort to consolidate the remaining rhinos by creating sanctuaries. Presently there are 10 black rhino sanctuaries in National Parks with two of the parks, Tsavo East and West having free ranging rhinos in Intensive Protection Zones (IPZ). Only Masai Mara National Reserve - is a rhino Reserve and 8 Conservancies have rhino sanctuaries. The Sobo Rhino Sanctuary in Tsavo East is the latest sanctuary to be established but is yet to receive any rhinos. Both the White and Black Rhino have shown a positive trend in their population growth This can be attributed to a number of factors among them:
 - a) the creation of specific rhino sanctuaries,
 - b) Heightened security against poaching,
 - c) strict control of diseases,
 - d) Tsetse management and control
 - e) collaboration with other stakeholders especially conservancies in creating rhino sanctuaries,
 - f) development and implementation of a National Rhino strategy
 - g) Financial support from government and other donor agencies in rhino conservation,
 - h) creation of National awareness in matters of Rhino conservation.

Threats facing rhinos in Kenya include poaching (Mugie had rhinos trans-located due to security), diseases, loss of habitat, diminishing gene pool, lack of enough areas to create more sanctuaries, large lucrative international markets for rhino horn.

¹³⁰ <http://www.kws.go.ke/downloads>

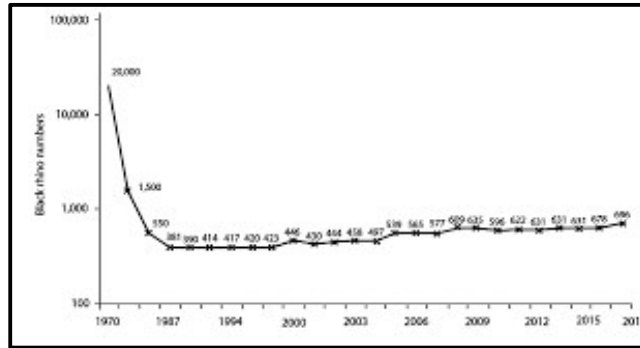


Figure 52: Trends in Rhino Population in Kenya

(Source: KWS 2017)

- **Giraffes:** There are four distinct species of giraffe three of which are found distributed in 27 of the 47 counties of Kenya.
 - The Masai giraffe (*Giraffacamelopardalis tippelskirchi*) in Nairobi National Park southwards through the Athi Kapiti plains and towards the Amboseli Maara ecosystem and the Tsavo ecosystem.
 - The Reticulated giraffe (*G. c. reticulata*) is found in the ASAL parts of northern Kenya spreading from the northern part of Tsavo East National Park towards the Kenyan, Ethiopia Somali border.
 - The Rothschild's giraffe (*G. c. rothschildi*) is spread in small enclaves spread in the country including Ruma National Park (highest population) and Lake Nakuru National Park.

Nairobi Giraffe centre which was established in 1979 as a giraffe rescue centre has to date released over 500 giraffes into the wild including Soisambu, Kigio, Sergoit (Eldoret) and Mwea National Reserves. Threats facing giraffes include loss of suitable habitat due to agricultural expansion into their former habitats; logging of acacia trees for charcoal burning firewood and building (rampant in Kitui South National Reserve, Tsavo National Park & Masai Mara area); poaching; predation of calves by carnivals; and diseases (anthrax).

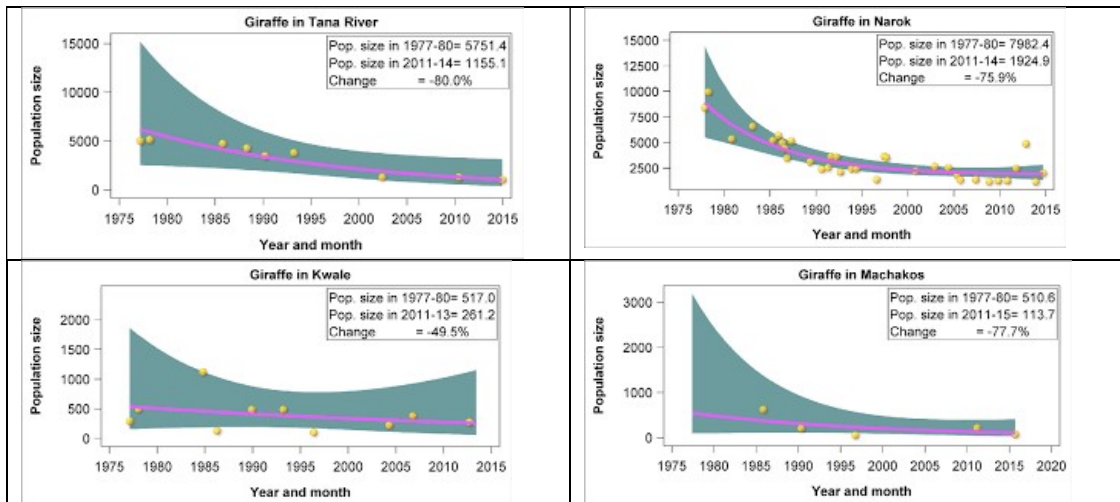


Figure 53: Trends in Giraffe populations in selected Counties.

(Source: Ogutu, unpublished, IUCN red list 2018)

Kenya has designated the Kenya Wildlife Service (KWS) as CITES Management Authority and the National Museums of Kenya as the CITES Scientific Authority as required by the Convention. The Wildlife Conservation and Management Act, 2013; The East African Customs and Management Act, 2004 (Rev. 2008); EMCA, 2015; are among the key legislation for penalties, seizures and confiscation, and permitting.

In 2014, the Government enhanced the penalties under the Wildlife Conservation and Management Act, 2013, to curb the illegal trade in endangered species. The National Wildlife Strategy 2030 launched in June, 2018, forms the blueprint for wildlife conservation and management in the country. In order to have a comprehensive and coordinated policy framework, the Government is reviewing the 1975 Wildlife Policy.

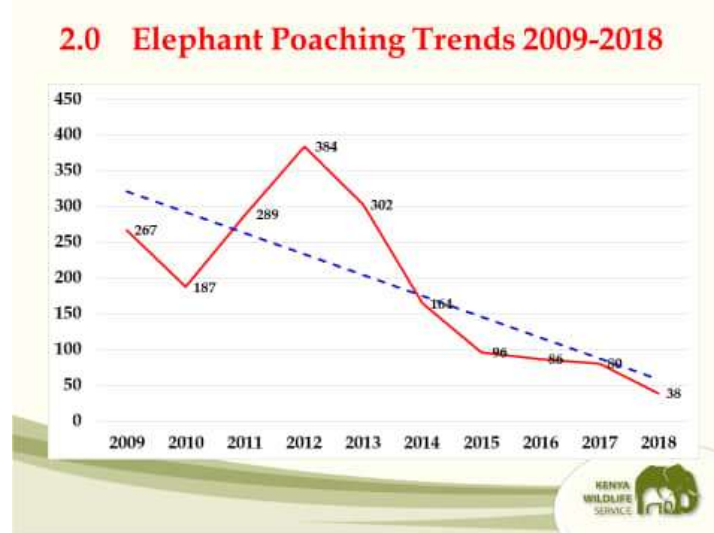


Figure 54: Trends in Elephant Poaching 2009-2018

Source: KWS¹³¹

The Government submitted twenty (20) proposals at COP 18 in Geneva, Switzerland, 2019, 19 of which successfully went through. The proposal to restrict trade in elephant ivory and rhino horns among other species which were considered at COP 18 in Geneva in August 2019. The proposed revisions aimed at strengthening the language in the Resolution 10.10 on elephants and in Resolution 9.14 on rhinoceroses to restrict any ivory and rhino horn trade, by ensuring all domestic ivory markets across the globe are closed; enhanced management by parties of ivory and rhino horn stock piles to ensure such stocks do not leak from Government stores into the illegal markets; and in Resolution 11.20 to restrict trade in live elephants to only apply for purposes of promoting conservation of the species only in-situ respectively. The proposal further aimed at countering proposals to trade in rhino and rhino horns. COP 18 approved the proposed changes. In adopting the changes in Resolution 11.20 the COP approved a near complete ban on capturing and sending African elephants from their natural habitats to zoos and other captive facilities abroad.

COP 18 Proposal thirty-seven (37) was a proposal to transfer Pancake Tortoise from Appendix II to Appendix I to prohibit trade in specimens of Pancake Tortoise collected from the wild and control illegal trade in specimens of other species. Nearly all proposals to COP 18 on reptiles and amphibians including Kenya's proposal on Pancake Tortoise were adopted. Kenya's proposals forty-four (44) and forty-five (45) for inclusion of White-Spotted Wedge Fish and Teat Fish, respectively, to regulate trade through CITES permits and certificates were approved. Proposal 5 to include Giraffe in Appendix II was accepted overwhelmingly. Decisions adopted at the CITES COP 18 entered into force on 26th November 2019, for implementation. However, the decision on the listing of the Teat Fish in Appendix II will enter into force in November 2020.

¹³¹ <http://www.kws.go.ke/downloads>

401592904/10157611401557904/?type=3&theater"
<https://web.facebook.com/KenyaWildlifeService/photos/pcb.10157611401592904/10157611401557904/?type=3&theater>

Kenya's participation to and adequate representation at COP 18 was instrumental in the realization of the following conservation milestones:

- The rejection by CITES of lifting the international ivory trade ban means that the international trade ban in ivory and rhino horns remains,
- stringent regulation on live elephant trade to only allow any transfer of live elephants to appropriate and acceptable destinations within the elephant's natural range,
- strict and time bound compliance requirements for those countries that still have domestic ivory markets to work towards closing such markets and report to CITES on a regular basis the efforts being made to achieve the measure and to ensure their trade do not contribute to poaching and illegal ivory trade.

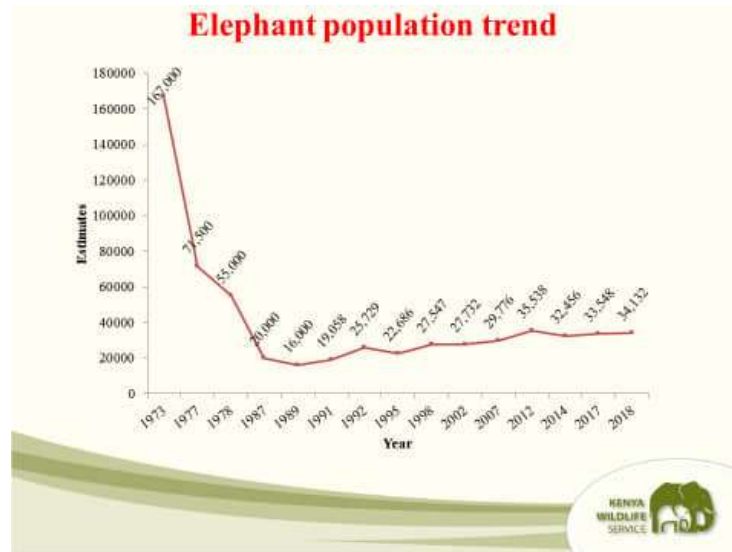


Figure 55: Trends in elephant Populations 1973-2018¹³².

Other milestones include: Listing of Giraffes, Wedge Fish Shark and Teat Fish in CITES Appendix II, thus bringing under regulation trade specimens of the listed species; Trade in Giraffe, Wedge Fish Shark and Teat Fish will now be regulated under the CITES permitting and certification systems to ensure the trade is not detrimental to the survival in the wild; and Listing the Pancake Tortoise in Appendix I to prohibit any trade in wild caught specimens and strictly regulate trade in specimens of the species to only allow specimens bred in captivity and only from those captive facilities that have been entered in the CITES Register for captive breeding of Appendix listed species for commercial purposes.

Kenya's influence on the position the COP would take on a number of controversial agenda items was monumental. Such positions included on issues of engagement of rural communities in CITES processes and how issues of CITES and livelihoods should be considered under the CITES framework, enhances law enforcement to protect species such as the East African Sandalwood, Pangolins and Cheetah whose populations continue to decline as a result of Illegal Wildlife Trade.

Kenya is actively implementing other related Conventions that enhance it's capacity to deal with threatened species. These are:

- **Convention on Wetlands of International importance especially as Waterfowl Habitats (RAMSAR Convention):** Kenya is required to have an inventory of all the wetlands and update their conservation status. Kenya has six wetlands in the RAMSAR list: Lake Naivasha, Lake Baringo, Lake Bogoria, Lake Elementaita, Lake Nakuru and Tana River Delta. The process of listing more wetlands in RAMSAR site is underway to include sites such as Lake Ol Bolossat in Nyandarua county. Kenya

¹³²

<https://web.facebook.com/KenyaWildlifeService/photos/pcb.10157611401592904/10157611401557904/?type=3&theater>

Wildlife Service (KWS) is designated as the Convention's implementing authority and National Focal Point. Focal points for other aspects are NEMA and the National Museums of Kenya.

- **Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora:** Kenya hosts the Secretariat (LATF) established under the Agreement. The Secretariat is run by law enforcement officers seconded from the wildlife authorities of the signatory states and coordinates with the National wildlife authorities of signatory states and other law enforcement agencies to control cross-border illegal wildlife trade in member states. Through the Agreement the country has strived to control poaching and trafficking of wildlife especially of ivory and rhino horns. The Wildlife Conservation and Management Act, 2013 and The East African Community Customs Management Act, 2004 (Rev. 2008) implement the Lusaka Agreement.
- **Revised African Convention on the Conservation of Nature and Natural Resources. (The Algiers Convention):** Parties are required to increase vegetation cover, promote traditional rights of local communities and traditional knowledge, and participate in meetings for the conservation and rehabilitation of shared natural resources for future generations. At the United Nations General Assembly in September 2019, Kenya set targets to increase its forest cover from the current 7 to 15 percent by 2022. In May, 2019, the following Presidential Directives were issued under National Strategy for Achieving and Maintaining Over 10 percent Tree Cover By 2022: Accelerated attainment of 10 percent national tree cover by 2022; Commitment at One Planet Summit during the UNEA4 Conference to achieve and surpass Constitutional target of 10 percent National tree cover by 2022; Review of teaching curriculum to include sustainable forest management ; All Chiefs to revive Chief's tree nurseries; and Allocation of 10 percent CSR budget for tree growing by all Ministries, Department and Agencies (MDAs).
- **East Africa Community Protocol on Environment and Natural Resources Management:** The Protocol is yet to enter into force as some partner states have not ratified it. The objective of the Protocol is to co-ordinate parties to adopt a common vision in addressing the challenges of achieving sustainable development at the local, national and regional levels through sound environment and natural resources management. Partner states are currently re-negotiating the Protocol to streamline certain aspects with respect to use and protection of natural resources in the East Africa Community (EAC).
- **Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) (CMS):** CMS brings together the states through which migratory animals pass, the range states, and lays the legal foundation for internationally coordinated conservation measures throughout a migratory range. Kenya has signed and ratified several agreements and MOUs under the CMS. These include the African Eurasian Water Birds Agreement (AEWA) and MoUs on Migratory Sharks, Sea Turtles, Raptors and Dugongs. The KWS is the focal point institution that coordinates and implements Kenya's obligations under the Convention. In 2018, the KWS implemented action plans and the strategies for recovering and managing of species covered under the convention, agreements and MoUs. There is need to address habitat loss and the disparities in national laws across various jurisdictions that are range States for the migratory species. There is more focus on "Charismatic" Species such as elephant and rhinos at the expense of other species of conservation priority such as vultures as compared to elephant, thus the need to change perception of Kenyans. There is need to find a way of profiling other species. There is lack of proper coordination among relevant agencies in planning and implementation of the needed interventions to address threats to the raptors. Further, there is need to consolidate efforts and enhance international cooperation towards the conservation of raptors across their range. Further, there is limited domestication of decisions of CMS at National Level.
- **The Consumptive Wildlife Utilization (CWU) Task Force.** Launched on 29th March 2018 to assess and advise on the modalities of implementing the provisions of the Wildlife Conservation and Management Act, 2013 (WCMA 2013) on sustainable, Consumptive Wildlife Utilization (CWU) in Kenya.
- **The Museums and heritage Act 2006¹³³:** The Act established the NMK as the custodian state body to provide protection of national natural and cultural heritage. It enables the NMK to identify, protect, conserve and disseminate knowledge on Kenya's heritage. The Act makes provision for regulations and formulation of legislation frameworks to gazette heritage sites, undertake research and protection of heritage resources to reduce adverse impacts for posterity. It strengthens the role

¹³³. NationalMuseumsandHeritageAct6of2006_subsiary.pdf

of local community to protect and sustainably manage heritage as the custodians of indigenous knowledge. The NMK also provides capacity development for better and continued heritage management. It plays a key role as technical advisory body for implementation of various MEAs such as CITES, CBD, RAMSAR, among others., including regional and international bilateral policies/agreements such as CMS and IUCN action plans.

Case Study: Red Listing

The major species under threat have been enumerated following review in 'Kenya's Natural capital biodiversity Atlas' (MEWNR, 2015) and subsequently updated during the State of Environment report (SoE, NEMA, 2018). Based on these reviews, a total of 628 species are known to be threatened in nature according to the IUCN threat categories i.e. Vulnerable, Endangered and Critically Endangered (NEMA, 2018). Of these, there are two mammal species listed as Critically Endangered (CR) in Kenya's protected areas, including *Beatragus hunteri* (Sclater, 1889) Hirola, *Diceros bicornis* (Linnaeus, 1758) Black Rhinoceros. In addition, 11 species are Endangered and 16 are Vulnerable (IUCN, 2018). There are also a number of CR birds (e.g. *Taita apallis* and *Taita thrush*) while vultures (e.g. *Gyps africanus*, *Gyps rueppelli*, *Necrosyrtes monachus*) were also listed as threatened due to poisoning and general habitat loss. To respond to wildlife poisoning, Kenya Wildlife Service in collaboration with stakeholders published in 2018 a Response Protocol to Wildlife Poisoning Incidents in Kenya (KWS 2018).

An example of CR plants (e.g. *Streptocarpus teitensis* and *Gigasiphon macrosiphon* e.g. Gereau et al., 2016¹³⁴ among others. Assessment of the conservation status has been active particularly for plants coordinated through the East African Plant Red Listing Authority committee of IUCN. The EAPRLA organises annual workshop drawing members or experts from the lead botanical institutions in the region (East African herbarium, National Museums of Kenya, National Herbarium of Ethiopia, Makerere University Herbarium and Dar es salaam University herbarium) and has managed to assess over 4781 taxa over the last decade Gereau et al., 2019 per. Comm. Also see the appendix i), where threatened species makes up to 19% or more of the coastal flora.

Supported by Birdlife International and Critical Ecosystem Programme Fund, ecosystem and single species conservation and monitoring of the threatened species has been stepped up at the coastal forests and eastern arc mountains (Gereau et al., 2016). Gereau et al (2014,2016) illustrates biodiversity conservation efforts especially in the eastern arc mountains and coastal forests including Kenya territories (e.g. https://www.researchgate.net/publication/305213160_Globally_Threatened_Biodiversity_of_the_Eastern_Arc_Mountains_and_Coastal_Forests_of_Kenya_and_Tanzania)

It provides site/locality based list of threatened species, where some major ecosystems in Kenya with more than 10 species as follows; Arabuko Sokoke forest (37), Boni and Dodori (16), Buda Forest (21) , Diani Forest (15), Dzombo hill forest (13), Gongoni forest (29), Kaya Jibana (15), Kaya Muhaka (13), Kaya Rabai (16), Kaya Ribe (12), Kilifi forest coastal forests (33), Mangea hill (25), Mt Kasingau (22), Mrima Hil (16), Pangani rock (12), Tana River forest (31), Shimba Hills (90), Taita hills forest (63) and Witu. Population status and trends has been recorded for some of the critical species (Gereau et al., 2016). For example, the population of the CR bird species *Taita apallis* was estimated to range from 310 to 654 individuals., with about 65% of the global population occurring in northern side of Ngangao Forest. Although Borghesio et al. (2014) reconfirmed presence of the bird in other forests (Msidunyi, Yale, Mbololo , Fururu, Vuria and Chawia), there is overall decline of the population numbers. Other threatened birds like The Taita are estimated to number ca. 1350 individuals, roughly equivalent to 930 mature individuals, and in due to species' montane forest experiencing sever fragmentation (BirdLife International, 2014). Also, the Endangered Clarke's weaver *Ploceus golandi*, known only from Dakatcha woodlands and Arabuko-Sokoke Forest, had the breeding ground confirmed as seasonal wetlands. In additions, population and extension of area of occupancy was recorded for a number of mammals.

Indicators used in this assessment

CBD indicators

¹³⁴ <https://www.theeastafrican.co.ke/magazine/Endangered-giga-not-out-of-the-woods-yet/434746-1999190-d3hovd/index.html>

- Trends in number of extinctions
 - Number of species extinctions
- Trends in extinctions prevented
 - Number of extinctions prevented by conservation action
- Trends in extinction risk and populations of species
 - Red List Index (indicator for SDG target 15.5)

Please describe any other tools or means used for assessing progress

- Expert knowledge e.g. East African Plant Red listing authority: botanists, ecologists, IUCN red-listing experts.
- Other Technical committees e.g. Nature Kenya's bird committee and Ornithology department
- Citizen science databases e.g. bird's map of Kenya
- Desk Review

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

KWS 2017: National Wildlife Conservation Status Report 2015-2017. <http://www.kws.go.ke/content/status-wildlife-report-2015-2017>

Wildlife offences in Kenya, A Rapid Reference Guide for the Investigation and Prosecution of Wildlife Related Offences Including Standard Operating Procedures and Sample Charges, 2016: <https://wildlifedirect.org/wp-content/uploads/2017/03/Rapid-Reference-Guide-2016.pdf>

<http://www.kws.go.ke/downloads>: species recovery plans, bioprospecting strategy,

https://ecotourismkenya.org/wp-content/uploads/ekdownloads/press_releases/NWS2030%20-%20FINAL%20JUNE%2012%2C%202018.pdf: national wildlife strategy 2030

Success in listing threatened species on CITES appendices : assessment, and discussion for listing of species during COP meetings e.g. CoP 18(<http://www.kws.go.ke/content/statement-kenya's-achievements-cites-cop18-geneva>) succeeded in listing nine (9) Giraffe subspecies in Appendix II and all Elephants in Appendix I and preventing any down listing of elephants or reopening of ivory trade.

Red list with threatened species for East Africa plants (2019) [file:///C:/Users/Dr.%20Malombe/Downloads/2.%20Red%20Listing%20Maunder_APGA%20FINAL%20\(1\)%20\(1\).pdf](file:///C:/Users/Dr.%20Malombe/Downloads/2.%20Red%20Listing%20Maunder_APGA%20FINAL%20(1)%20(1).pdf). The East African Plant red listing Committee meets once annually to assess or review species conservation status.

Increase in protected areas under Community conservancies (KWCA status report)

CABI national assessment report on control of alien/invasive species and development of facts file and management report for alien invasive species in the region including distribution for Kenya e.g. https://www.researchgate.net/publication/318110332_GUIDE_TO_THE_NATURALIZED_AND_INVASIVE_PLANTS_OF_EASTERN_AFRICA, 2017

Annual monitoring biodiversity status and populations trends in Ramsar sites, especially on birds e.g. Rift valley lakes (e.g. Lake Nakuru, L. Bogoria) see Kenya wetland atlas, 2012. https://na.unep.net/siouxfalls/publications/Kenya_Wetlands.pdf

Kenya: The globally unique and rich biodiversity, upon which 90% of Kenyan population depends on, is under threat posed by individuals across the globe: http://www.barcodeofwildlife.org/files/KenyaLegal_report.pdf

State of Wildlife Conservancies in Kenya Report 2016 <https://kwckkenya.com/wp-content/uploads/2018/01/SoC-Report.pdf>

Kenya's natural capital, a biodiversity atlas:

Kenya's biodiversity portal: <http://biodiversityatlaskenya.org>

Increased number of gazettement of national monuments including sacred forests and recognition under UNESCO: Listing The Sacred Mijikenda kaya Forests as UNESCO World Heritage Sites: "The Long Journey" <https://journals.openedition.org/africanistes/4971>

Increased description of new species to science and continued assessment of species conservation status and trends according to IUCN threatened categories : **Globally Threatened Biodiversity of the Eastern Arc Mountains and Coastal Forests of Kenya and Tanzania Gereau et al. 2016:** <https://www.researchgate.net/publication/305213160> Globally Threatened Biodiversity of the Eastern Arc Mountains and Coastal Forests of Kenya and Tanzania;

Kenya's natural capital, a biodiversity atlas <https://www.researchgate.net/publication/312046077> Kenya's Natural Capital A Biodiversity Atlas

State of Environment report 2018 ;

Identification and scientific data provision on species under CITES especially in CBD's COP discussions e.g. *Osyris lanceolate* (<https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-65.pdf>),

African elephant; pancake tortoise Malacochersus tornieri (<https://www.fws.gov/international/cites/cop18/pdfs/cop18-proposal-malacochersus-tornieri.pdf>) and recently

Burseraceae (Boswellia and Commiphora species) (<https://cites.org/eng/dec/valid17/82232>), among others

Establishment of efficient identification tools for species under CITES to increase efficiency in court convictions <http://www.barcodeofwildlife.org/kenya.html>

Increased species information and databases of species population status and trends:

Developing a Freshwater Biodiversity Information System for the Tana River Basin, Kenya, for Improved Ecosystem Management and Development Planning <https://jrsbiodiversity.org/grants/national-museums-of-kenya-2018/>;

Assessment of Lepidoptera pollinator species diversity data in East Africa <http://www.museums.or.ke/wp-content/uploads/2018/01/NMK-JRS-Project-Poster-Nov-2017-1.pdf>

The Kenya Bird Map (<http://kenyabirdmap.adu.org.za>)

iv) Enhancing tree conservation and forest restoration in Kenya <https://www.bgci.org/our-work/projects-and-case-studies/enhancing-tree-conservation-and-forest-restoration-in-kenya/>

Various species action plans e.g. birds https://issuu.com/nature_kenya/docs/taita_thrush_taita_apalis_final; <https://www.researchgate.net/publication/303273033> Action Plan for Conservation of Critically Endangered Birds in Taita Hills Kenya; https://issuu.com/nature_kenya/docs/sagalla_caecilian_final;

Species management strategies e.g. Zebras, lions, rhino, elephants, aloes, etc <http://www.kws.go.ke/content/species-management-strategies> <https://www.nation.co.ke/nationprime/illegal-sandalwood-trade-kenya/5279428-5490592-neavs8z/index.html>

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Reporting by KWS

Section 49 (1) of the WCMA, 2013 states: The Service may develop and implement recovery plans for the conservation and management of all the species listed under the sixth schedule (2)- The service shall, in developing the recovery plans, to the maximum extent practicable:- (a) Give priority to those rare, endangered and threatened species: and (b) Incorporate in each recovery plan i. A description of such site-specific management actions as may be necessary to achieve the plan's goal for the conservation and survival of the species ii. Objective, measurable criteria which, when met, would result in the species being removed from the list and iii. Estimates of the time and the cost required to carry out the measures needed to achieve the goal of the plan 1.3. Schedule six of the Wildlife Conservation and Management Act: - This schedule details the nationally listed critically endangered, vulnerable, nearly threatened and protected species.

Monitoring – KWS

In addition, the Kenya wildlife Service working closely with other stakeholders, has continued to monitor population trends based on conservation action plans of the key threatened animals and plants including lions, zebras, elephants, Osyris, among others (see <http://www.kws.go.ke/content/species-management-strategies>). Where possible intervention measures such as translocation and breeding regimes have been employed to avert extinctions. An excellent example is the white rhino, which almost went to extinction until international experts working closely with local scientists and community/private conservancies worked together for artificial reproduction (see <https://video.nationalgeographic.com/video/news/00000164-6f9b-d1c1-a5f7-6fbfd79f0000>).

In addition, research and protection in biodiversity is currently based on strengthened mandates anchored in law. For example, the constitution 2010, article 69 underscore the importance of protecting the threatened flora and fauna.

Expert Input

Information of the species distribution and spatial distribution based on museum collection and field observations by scientists and currently citizen records continue to grow. For example, the EA herbarium recently upscale plant specimen data in BRAHMS supported by IGAD while JRS generously extended support to NMK to digitize specimen and field records of threatened biodiversity in Tana river freshwater ecosystems and Lepidoptera populations in Taita hills (see <https://jrsvbiodiversity.org/grants/national-museums-of-kenya-2018/> and <https://jrsvbiodiversity.org/grants/national-museums-kenya/>). Currently, specimen database at EA herbarium is about 300000 specimens and together with animals data can be critical in assisting to establish rapid population estimates and identify areas of threat in nature to inform policy for species protection or mitigating impacts of infrastructure development and mining.

Inadequate population trends data for species conservation assessments. Usually museum collections used to map species distribution maps to determine areas of extent/occupancy, whereas some populations may be lost following recent accelerated habitat loss and degradation. It is the same reason that few species are evaluated on basis of species biology because population behaviour and trends or recruitment/regeneration is mainly unknown for majority of species.

Also, species conservation and population re-assessments is biased towards the large mammals and species on trade/CITES.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

Population status and trends for most of the species under CITES monitored annually or biannual through KWS specialist teams. Community/private conservancies assisted by international partners including WWF to monitor wildlife populations to protect from poaching and natural effects like disease pandemics and droughts.

In addition, bird populations monitored frequently especially in important wetlands e.g. Ramsar sites through KWS, NMK, Nature Kenya and Birdlife International logistical/technological and financial support.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)

KWS 2017: National Wildlife Conservation Status Report 2015-2017. <http://www.kws.go.ke/content/status-wildlife-report-2015-2017>

<https://www.nation.co.ke/nationprime/illegal-sandalwood-trade-kenya/5279428-5490592-neavs8z/index.html>

Threatened biodiversity due to pollutants and policy implementation conflicting. E.g. below ground biodiversity loss largely due to fertilizers, herbicides, etc

Conservation of Natural and Cultural Heritage in Kenya; a cross-disciplinary approach 2016: <https://discovery.ucl.ac.uk/id/eprint/1519656/1/Conservation-of-Cultural-and-Natural-Heritage-in-Kenya.pdf>

Kenya's natural capital , a biodiversity atlas: Kenya's biodiversity portal: <http://biodiversityatlaskenya.org>

Designation of Tana River delta as a Ramsar site, 2012 <[Kenya's Tana River Delta Designated as newest Ramsar Site in Africa](https://www.birdlife.org/africa/news/kenya's-tana-river-delta-designated-newest-ramsar-site-africa) <https://www.birdlife.org/africa/news/kenya's-tana-river-delta-designated-newest-ramsar-site-africa>)

A third of the tropical African flora is potentially threatened with extinction (<https://advances.sciencemag.org/content/advances/5/11/eaax9444.full.pdf>); Stevart et al., 2017)

4.13 TARGET 13

Target 13: By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

12th March 2020

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

Agriculture continues to be the backbone of Kenya's economy, contributing about 26% of the Gross Domestic Product (GDP), 60% of export earnings and employs about 70 per cent of the population. Moreover, through links with manufacturing, distribution and service- related sectors; agriculture contributes a further 27% of the country's GDP.¹³⁵ Kenya is endowed with a diverse heritage of plant and animal genetic resources due to its location in the tropics, varied relief, landscapes and habitats which support the wellbeing of its people. Excessive degradation and over-exploitation of plant biodiversity in Kenya has led to depletion of some species and narrowed their genetic base. Apart from the conservation challenge, utilization and sharing of benefits from plant genetic resources and

¹³⁵ GOK 2016: Kenya National Strategy on Genetic Resources Within the context of Climate Change 2016 – 2020. Development and launch of the Kenya National Strategy on Genetic Resources within the context of Climate Change - www.kalro.org/genetic/sites/default/files/Kenya-national-strategy-on-PGR-web.pdf

traditional and associated knowledge among communities has also remained opaque despite constitutional guarantees¹³⁶.

Some relevant policy and legal frameworks for GR in Kenya¹³⁷ include the Environment Management and Coordination Act (EMCA, 2015); Industrial Properties Act Cap 509 (2001); the Forestry Act (2005); the National Biosafety Act (2009); the Land Act (No. 2 of 2012); Seeds and Plant (Amendment) Act 2012; Crops Act No. 16 of 2013; Wildlife Conservation and Management Act (No. 47 of 2013); the Science, Technology and Innovations Act (2013); Kenya Agricultural and Livestock Research Act No. 17 of 2013; the National Biotechnology Development Policy (2006); Kenya National Seed Policy (2010); Natural Resources Bill (2014) and Kenya's Protection of Traditional Knowledge and Cultural Expressions Act of 2016.

The Kenya Animal Genetic Resources Centre (KAGRC) ¹³⁸ is the successor of Central Artificial Insemination Station (CAIS) which was established by Kenya Gazette Notice Number 557 of 19th June 1946 with the objective of controlling venereal diseases and genetic improvement of exotic dairy Cattle. In order to improve on its functions, CAIS was transformed into a state corporation hence Kenya Animal Genetic Resources Centre vide Gazette Notice No L.N. 110 of 5th September 2011 with a broader mandate. The Centre has the mandate to produce, preserve, and conserve animal genetic resources (semen embryo, tissues and live animals) and rear breeding sires for provision of high-quality disease-free semen to meet the national demand and for export. This includes strengthening and maintenance of conservation farms for domesticated animal species of indigenous breeds. Currently, there are fourteen farms across the country holding domesticated breeds of cattle, sheep, goat and chicken. In turn, the *national strategy and action plan for management of animal genetic resources in Kenya (State Department of livestock has been developed and launched.*

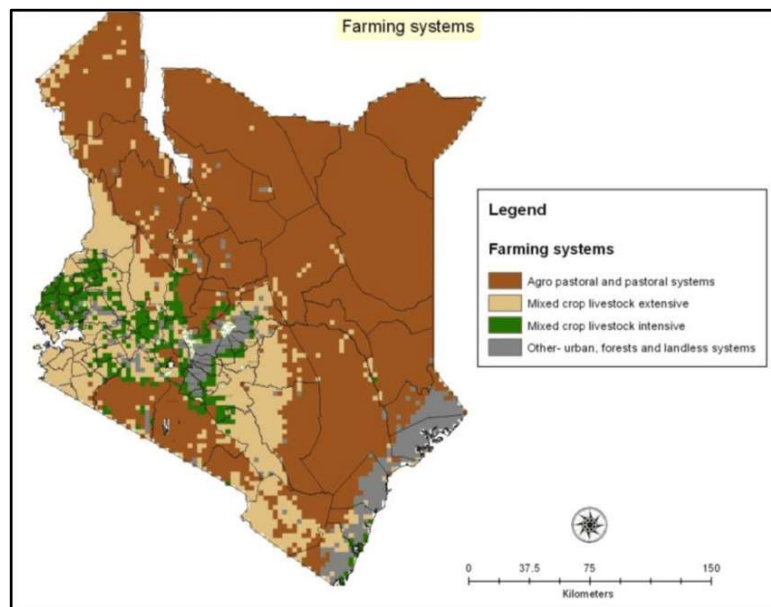


Figure 56: Farming Systems in Kenya

¹³⁶ <https://www.ip-watch.org/2017/02/15/kenya-works-communities-genetic-resources-traditional-knowledge-protection/>

¹³⁷ The legislative framework put in place (KALR ACT, The Seed and Plant Varieties Act)-Laws of Kenya (www.genetic.kalro.org/docs/Genetic_Regulations_PGRFA.pdf)

¹³⁸ Establishment of Animal Genetic Resources Centre (<http://www.kagrc.co.ke>) <https://kagrc.go.ke/who-we-are/>

(Source: Ochungo et. al 2016)¹³⁹

Under the Kenya Agricultural and Livestock Research (KALR) Act 2013, the Genetic Resources Research Institute (GERRI)¹⁴⁰ was established with the responsibility for the conservation of all components of genetic diversity. GeRRI is charged with coordinating genetic resources management to international best practice that provide for conservation, access and benefit sharing arising from the use of plant genetic resources. GERRI partners with the Kenya Agriculture and Livestock Research Organization (KALRO) research centres, Kenya Forestry Research Institute (KEFRI), National Museums of Kenya (NMK), Kenya Wildlife Service (KWS), government ministries as well as public universities, community based organisations (CBOs), nongovernmental organisations (NGOs), and farmer groups.

GERRI developed National Strategy on Genetic Resources Within the context of Climate Change 2016 – 2020 as a response to the second Global Plan of Action (GPA) for GRFA, and the National Climate Change Action Plan (NCCAP). The Strategy provides a comprehensive framework for:

- sustainable use, development and conservation of Plant Genetic Resources for Food and Agriculture,
- mainstreaming climate change impacts into the conservation agenda, and
- systems for consensus building when engaging different stakeholders to develop mechanisms for equitable sharing of benefits accrued from utilization of plant Genetic Resources for Food and Agriculture.

In situ and on-farm conservation instruments have unfortunately not been fully utilized to enable the conservation of existing diversity. For instance, increases in human population and subsequent rise in demand for plant-based products and land for settlement and farming continues to threaten wild flora thereby rendering these conservation strategies ineffective. Adoption of elite varieties of the main crops has led to a decline in crop diversity of especially traditional varieties although a significant number are being conserved ex situ. Some of the traditional varieties that are reported to have disappeared include "Githigu" (Kikuyu) and "Makondo" (Luhya), which were very popular traditional maize varieties in central and western Kenya. Some important wild species that have been used as leafy vegetables and which are increasing becoming rare in their natural habitats include *Erythrococa atroviriens*, *Basella alba*, *Crotalaria ochroleuca* and *C. brevidens*. The main neglected and underutilized crops have been identified as sesame (*Sesamum indicum*), bambara nut (*Vigna subterranea*), yams (*Dioscorea spp*), taro (*Colocasia esculenta*) and various medicinal plants.

The National Gene Bank of Kenya, now operating under the auspices of GeRRI, is the only long-term ex situ conservation facility in the country which currently holds a repository of about 50,000 plant accessions representing 165 families, 893 genera and 2,000 species. These materials have been assembled through both in-country collecting expeditions and donations from within and outside Kenya. Out of the 2,000 species conserved at the GeRRI gene bank, only 144 have been characterized, none of which has been comprehensively evaluated for biotic and abiotic stresses.

Only 4,000 accessions out of the more than 50,000 conserved at the GeRRI gene bank have been distributed for utilization in the last 15 years, of which a total of 3,189 accessions have been distributed over the last 5 years. This is partly because less than 10% of the accessions have been characterized and evaluated due to insufficient scientific staffing and financial constraints. Plant genetic resources secured under long term ex situ conservation increased by over two thousand (2000) accessions (ecotypes) comprise of 78 Families, 200 genera and 321 species (National Genebank database). More significantly, over eighty (80) of the collected and secured species (which constitutes close to 25%) during the period under review were new to conservation in the country. The Genetic Resources Research Institute has to

¹³⁹ Ochungo, Pamela & Lindahl, Johanna & Kayano, T & Sirma, A.J. (2016). Mapping aflatoxin risk from milk consumption using biophysical and socio-economic data: A case study of Kenya. African Journal of Food, 16. 10.18697/ajfand.75.ILRI08.

https://www.researchgate.net/publication/306263163_Mapping_aflatoxin_risk_from_milk_consumption_using_biophysical_and_socio-economic_data_A_case_study_of_Kenya/download

¹⁴⁰ http://www.kalro.org/Genetic_Resources_Research_Institute

date amassed over 50,000 accessions comprising close to 2000 species of diverse plant genetic resources at its conservation facility.

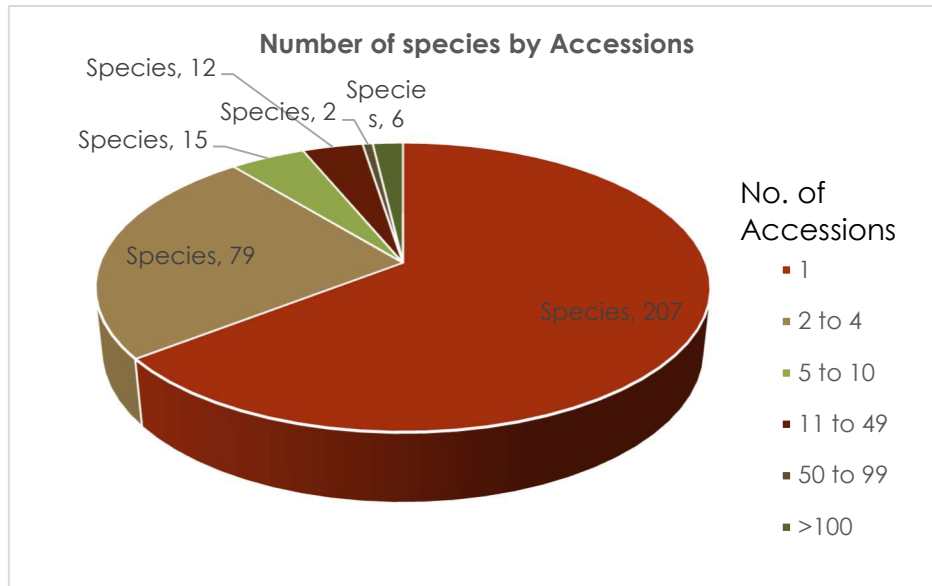


Figure 57: Number of accessions in the National Genebank (Source: GERRI)

GeRRI in partnership with the National Museums of Kenya, the Royal Botanic Gardens, Kew of the United Kingdom, and Kenya Forestry Research Institute, working under the auspices of the Seeds for Life Project, have recently described some more than 10 plant species that are new to science, collected and banked close to 1,000 plant species that are new to ex situ conservation in Kenya.

In line with the Kenya's Protection of Traditional Knowledge and Cultural Expressions Act of 2016, Part two of the Act stipulates that county governments shall collect information, document and register traditional knowledge within their jurisprudence for the purpose of recognition. Kenya's 47 counties are also charged with protection of traditional knowledge from misuse and misappropriation, among other roles. These include county governments working with the national government to establish mechanisms to prevent misappropriation, misuse or unlawful access and exploitation of traditional knowledge and cultural expression without prior consent. The Act also states that county governments are supposed to work with institutions such as Kenya Industrial Property Institute (KIPI), the Kenya Copyright Board (KECOBO) and Kenya Plant Health Inspectorate Service (KEPHIS) in establishment and maintenance of a national repository for genetic resources, traditional knowledge and cultural expressions.

The Kenya Industrial Property Institute (KIPI) is thus partnering with other institutions and county governments to assist communities in the country to preserve all aspects of traditional or indigenous knowledge in areas such as health, agriculture and climate change mitigation. This includes protection of genetic resources against undue exploitation and biopiracy.

The country has only managed to execute *ex situ* conservation of close to 60% of the domesticated plant species whose seed has the capacity to withstand desiccation to very low moisture content and Storage at sub-zero temperatures. Domesticated plant species that are not amenable to the said conservation conditions or those that don't produce seeds (vegetative propagated species) are yet to be conserved. In addition, the country is yet to establish an elaborate conservation facility to cater for *ex situ* conservation of domesticated animals and other socioeconomic and culturally significant species such as pollinators and microbial genetic resources. Similarly, crop wild relatives of domesticated plant as well

as animal species are yet to be secured either under *ex situ* or *in situ* conservation. Even for the plant species that have been secured under long-term conservation, the genetic diversity for most of them has not been effectively captured as they are only represented by one or two populations (ecotypes). For instance, out of the three hundred and twenty one (321) species secured for long term conservation during the period under review, two hundred and eighty six (286) species (close to 90%) are represented by less than five populations (ecotypes) (see the graph below). This is a major gap that requires due attention. More importantly, it is important to note that this assessment has been undertaken using rigorous consultation of experts and stakeholders in the sector.

Case study: Promoting on farm conservation of agro-biodiversity – Busia County

Maize, beans, banana, rice and potatoes make up the bulk of the daily energy intake of a typical Kenyan household, yet many of the indigenous species present in Kenya. Native crops hold untapped potential to assist the 26% of Kenyan children who currently suffer from chronic undernutrition (resulting in impaired development and growth) as well as the sizeable portion (4.1%), primarily in urban areas, who are overweight or obese. Widespread iodine deficiency disorders, iron deficiency (anemia), and vitamin A and zinc deficiency (49% of children under five years are vitamin A deficient) could be mitigated by more diverse diets.

Busia county, while endowed with a diversity of plants and animals that can be utilized for ensuring food and nutrition security, has a considerable population of malnourished children below the age of 5 years. Communities are poorly informed of the nutritional benefits of the locally available plant and animal species that can be utilized for food. The low utilization of this rich local diversity has led to their neglect and as a result facing genetic erosion.

The BFN Project¹⁴¹ worked closely with stakeholders from Busia County in Western Kenya to develop a Biodiversity Conservation Policy that takes into account the importance of conserving nutrient-rich traditional foods such as cowpea leaves (*Vigna unguiculata*), amaranth (*Amaranthus spp.*), slender leaf (*Crotalaria brevidens*) and spider plant (*Cleome gynandra*) to increase diet quality and access to key micronutrients, particularly for mothers and children¹⁴². The project also sought to provide scientific evidence and raise awareness on the role of local agro-biodiversity on food security and nutrition and enhance household livelihoods and promote utilization of local agro-biodiversity by linking farmers to markets.

The cross-sectoral process culminated in the March 2018 endorsement of the Busia's Biodiversity Conservation Policy^{143,144}, the first of its kind across Kenya's 47 counties. The policy recognises the importance of traditional foods for nutrition and food security. It has allocated resources to conserve regional food biodiversity, with specific provisions for designated conservation areas and further incorporation of native species into school meals as well as linking smallholder farmers to institutional markets. This success was only possible through concerted effort that brought together multiple parties, and engaged public stakeholder groups as well as highlevel officials including a team of experts from the County Ministries of Agriculture, Health, Education, Environment, Public Health and Forestry, the Kenya Agricultural and Livestock Research Organisation and members of the local community-based

¹⁴¹ Beltrame, Daniela & Gee, Eliot & GÜNER, Birgül & Lauridsen, Nina & SAMARASINGHE, W. & WASIKE, Victor & Hunter, Danny & Borelli, Teresa. (2019). Mainstreaming Biodiversity for Food and Nutrition into Policies and Practices: Methodologies and Lessons Learned from Four Countries. *Anadolu Ege Tarımsal Araştırma Enstitüsü Dergisi*. 25-38. 10.18615/anadolu.568795.

https://www.researchgate.net/publication/333354702_Mainstreaming_Biodiversity_for_Food_and_Nutrition_into_Policies_and_Practices_Methodologies_and_Lessons_Learned_from_Four_Countries

¹⁴² Aurillia Manjella, Victor Wasike, Teresa Borelli, Danny Hunter 2018. Improving food-system efficiency and environmental conservation using agricultural biodiversity in Busia County: a pilot study. *The Lancet Planetary Health*. Volume 2, Supplement 1. May 2018. Page S7. <https://www.sciencedirect.com/science/article/pii/S2542519618300925>

¹⁴³ Development of the Busia County Biodiversity Policy.

http://www.b4fn.org/.../Kenya/Busia_County_Biodiversity_Policy_10_Oct_2017_Final.pdf

¹⁴⁴ <https://www.biodiversityinternational.org/news/detail/busia-first-county-in-kenya-to-endorse-a-biodiversity-conservation-policy/>

and farmer training organisation Sustainable Income Generating Investment (SINGI). To recognize this achievement, the 2019 Biodiversity Day national celebrations were held in Busia County.¹⁴⁵

Instructed by local partner organisation SINGI, 4000 Kenyan farmers were trained on traditional crops' nutritional value and sustainable cultivation strategies, including techniques such as mandala, keyhole, and multi-story gardens. Additionally, the Farmer Business School model offered trainings to entrepreneurial farmers in Busia County on contract farming, business plans as well as the ability to respond to demands from institutional markets such as local schools and clinics. This is now being trialled through a food procurement model where local farmer groups sell indigenous produce directly to school canteens that feed students and staff. A Memorandum of Understanding is drawn up between the farmer and school regulating the arrangement and, bypassing market operators, the model allows for mutually beneficial consistent pricing agreements. This model was created in response to the specific needs of small-scale agricultural entrepreneurs (mostly women and youth) living in Busia County who expressed ambitions to grow their currently small enterprises by commercializing African leafy vegetables and other nutritious crops. A facilitator's training manual was developed to extend the training to other farmers and community-based organizations.

The Kenya Industrial Property Institute (KIPI) and GERRI partner with other institutions and county governments to assist communities in the country to preserve all aspects of traditional or indigenous knowledge in areas such as health, agriculture and climate change mitigation.

Indicators used in this assessment

No indicator used

CBD indicators

- Trends in genetic diversity of cultivated plants
 - Number of plant and animal genetic resources for food and agriculture secured in either medium-or long-term conservation facilities (indicator for SDG target 2.5)
 - Number of plant genetic resource for food and agriculture surveyed/inventoried
 - Percentage of plant genetic resources for food and agriculture threatened out of those surveyed/inventoried
 - Percentage of plant genetic resources for food and agriculture threatened out of those surveyed/inventoried
- Trends in genetic diversity of farmed and domesticated animals
 - Proportion of local breeds, classified as being at risk, not-at-risk or unknown level of risk of extinction (indicator for SDG target 2.5)
- Trends in extinction risk and populations of wild relatives
 - Red List Index (wild relatives)
 - Species Habitat Index (wild relatives)
- Trends in protected area coverage of wild relatives (to be resolved)
 - Species Protection Index (wild relatives)
- Trends in genetic diversity of socio-economically as well as culturally valuable species
- Trends in development and implementation of strategies for minimizing genetic erosion and safeguarding genetic diversity
 - Level of implementation of global plan of actions on genetic resources for food and agriculture
- Comprehensiveness of conservation of socioeconomically as well as culturally valuable species

Please describe any other tools or means used for assessing progress

- Expert opinion
- Stakeholder consultations
- Desk Review

¹⁴⁵ <http://www.environment.go.ke/?p=6397>

- State of Genetic Resources Reports to FAO and ITPGRFA

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

National Strategy on Genetic Resources within the context of Climate Change 2016-2020

Genetic Resources Regulations

- The legislative framework put in place (KALR ACT, The Seed and Plant Varieties Act)-Laws of Kenya (www.genetic.kalro.org/docs/Genetic_Regulations_PGRFA.pdf)
- Development of the Busia County Biodiversity Policy. (www.b4fn.org/.../Kenya/Busia_County_Biodiversity_Policy_10_Oct_2017_Final.pdf)
- Development and launch of the Kenya National Strategy on Genetic Resources within the context of Climate Change - www.kalro.org/genetic/sites/default/files/Kenya-national-strategy-on-PGR-web.pdf

BFN Project and Busia County Biodiversity Policy

- <https://www.ip-watch.org/2017/02/15/kenya-works-communities-genetic-resources-traditional-knowledge-protection/>
- Beltrame, Daniela & Gee, Eliot & GÜNER, Birgül & Lauridsen, Nina & SAMARASINGHE, W. & WASIKE, Victor & Hunter, Danny & Borelli, Teresa. (2019). Mainstreaming Biodiversity for Food and Nutrition into Policies and Practices: Methodologies and Lessons Learned from Four Countries. Anadolu Ege Tarımsal Araştırma Enstitüsü Dergisi. 25-38. 10.18615/anadolu.568795. https://www.researchgate.net/publication/333354702_Mainstreaming_Biodiversity_for_Food_and_Nutrition_into_Policies_and_Practices_Methodologies_and_Lessons_Learned_from_Four_Countries
- Aurillia Manjella, Victor Wasike, Teresa Borelli, Danny Hunter 2018. Improving food-system efficiency and environmental conservation using agricultural biodiversity in Busia County: a pilot study. The Lancet Planetary Health. Volume 2, Supplement 1. May 2018. Page S7. <https://www.sciencedirect.com/science/article/pii/S2542519618300925>
- Development of the Busia County Biodiversity Policy. (www.b4fn.org/.../Kenya/Busia_County_Biodiversity_Policy_10_Oct_2017_Final.pdf)
- <https://www.biodiversityinternational.org/news/detail/busia-first-county-in-kenya-to-endorse-a-biodiversity-conservation-policy/>
- <http://www.environment.go.ke/?p=6397>

Animal Genetic Resources

- Establishment of Animal Genetic Resources Centre (<http://www.kagrc.co.ke>)
- Ochungo, Pamela & Lindahl, Johanna & Kayano, T & Sirma, AJ. (2016). Mapping aflatoxin risk from milk consumption using biophysical and socio-economic data: A case study of Kenya. African Journal of Food, 16. 10.18697/ajfand.75.ILRI08. https://www.researchgate.net/publication/306263163_Mapping_aflatoxin_risk_from_milk_consumption_using_biophysical_and_socio-economic_data_A_case_study_of_Kenya/download

Level of confidence of the above assessment

- Based on comprehensive evidence

Adequacy of monitoring information to support assessment

- Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

- Materials in genebank are periodically monitored for viability through germination testing. The Genetic Resources Research Institute of the Kenya Agricultural and Livestock Research Organization is the institution mandated to undertake seed viability monitoring of the genetic resources conserved at the Genebank. The institute maintains a database that holds information regarding the conserved genetic resources. This information includes passport data, characterization data, germplasm evaluation data, seed viability data as well as storage location data
- Animal Conservation Farms are monitored through Annual National Reports and Livestock returns. The institution mandated to monitor this component of Genetic Resources is the State Department of Livestock. (Details to be provided by the State Department of Livestock)

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)

Plant Genetic Resources

The National Genebank Database

http://www.kalro.org/Genetic_Resources_Research_Institute

Animal Genetic Resources

<https://kagrc.go.ke/who-we-are/>

4.14 TARGET 14

Target 14: Target 14 -By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

March 12 2020

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

Kenya has strengthened environmental governance to support ecosystem conservation and restoration, including through the Environmental Management and Coordination Act 2015, Wildlife Conservation and Management Act 2013, Forest Conservation and Management Act 2016, Natural Resources Act 2016, Water Act 2016, Climate Change Act 2016, and Fisheries Management and Development Act 2016.

In Kenya, a key approach to ecosystem management is through the concept of basins-based planning practiced since early 1970s through establishment of Regional Development Authorities (RDAs). According to the Acts that created them, the RDAs were constituted based on river basins and large water bodies to spur regional development through sustainable utilization and conservation of natural resources. The six Regional Development Authorities (RDAs), are; Tana and Athi Rivers Development

Authority (TARDA¹⁴⁶), Kerio Valley Development Authority (KVDA¹⁴⁷), Lake Basin Development Authority (LBDA¹⁴⁸), Ewaso Ng'iro South Development Authority (ENSDA¹⁴⁹), Ewaso Ng'iro North Development Authority (ENNDA¹⁵⁰) and Coast Development Authority (CDA¹⁵¹). ¹⁵²

Some of their key projects include:

Value Addition:

- Gum Arabic and Resins Integrated Development Programme in ENNDA region; potentials of 90,000 tonnes annually & 100,000 litres essential oils
- Integrated Fruit and Honey Processing Project (CDA)- 70% complete as of September 2017; potential 240 tonnes annually
- Capacity Building and Technology transfer to maximize on community production, improved farming methods and employment creation in LBDA region; 3,000 tonnes of table fish annual production through Reticulation Aquaculture System (TAS) Technology
- Ewaso Ng'iro South Leather Factory project; 4,000 tonnes annually leather throughput
- Mango Value Chain Project of KVDA; potential annual production of 1.56 million litres of juice
- Fruit and Vegetables Processing Plant Project of LBDA; potential 1.8 million litres of fruit juice & 1,200 vegetable extracts annual production
- TDIP Rice Mill in TARDA; potential 12,000 tonnes processed annually
- LBDA Rice Mill; potential 600 tonnes of rice and 61,875 tonnes of animal feed processed annually.

Multipurpose Dams

1. Mwache dam – Rehabilitation of 200 ha of catchment to enable the Mwache dam reservoir to supply 186,000m³/day of water for domestic and industrial use and support to 2100 ha potential under irrigation through infrastructure development
2. High Grand Falls – Hydro Power generation of 700 MW, develop up to 180,000 ha irrigation potential for Food Security and other benefits, and support conservation of 20,000 ha land
3. Magwagwa – involves reservoir development for 120 MW hydro power, 13,807 ha of land for irrigation and domestic/industrial water supply; and catchment management
4. Arror – store water for generation of 60MW of HEP, irrigation of 4,500 ha of land and catchment management
5. Kimwarer – store water for generation of 20MW of HEP, 2,500 ha irrigable land for improved food security, Conserve and manage 136 km² of the catchment area
6. Nandi Forest – generate 50 MW, water supplies and irrigation of 7,500 ha of land
7. Olkejuado – 1,000 ha irrigable land water supplies
8. Oleyiangalani integrated dam–1,000 ha irrigable land.

Environmental conservation and riverbank protection

1. Ecotourism Development (Masinga Dam Resort); 3,000 ha buffer zone conservation and protection
2. Integrated Bamboo Commercialization and value addition (ENSDA); potential 20,000 tonnes bamboo processed annually
3. Cherangany Conservation project (KVDA); 6 km/year riverine conservation rate.

¹⁴⁶ <http://www.tarda.co.ke/>

¹⁴⁷ <http://kvda.go.ke/>

¹⁴⁸ <https://lbda.go.ke/>

¹⁴⁹ <https://ensda.go.ke/>

¹⁵⁰ <http://www.ennda.go.ke/>

¹⁵¹ <http://cda.go.ke/>

¹⁵² <https://meac.go.ke/directorate-of-regional-development/>

The Kenya ¹⁵³Water Towers are multi-functional and provide significant ecosystem goods and services that are important for the livelihoods, hydrology and biodiversity of the surrounding communities and the wider region in which they occur. However, wanton destruction of these important ecosystem has led to the country experiencing prolonged dry season towards the end of 2017 which led to acute shortage of water flows resulting to low water levels and drying up of rivers, streams and wells. This situation has been occurring over the years and is attributed to deforestation; degradation and encroachment of water towers; catchment and riparian areas. In addition, expansion of agricultural and settlement activities into forested areas; unsustainable land-use practices; and overharvesting of forest resources in the farmlands have aggravated the problem.

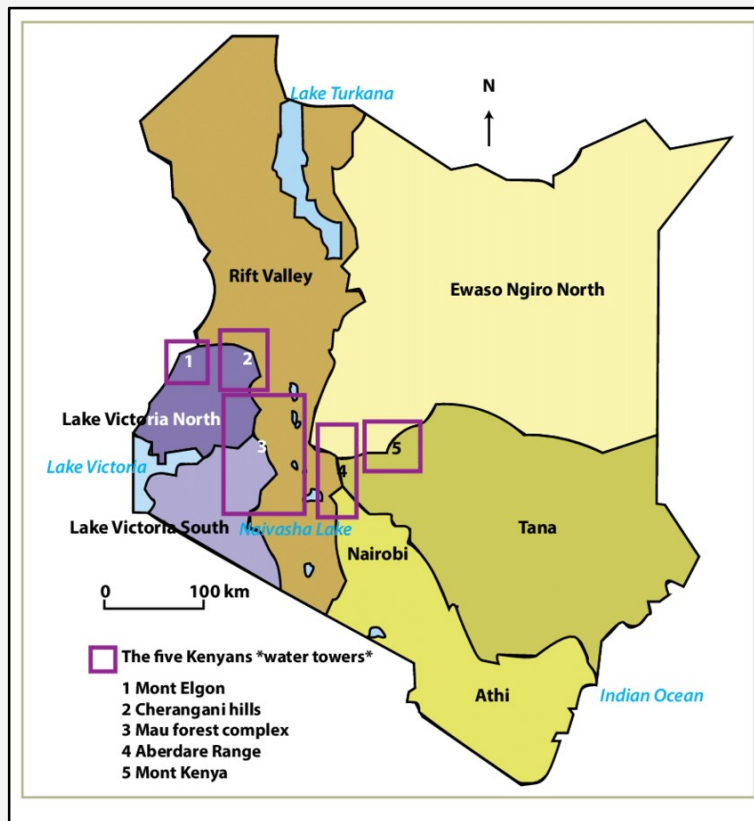


Figure 58: Large catchments and Water Towers in Kenya

(Source: Rocio Dias Chavez 2020¹⁵⁴)

¹⁵³ <http://kenya.restorationatlas.org/about/watertowers>

¹⁵⁴ Díaz-Chavez, Rocío. (2020). SUSTAINABILITY OF SUGARCANE BAGASSE BRIQUETTES AND CHARCOAL VALUE CHAINS IN KENYA Results and recommendations from implementation of the Global Bioenergy Partnership Indicators SUMMARY SUSTAINABILITY OF SUGARCANE BAGASSE BRIQUETTES AND CHARCOAL VALUE CHAINS IN KENYA Results and recommendations from implementation of the Global Bioenergy Partnership Indicators SUMMARY. https://www.researchgate.net/figure/Large-catchments-and-main-water-towers-of-the-Kenya_fig2_339167656

Kenya Water Towers Agency (KWTA) is mandated to coordinate and oversee the protection, rehabilitation, conservation and sustainable management of all the critical water towers in Kenya.¹⁵⁵ The rehabilitation and protection of Kenya's five (5) major water towers namely; the Aberdares, Cherangany, Mau, Mt. Kenya and Mt. Elgon and other smaller significant Water Towers and catchment areas such as Chyulu Hills, Nyambene, Ngong Hills, Taita Hills, Maragoli, Marsabit, Shimba Hills, Ndotos, Nyiru, Hills in Machakos, Makueni and Kitui, Leroghi, Matthews Range and Dunes in Lamu and Northern Kenya has been undertaken in this period. Under Vision 2030, the major achievements included:

- rehabilitation, protection and securing of 121,000 Ha in Enoosupukia (12,000 Ha), South.West Mau (19,000 Ha), Maasai Mau (64,000 Ha) and Olpusimuru (26,000 Ha) through Joint Enforcement Unit providing basis for natural regeneration,
- assessment of 18 water towers and developed water towers ecological health status reports,
- Identified critical catchment, wetlands and Biodiversity Hotspots in Mt. Kenya, Mau Complex, Mt. Elgon, Shimba Hills and Chyulu water towers,
- Community Development Action Plans for Leroghi, Shimba Hills & Chyulu,
- Mau Ecosystem Strategic Management Plan,
- Micro-Catchment Conservation Plan for Taita Hills,
- Voluntary surrender of 1,250 Ha in Mau complex, and the
- Establishment of the Water Towers Conservation Fund.

Completion of on-going water projects in urban and rural areas will increase the number of people connected to safe piped water from 3.6 million to 9 million. The proportion of people with access to potable water will be increased from 60 per cent to 80 per cent by 2022 with a focus on slums and arid areas. The Water Trust Fund will provide grants to counties to assist in financing water projects towards ensuring all Kenyans have access to safe potable water. The Green Technologies and Innovations Programme as well as the Sewerage Programme will be implemented to promote use of green technologies and improve universal access to sewerage facilities respectively.

Case Study: Forecast of Land Cover Change in Mau Water Tower to 2044

Based on study on land cover change and population growth in the Mau Water Tower¹⁵⁶ on the past trend between 1986 and 1995, there was a decline in forest cover while the area covered by grassland increased (Figure XX). The estimated average loss of forest between 1986 and 2015 was 4596 ha per year while area covered by grassland was increasing at an average of 4943 ha as Usual" BAU) scenario.

¹⁵⁵ <https://watertowers.go.ke/wtowers/>

¹⁵⁶ Odawa S & Seo Y. 2019. Water Tower Ecosystems under the Influence of Land Cover Change and Population Growth: Focus on Mau Water Tower in Kenya. Sustainability 2019, 11, 3524; doi:10.3390/su11133524. <https://www.mdpi.com/2071-1050/11/13/3524>

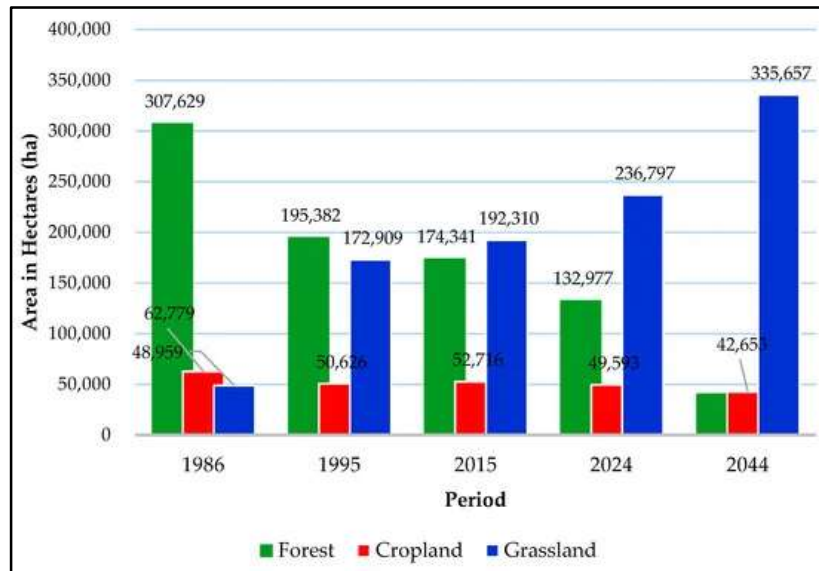


Figure 59: Changes in land use cover in the Mau.

(Source¹⁵⁷)

Considering the changes that occurred in the past, this scenario assumed that forest cover will continue declining by 4596 ha each year, while the area covered by grassland will be gaining 4943 ha each year. On the other hand, cropland was dependent on the other two land covers since it depicted fluctuations from the past trend. The forecast of forest cover shows that it will decline to 132,977 ha by the year 2024 and further down to 41,057 ha in 2044. While the area covered by grassland will increase to 236,797 ha by the year 2024 and further to 335,657 ha in 2044. Cropland will reduce slightly from 52,716 ha in 2015 to 49,593 ha in 2024 and by 2044, this will have reduced further to 42,653 ha. If this situation remains the same, the forecast indicates that the forest will be depleted by the year 2053, while grassland will cover 380,144 ha and a few sections will be covered by an estimated 38,856 ha of cropland.

Other Initiatives:

Many government MDAs and civil society have supported ecosystem-based approaches to secure ecosystem services and support livelihoods. For example:

Nature Kenya¹⁵⁸ - Nature Kenya has championed the use of the Toolkit for Ecosystem Services Site-based Assessment in Kenya in Kenya, which gives guidance in measuring ecosystem services provided by a habitat. So far Ecosystem Services Assessment has been carried out in Kakamega Forest, Yala wetland complex, Taita Hills forests, Dakatcha Woodland and Arabuko Sokoke Forest IBAs. Useful reports include

[Tana River Delta Land Use Plan](#), [Tana River Delta Strategic Environmental Assessment](#); [Yala Delta Land Use Plan](#); [Yala Delta Strategic Environmental Assessment](#); [Yala Ecosystem Services Assessment Report](#); [Mt. Kenya Forest Conservation Business Case](#); [Mt. Kenya Forest Conservation Business Case](#); [Summary of Mt. Kenya Forest Conservation Business Case](#); [Mt. Kenya Ecosystem Services Assessment Report](#); [Tana River Delta: Lessons Learned from Nature Kenya Work 2007 - 2014](#); [Payment for Ecosystem Services Lessons Learned](#); and [Payment for Ecosystem Services Guidelines for Communities to Engage in Forest Restoration](#).

Other Vision 2030 Programmes under the Environment, Water and Sanitation Sector include:

- Water Resources Management: This Programme was geared towards sustainable utilization of water resources. Under MTP II six (6) catchment management strategies were reviewed and 157 Sub Catchment Management Plans developed. The sector also implemented 30 sub-surface dams along seasonal rivers, especially in ASAL areas. In addition, 140 hydro-metrological stations were

rehabilitated and installed across the 6 catchment regions. The sector developed and consolidated water allocation plans for three (3) basins namely Athi, Lake Victoria and Ewaso Ng'iro North.

- Trans boundary Waters: The Programme entailed negotiations on mutual utilization and conservation of trans-boundary waters. The locations of trans-boundary surface waters and their status were established and three bilateral frameworks developed, negotiated and finalized for the management of transboundary water resources of Sio-Malaba-Malakisi River, Mara River and lakes Challa-Jibe and Uмба River.

Case Study: Lake Victoria Basin

EAC partner states and stakeholders are obliged to protect, conserve, and where necessary rehabilitate Lake Victoria Basin and its ecosystems; and to develop Programmes to reduce environmental degradation within the Lake Victoria Basin and explore means of having coordinated implementation of Programmes on the Lake's basin by different institutions.

LVEMP is a regional project under EAC implemented in phases by partner states and coordinated by the LVBC. The project is meant to improve collaborative management of the trans-boundary natural resources of the Lake Victoria Basin among the partner states. Secondly, to improve environmental management of targeted pollution hotspots and selected degraded sub- catchments for the benefit of communities that depend on the natural resources of the Lake Victoria Basin. LVEMP I and II are complete whereas preparations for LVEMP III are on-going. Programmes and Projects being implemented in the basin include the strategy to manage water hyacinth, improved sanitation across the basin, rehabilitation of catchments, community development projects, among others implemented by LVBC is the Lake Victoria Environmental Management Program LVEMP I, II and III as well as the Lake Victoria Water and Sanitation (LWATSAN) I and II Project, under the Focal Point Ministry.

Community based Natural Resources management initiatives

Community based natural resource management initiatives in Kenya (CBNRM) seek to empower communities to enable them share in the rights and responsibilities of management and utilization of natural resources with government. It aims at meeting the development objectives of governments, enable communities meet their livelihood goals and, at the same time, promote conservation of biodiversity. Kenya has embraced multipronged approach guided by different policy and legal frameworks to promote community based Natural resources management.

Forest Conservation and Management Act 2016 outlines public participation and community involvement in the management of forests through Community Forest Association and recognising establishment of community forests. The Wildlife Management and Conservation Act of 2013 established conservancies, sanctuaries community, and wildlife association and wildlife managers. The act developed County Conservation Committee whose role included compensation scheme which seek to compensate communities against loss of life, disabilities and destruction of property occasioned by human-wildlife conflicts.

Water Act 2016 provides for establishment of Water Resource User Associations (WRUAs), which are community-based associations for collective management of water resources and resolution of conflicts concerning the use of water resource.

Community Land Act, 2016 Act provides for the recognition and registration of community land rights, management and administration of community land, and the role of county government in relation to unregistered community land.

Case study: Improved livelihoods at Arabuko-Sokoke Forest in Kenya

¹⁵⁷ Odawa and Seo 2019 – Originally Government of Kenya (GoK). *Rehabilitation of the Mau Forest Ecosystem*; A Project Concept prepared by the Interim Coordinating Secretariat, Office of the Prime Minister, on Behalf of the Government of Kenya; Government Printer: Nairobi, Kenya, 2009

¹⁵⁸ <https://naturekenya.org/publications/>

Arabuko-Sokoke Forest lies close to the Indian Ocean near Malindi, Kenya. The forest is remarkable for its biodiversity and is critical for many people's livelihoods. However, although a Forest Reserve, it has suffered from unsustainable use and illegal activities. Through a number of projects coordinated by Birdlife International and Nature Kenya (BirdLife in Kenya), considerable gains for conservation and local livelihoods have been made over the last twenty years, including improved governance through pioneering Participatory Forest Management and the establishment of a diversity of sustainable, forest-based industries including honey production, butterfly farming and ecotourism. The initiative contributes the achievement of target 3 by providing positive incentives for the conservation and sustainable use of biodiversity.

Indicators used in this assessment

No indicator used

CBD indicators

- Trends in safeguarded ecosystems that provide essential services
 - Red List Index (species used for food and medicine; pollinating species)
 - Living Planet Index (utilized species) Trends in extinction risk and populations of species that provide essential services
 - Species Habitat Index (species that provide essential services)
- Trends in benefits from ecosystem services
 - Better Life Index
 - Mountain Green Cover Index (indicator for SDG target15.4)
 - Coverage by protected areas of important sites for mountain biodiversity (indicator for SDG target 15.4)
 - Ocean Health Index
- Trends in restoration of ecosystems that provide essential services
- Trends in the degree to which ecosystem services provides for the needs of women, indigenous and local communities, and the poor and vulnerable
 - Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)
 - Percentage of population using safely managed drinking water services (indicator for SDG target6.1)

SDG targets:

Goal 6. Ensure availability and sustainable management of water and sanitation for all

Target 6.5: By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate

Indicator 6.5.1: Degree of integrated water resources management implementation (0-100)

Indicator 6.5.2: Proportion of transboundary basin area with an operational arrangement for water cooperation

Target 6.6: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes

Indicator 6.6.1: Change in the extent of water-related ecosystems over time

Please describe any other tools or means used for assessing progress

- Kenya water Towers Reports
- Vision 2030 reports
- Peer reviewed Publications
- Expert input
- Stakeholder Consultation

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

Regional Development Authorities:

<https://lbda.go.ke/>

<https://ensda.go.ke/>

<http://www.ennda.go.ke/>

<http://cda.go.ke/>

<https://meac.go.ke/directorate-of-regional-development/>

Kenya Water Towers Agency publications

<https://watertowers.go.ke/wtowers/>

Nature Kenya

<https://naturekenya.org/publications/>

<https://naturekenya.org/2019/02/05/commemorating-world-wetlands-day-2019/>

https://www.uneca.org/sites/default/files/uploaded-documents/AEC/2007/meshack_malo_jeff_odera_thomas_ochuodho_0.pdf

Tana Delta

https://issuu.com/nature_kenya/docs/tana_delta_lup_final_print

<https://www.unenvironment.org/news-and-stories/story/balancing-climate-conflict-and-community-kenya>

Arabuko Sokoke

<http://datazone.birdlife.org/sowb/casestudy/improved-livelihoods-at-arabuko-sokoke-forest-in-kenya>

<https://www.friendsarabukosokoke.org/our-work/>

[Vision 2030](#)

GOK 2018: The Presidency - Vision 2030: Marking ten years of Progress (2008-2018):

<http://vision2030.go.ke/inc/uploads/2018/09/Kenya-Vision-2030-Sector-Progress-Project-Updates-June-2018.pdf>

Government of the Republic of Kenya. 2007. Vision 2030. Popular Version.

<http://vision2030.go.ke/inc/uploads/2018/05/Vision-2030-Popular-Version.pdf>

Government of the Republic of Kenya 2008: Vision 2030: First Medium Term Plan 2008-2012.

http://vision2030.go.ke/inc/uploads/2018/06/kenya_medium_term_plan_2008-2012-1.pdf

Government of the Republic of Kenya 2013: Vision 2030 Second Medium Term Plan 2013-2017

<http://vision2030.go.ke/inc/uploads/2018/06/Second-Medium-Term-Plan-2013-2017.pdf>

Journal Publications

Odawa S & Seo Y. 2019. Water Tower Ecosystems under the Influence of Land Cover Change and Population Growth: Focus on Mau Water Tower in Kenya. Sustainability 2019, 11, 3524; doi:10.3390/su11133524. <https://www.mdpi.com/2071-1050/11/13/3524>

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Vision 2030 MTP processes involve review of implementation by sector as well as other RDA and MDA reporting mechanisms.

Adequacy of monitoring information to support assessment

No monitoring system in place

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

- Mainly through the Vision 2030 Reporting systems for MDAs, the RDAs and Other partners e.g. Kenya Forest Service, Kenya Wildlife Service, Nature Kenya, Cordio etc.
- For water towers, KWTA monitoring systems are in place.
- Some of the SDG monitoring is also relevant for some indicators.

The Kenya Water Towers Agency Strategic plan for the year 2014-2019 provided need for development of infrastructure and tools for monitoring ecosystem health of the water towers. The Agency therefore formed a technical working group bringing together total of 17 institutions, mostly drawn from Government institution to help in developing the framework which highlight the indicators and metrics to measured so as to report on the health status of the water towers. This involves for deployment of technologies to aid in effective monitoring, surveillance, tracking and other intervention for efficient and sustainable water towers management. The goal of the Water towers watch is to provide cost-effective, scientifically based and integrated information on ecosystem conditions to inform programs, and policies intended to protect and manage the Water Towers.

The framework was then transition to an integrated water towers monitoring system (referred to as Water Towers Watch). The Water Towers Watch is a web-based system developed in collaboration with World Resources Institute. It comprises of a dashboard for visualizing water towers maps and a dashboard showing graphs and pie charts of trends and proportion of indicators being reported.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)

Monitoring Water Towers – Water Towers Watck

<http://kenya.restorationatlas.org/about/watertowers>

Monitoring Forests – Regional Conservancies

http://www.kenyaforestservice.org/index.php?option=com_content&view=article&id=685&Itemid=574

<http://www.environment.go.ke/wp-content/uploads/2018/08/Forest-Report.pdf>

Monitoring wildlife ecosystems

<http://www.kws.go.ke/content/priority-ecosystems-and-species>

Monitoring marine ecosystems

<https://cordioea.net/servir/>

Regional Development Authorities:

<https://lbda.go.ke/>

<https://ensda.go.ke/>

<http://www.ennda.go.ke/>

<http://cda.go.ke/>

<https://meac.go.ke/directorate-of-regional-development/>

Kenya Water Towers Agency publications

<https://watertowers.go.ke/wtowers/>

4.15 TARGET 15

Target 15:

By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks have been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Category of progress towards the implementation of the selected target

On track to achieve target

Date the assessment was done

12.03.2020

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

Kenya has a strong commitment to landscape restoration and has been putting in place the building blocks for improving its tree cover and restoring its landscapes and associated ecosystem services. Landscape restoration is seen as an important tool in helping the country meet its economic, development, and environmental goals. The Government through Executive Order No. 1 of 2018 expanded the mandate of the State Department for Irrigation to include the function of Land Reclamation to reverse Land Degradation and ensure Land Degradation Neutrality. In November 2018, the Government committed 5.1 Million Hectares of land under afforestation to reclaim degraded forested land under the Pan African Action Agenda on Eco-system restoration. The Government developed the Land Degradation Neutrality (LDN) Targets Report following the twelfth session of the UNCCD conference of parties (COP), held in Ankara, Turkey in October 2015, where parties agreed to move towards neutrality.

In *NCCAP 2013-2017*, it was estimated that total GHG emissions from the *LULUCF* sector was 21 MtCO_{2e} per year, which was 30% of total national emissions in 2010, and was projected to increase to 26 MtCO_{2e}, which is 32.5% of the total national emissions by 2015 before reducing to 22 MtCO_{2e} per year (15.4%) by 2030. At this level, the forestry sector would be the second highest emitter of GHGs after the agriculture sector. To mitigate climate change in the forestry sector, the following three actions were proposed in both *NCCAP 2013-2017* and *SNC*: Restoration of forests in degraded lands; Rehabilitation of degraded forests; and Reduction of deforestation and forest degradation.

In the *NDC Sectoral Analysis Report 2017*, these mitigation actions were further analysed to determine the sectors' potential to contribute to Kenya's NDC mitigation target. It was determined that relative to the proportionate mitigation reduction target for the sector of 20.1 MtCO_{2e} by 2030, the sector's mitigation potential was between 11.3 and 20.1 MtCO_{2e} per year, with a technical maximum potential of 40.2 MtCO_{2e} per year by 2030. The government is taking action to address climate change in the forestry sector, including through tree planting initiatives and preparatory activities to enable the country participate in reducing emissions from deforestation and forest degradation plus (REDD+) role of

conservation, sustainable management of forests, and enhancement of forest carbon stocks, as a climate change mitigation process¹⁵⁹.

The mitigation actions that were proposed in *NCCAP 2013-2017* and *SNC*, together with those that have been proposed for *NCCAP 2018-2022*, have been assessed, analysed, and prioritised for inclusion in *NCCAP2018-2022*. They are:

- Reduction in deforestation and forest degradation by rehabilitation and protection of an additional 100,000 hectares of natural forests (including mangroves) by 2022, with an abatement potential of 2 MtCO_{2e} by 2030,
- Afforestation/reforestation/agroforestry of an additional 100,000 hectares of land by 2022, with an abatement potential of 4.8 MtCO_{2e} by 2030,
- Restoration of 200,000 hectares of forest on degraded landscapes (ASALs, rangelands) by 2022, with an abatement potential of 13 MtCO_{2e} by 2030,
- Increasing of area under private sector-based commercial and industrial Plantations from 71,000 hectares to at least 121,000 hectares, with an abatement potential of 1 MtCO_{2e} by 2030; and
- Three forest resources efficiently utilized in all counties, especially dryland forests, by 2022.

While these actions are considered ambitious relative to the past performance, they do not meet the Bonn Challenge targets, and just meet the *NDC* mitigation target for the sector, which is considered a major potential contributor to the realisation of the target, given the relatively low cost of their implementation.

It is anticipated that the national target to restore a total of 5.1 million ha of its degraded landscapes by 2030 as a contribution to the global effort to mitigate climate change will yield KES 7.6trillion in net material benefits to various stakeholders, providing direct additional income opportunities for rural communities besides societal benefits over 30-year period¹⁶⁰. Restoration of degraded landscapes will increase the supply of water for domestic, industrial and irrigated agriculture, conserve biodiversity and minimize natural calamities.

According to the National Forest Programme, 2016-2030, analysis of change in forest cover over the last 25 years revealed improved afforestation activities. Forest land has decreased by 311,000 ha while crop land increased by 1,018,000 ha between 1990 and 2015. Between 1990 and 2000, Kenya lost approximately 1.2 million ha of forest land, equivalent to 25% of forest cover. However, there is a remarkable increase in forest cover from 6.01% in 2000 to the predicted 7.46% in 2015. This is equivalent to an annual increase of 0.1%.¹⁶¹ The government imposed a moratorium on logging and extraction of timber in public and community forests to aid in the restoration and rehabilitation of the critical water catchment and natural resources areas. In addition the government facilitated production of 222,124 bamboo seedlings and 800 million tree seedlings and availed these for planting 500,000 hectares on farmlands for livelihood improvement; restored 156,000ha of degraded natural forests, established 19,359ha of commercial forest plantations and promoted planting of 300,109ha of tree on farmlands and in schools across the country. Further 565,607.4ha of new forests in Tana River, Lamu and Garissa were gazette.¹⁶²

Further, the Government of Kenya had previously put in place several high-level initiatives¹⁶³and laws that are strongly linked to restoring lands and their associated ecosystem services. These include:

¹⁵⁹ GOK 2018. MTAR

¹⁶⁰ Kenya Forest Service 2016 – Brochure: Landscape restoration in Kenya.
<https://www.kefri.org/PDF/Publications/BriefLe-versionNew1.pdf>

¹⁶² The National Treasury and Planning State Department for Planning Projects and Programmes Department SDGs PROGRESS REPORT JUNE 2019.

¹⁶³ GOK 2016. Ministry of Environment and Natural Resources. TECHNICAL REPORT ON THE NATIONAL ASSESSMENT OF FOREST AND LANDSCAPE RESTORATION OPPORTUNITIES IN KENYA.
https://afr100.org/sites/default/files/Kenya_Technical%20Report_Assessment%20of%20National%20Forest%20and%20Land%20scape%20Resto..._0.pdf

- The 2010 Constitution which calls for reforestation and maintaining a tree cover of at least 10% of the country.
- The National Climate Change Response Strategy in 2010 called for growing 7.6 billion trees on 4.1 million hectares of land during the next 20 years.
- REDD+ Readiness Preparation: One of the priority topics in the national REDD+ Readiness process focuses on the enhancement of forest carbon stocks and proposes several strategy options to restore forests, including support to the Government target to increase tree cover on 10% of Kenya's land, and promote forest protection that increases carbon stocks, livelihood benefits and improves biodiversity.

In 2014 the Landscape Restoration Technical Working Group including a broad range of stakeholders from multiple sectors to undertake assessment of potential restoration opportunities – a critical first step towards forging a coordinated strategy for scaling up landscape restoration in Kenya. The LRTWG mapped and quantified where different restoration options could potentially be implemented in order to help inform a national restoration target. Several maps and associated area statistics were presented in the assessment report ¹⁶⁴ as potential areas for landscape restoration. These maps (<http://ken.restoration-atlas.org/map/>) can help various state and non-state actors identify opportunities to scale up agroforestry to reduce erosion, increase livelihood diversification, fodder production and soil fertility; define existing forests that can be restocked, as well as where new natural forests can be established, to increase carbon sequestration, biodiversity habitat, and prevent landslides and flooding. They can also be used to determine areas where trees can stabilize river banks and control sedimentation; invest in commercial plantations; trees can be planted along roadways to help reduce water runoff and air pollution; or rangelands which might benefit from improved management practices. Because of the multi-sector, multi-stakeholder nature of the LRTWG, these priorities cover a wide range of landscapes, including forest lands, agricultural lands and rangelands. An example is shown in Fig. 60 for all combined options.

The group identified the most pressing land use challenges currently affecting Kenya, as well as a list of restoration options that could help address these challenges and restore the ecosystem services that are currently lacking. The various landscape restoration options identified include:

- Reforestation and rehabilitation of degraded natural forests
- Agroforestry and woodlots on cropland
- Commercial tree and bamboo plantations
- Tree-based buffers along waterways, wetlands and roads
- Silvo-pastoral and rangeland restoration

These restoration options can potentially help restore ecosystem services associated with trees, such as erosion control, regulation of water flows and soil quality, as well as forest habitat for wildlife.

¹⁶⁴ GOK. Ministry of Environment and Natural Resources. 2016. TECHNICAL REPORT ON THE NATIONAL ASSESSMENT OF FOREST AND LANDSCAPE RESTORATION OPPORTUNITIES IN KENYA. https://afr100.org/sites/default/files/Kenya_Technical%20Report_Assessment%20of%20National%20Forest%20and%20Landscape%20Resto..._0.pdf

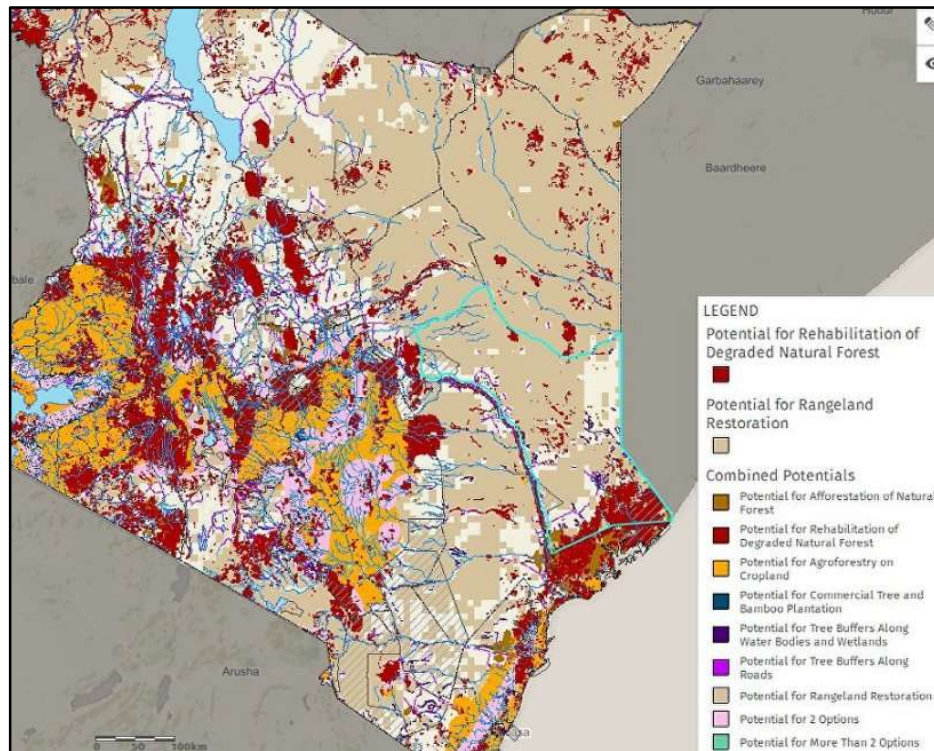


Figure 60: Restoration potential map for all combined options.

(Source: <http://ken.restoration-atlas.org/map/165>)

Kenya has also developed the following:

- Strategy to Increase the Country's Tree Cover to 10%¹⁶⁶: efforts towards achieving the national 10% forest cover include integrated land use planning; provide the forest sector with strong instruments for implementing sustainable management and conservation efforts; devolving and mainstreaming forestry functions into county government planning; and engaging communities and stakeholders in the sustainable management of public forests.
- National Mangrove Strategy and Action Plan to increase the spatial distribution of the species along the coastal line.
- the REDD+ Strategy and Action Plan.
- National estimation of the carbon emission (SLEEK) thus efficient monitoring of carbon production, biomass levels, and energy production sources; monitoring of interactions between human and genetic resources such as community conservancies, settlements along forest lines and other ecosystems e.g. wetlands.
- Climate Change policy and legislation and a Green Growth Strategy (2016):
- Kenya Climate Smart Agriculture Strategy and Implementation Plan to reverse impact of land degradation that has been exacerbated by unsustainable agricultural practices (over grazing, over cropping etc.)
- The Climate Change Act 2016 which identifies forest conservation and management as key to realizing Target 15 of the Aichi Strategic Plan.
- Enacted the Land Registration Act (2016) and the Community Land Act (2016): to support sustainable land use practices, protection of conservation areas (parks, ranches, conservancies)
- Enacted the Forest Conservation and Management Act 2016, the Environmental Management and Coordination Act 2015 and developed the National Forest Programme (2016-2030) which have helped to increase areas under conservation.
- Imposed a moratorium by the Government of Kenya on logging in public and community forests in February 2018; The moratorium on logging is aimed at reducing deforestation and forest

degradation and enhancing regeneration and replanting for sustainable forest management and ecosystems protection through access to genetic materials such as the non- timber products.

- Reviewed of Charcoal Rules and Regulations (2009) and developed the Private Forests and Gums & Resins Rules & Regulations. This diversification of energy demands aims to reduce pressure on wood fuel and dependence on biomass sources. Some devolved units have banned production and transportation of wood fuel within their jurisdictions e.g. Kitui, Makueni and Machakos counties
- Developed of Commercial Forestry Policy; To provide alternative source of wood products and increase vegetation cover thus reducing the direct pressure on natural habitats (forest, wetlands, wood lands, shrub lands, among others).

Further the Government has formulated the ASAL Development Policy, 2019, to guide coordinated development of ASALs; formulated National Irrigation Policy, 2017 and enacted Irrigation Act, 2019 to promote development, management and regulation of irrigation; initiated formulation of Draft Land Reclamation Policy, 2018; and the Land Reclamation Bill, 2018. The Land Reclamation Policy and Bill formulation are ongoing concurrently. The draft policy is at the regional consultative stage and will be submitted to the Cabinet alongside the bill thereafter.

The Government institutionalized Drought Management by enacting the National Drought Management Act, 2016, creating the National Drought Management Authority to coordinate and manage drought in the country. In addition, the State Department for Development of ASALs is undertaking Programmes to enhance community resilience against drought through sustainable resource management of Natural Resources and livelihood diversification. The Government has integrated Ending Drought Emergencies (EDE) in National Development Plans through the EDE Sector Plans for MTP III 2018–2022.

Case study: Malava Forest Kakamega¹⁶⁷

Plantation Establishment and Livelihood Improvement Scheme (PELIS) is a governance scheme by Kenya Forest Service (KFS) to help increase forest cover and restore degraded forests in the country. Forest adjacent communities (FAC) benefit from the scheme where they allocated plots upon which they plant seedlings, take care of them till the area form a closed canopy while they practice agriculture on the farms. A study in Malava Forest showed change in forest cover from the year 2001 to 2016. This was occasioned by increased areas under plantations under the PELIS Programme. The forest cover experienced a positive increase from the initial 366.9ha in 2001 to about 481.4ha thus marking a significant increase of 114.5ha (23.8%). Barren land and grasslands represent areas currently under crop cultivation courtesy of PELIS Programme. In some areas especially the margins and areas cleared felled of trees was done decreased in size. Barren land decreased from 227.3ha in 2001 to 220.8ha in 2016. Also, grassland showed a decreasing trend from 123.1 ha in 2001 to 15.1ha in 2016. The decrease in barren land and grassland and the subsequent increase in forest cover were attributed to increased reforestation Programmes and natural regeneration.

¹⁶⁵ <https://twitter.com/cookswelljikos/status/991684695745318912>

¹⁶⁶ GOK 2019 – Strategy to increase tree cover by to 10% <http://www.environment.go.ke/wp-content/uploads/2019/08/Strategy-for-10-Tree-Cover-23-5-19-FINAL.pdf>

¹⁶⁷ Agevi Humphrey, Mwendwa Kaleb Adamba, Koros Hillary, Mulinya Carolyne, Kawawa Rashid Calvin, Kimutai Donald Kipruto, Wabusya Moses, Khanyufu Mercy, and Jawuoro Stanely 2016. PELIS Forestry Programme as a Strategy for Increasing Forest Cover and Improving Community Livelihoods: Case of Malava Forest, Western Kenya. American Journal of Agriculture and Forestry Volume 4, Issue 5, September 2016, Pages: 128-135. <http://article.sciencepublishinggroup.com/html/10.11648.j.ajaf.20160405.13.html>

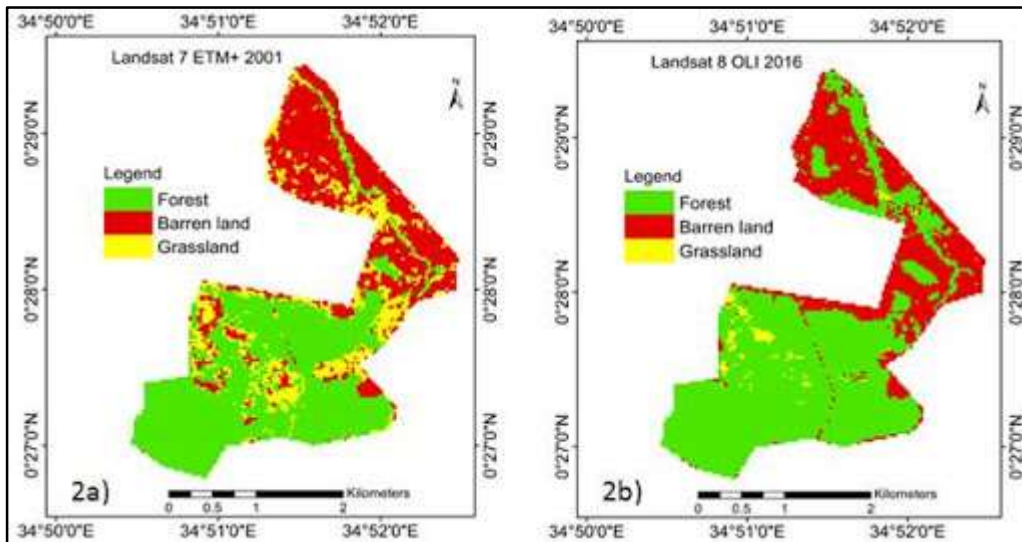


Figure 61: Land cover maps for Malava forest in; 2a) 2001 and 2b) 2016

(Source: Agevi et al 2016)

Case Study: Kirisia Forest¹⁶⁸

The study characterized the status and trend of land cover transformation in Kirisia forest ecosystem between 1973 and 2015 using remote sensing and GIS. The dominant land cover types consisted of indigenous forest followed by shrub land and bush land. The findings showed a major increase in the built environment by 55.4% and an overall reduction in forest cover by 21.3%. Up to 83.9 km² of the original indigenous forest was lost between 1973 and 1986 due to severe fires. Thereafter, 23.7 km² of the remaining indigenous forest was lost between 1986 and 2000 mainly through charcoal burning, illegal timber logging and livestock forage harvesting.

A slight recovery occurred between 2000 and 2015 with a 5% increase in indigenous forest cover mostly through natural succession by shrub land and bush land in the burnt forest areas especially following the 1998 El Nino period. The land cover change in the forest ecosystem was not exceptional in Kenya but mirrors similar changes that have been documented in other valued dry land watershed ecosystems in the country including the national water towers. The continued loss of forest cover is likely to affect the water recharge capacity in the watershed thereby creating severe water scarcity for the people in Mararal town as well as nearly 142,954 other individuals in the Kirisia region.

¹⁶⁸ Warinwa, F. , Mwaura, F. , Warui Kiringe, J. and Oduya Ndubi, A. (2016) Land Cover Dynamics in the Kirisia Forest Ecosystem, Samburu County, Kenya. *Advances in Remote Sensing*, **5**, 168-182. doi: [10.4236/ars.2016.53014](https://doi.org/10.4236/ars.2016.53014). <https://m.scirp.org/papers/69543>

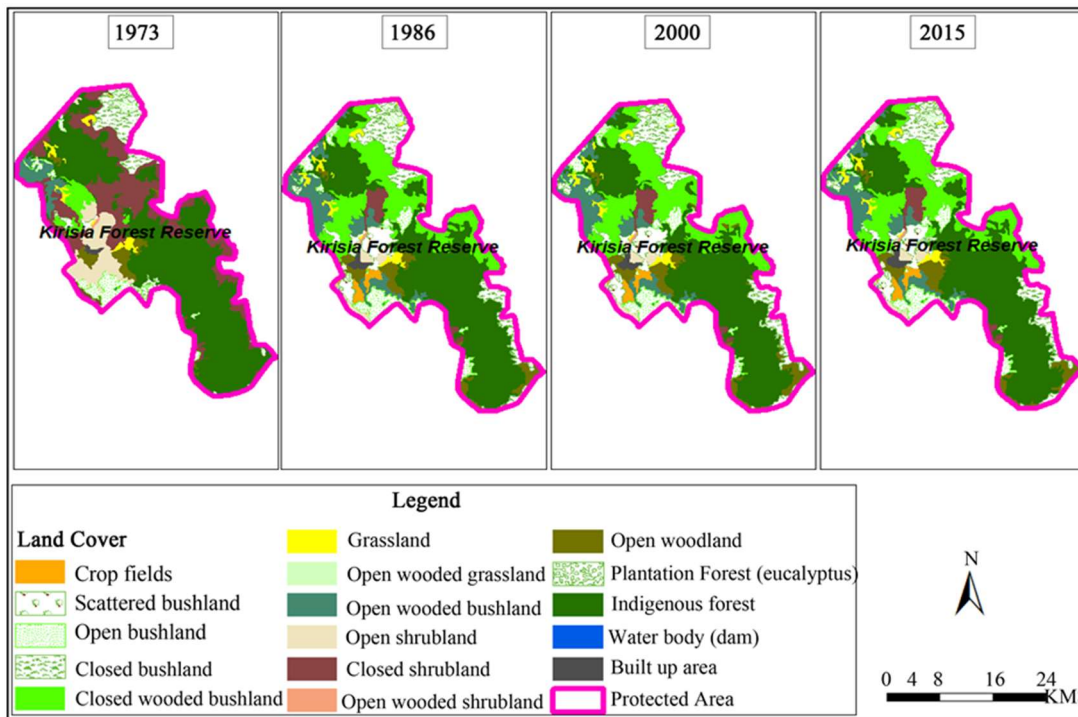


Figure 62: Integrated land cover changes for the Kirisia forest watershed 1973-2015.

(Source: Warinwa et al 2016)

Indicators used in this assessment

CBD indicators:

- Trends in ecosystem resilience
- Trends in carbon stocks within ecosystems
 - Trends in forest carbon stocks
 - Global Ecosystem Restoration Index

Please describe any other tools or means used for assessing progress

1. The Kenya Restoration Atlas through KFS: (<http://ken.restoration-atlas.org/map/>)
2. The Kenya Water Towers Agency sought to provide cost-effective, scientifically based and integrated information on ecosystem conditions to inform programs, and policies intended to protect and manage the Water Towers. The integrated water towers monitoring system, referred to as Water Towers Watch, is a web-based system developed in collaboration with World Resources Institute. It comprises of a dashboard for visualizing water towers maps and a dashboard showing graphs and pie charts of trends and proportion of indicators being reported.
3. **SLEEK**: The System for Land-based Emissions Estimation in Kenya (SLEEK) is a government of Kenya program to develop a robust and credible system for estimating land-based emissions in Kenya. SLEEK aims to build a comprehensive account of the land sector, it draws together data from a range of sources including: Forest cover and growth rates; Soil data and measurements of carbon emissions resulting from various land-use regimes; Climate and meteorological data; Remote sensing data that will be used to delineate the country into various land cover types and Measurements of carbon emissions associated with various crop and plant types.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

KENYA SDG Progress Report June 2019

The National Treasury and Planning State Department for Planning Projects and Programmes
Department SDGs PROGRESS REPORT JUNE 2019.

National Assessment of Restoration opportunities

GOK 2016. Ministry of Environment and Natural Resources. TECHNICAL REPORT ON THE NATIONAL ASSESSMENT OF FOREST AND LANDSCAPE RESTORATION OPPORTUNITIES IN KENYA.
https://afr100.org/sites/default/files/Kenya_Technical%20Report_Assessment%20of%20National%20Forest%20and%20Landscape%20Resto..._0.pdf

Restoration economic analysis for Kenya

Kenya Forest Service 2016 – Brochure: Landscape restoration in Kenya.
<https://www.kefri.org/PDF/Publications/Brief1e-versionNew1.pdf>

The Kenya Restoration Atlas through KFS:

[\(http://ken.restoration-atlas.org/map/\)](http://ken.restoration-atlas.org/map/)

Monitoring Water Towers – Water Towers Watch

<http://kenya.restorationatlas.org/about/watertowers>

SLEEK

<https://www.rcmrd.org/sleek>

Monitoring Forests – Regional Conservancies

http://www.kenyaforestservice.org/index.php?option=com_content&view=article&id=685&Itemid=574
<http://www.environment.go.ke/wp-content/uploads/2018/08/Forest-Report.pdf>

Monitoring wildlife ecosystems

<http://www.kws.go.ke/content/priority-ecosystems-and-species>

Monitoring marine ecosystems

<https://cordioea.net/servir/>
<http://www.environment.go.ke/?p=3001>
<http://www.environment.go.ke/wp-content/uploads/2016/07/Kenya-NFP-draft-doc-2016-07-12-small-v2-1.pdf>
<http://kenyalaw.org/lex/actview.xql?actid=No.%2011%20of%202016>
<http://www.fao.org/faolex/results/details/en/c/LEX-FAOC160882>

Level of confidence of the above assessment

Please indicate your country's level of confidence in the assessment undertaken above.

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

Based on applied and adaptive research with identified case studies, collated data on biodiversity aspects, expert opinions and experiences,

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Check this box if the monitoring systems that are in place are able to provide sufficient information, in

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

The SLEEK Land Cover Change Mapping (LCC) Program aims to create a sustainable and technically rigorous process for providing land cover and change information required for national land-based greenhouse gas (GHG) estimation under the SLEEK program. The focus of this is on providing nationwide, time series consistent, land cover maps for Kenya. The maps will allow for analysis of land cover and cover change through time. In addition to supporting SLEEK, the maps and statistics produced by the program will serve as official Government documents for informing Government processes across the land sector – such as land use planning, tracking deforestation, and landscape restoration. Implementation of the Land Cover Change mapping program is in partnership with Department of Resource Surveys and Remote Sensing (DRSRS) as the Lead government organization with support from the Regional Centre of Mapping of Resources for Development (RCMRD), Kenya

Other sources are

- The monitoring is undertaken as part of reporting for the AFR100, Bonn challenge, UNCCD and SDG reporting.
- The 10% tree cover target is monitored as part of the Vision 2030 MTP reporting
- The key institutions KFS, KWTA, KWS, KMFRI provide reporting through their mandates and policy commitments.

These feed into the Kenya Restoration Atlas and Kenya Water Tower Watch,

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)**The Kenya Restoration Atlas through KFS:**

[\(http://ken.restoration-atlas.org/map/\)](http://ken.restoration-atlas.org/map/)

Monitoring Water Towers – Water Towers Watch

<http://kenya.restorationatlas.org/about/watertowers>

Monitoring Forests – Regional Conservancies

http://www.kenyaforestservice.org/index.php?option=com_content&view=article&id=685&Itemid=574

<http://www.environment.go.ke/wp-content/uploads/2018/08/Forest-Report.pdf>

Monitoring wildlife ecosystems

<http://www.kws.go.ke/content/priority-ecosystems-and-species>

Monitoring marine ecosystems

<https://cordioea.net/servir/>

4.16 TARGET 16

Target 16: By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

Category of progress towards the implementation of the selected target

On track to achieve target

Date the assessment was done

13.03.2020

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

The Protocol was adopted by the Conference of Parties to the CBD at its 10th meeting (COP 10) on 29th October 2010, and Kenya ratified it on 7th April 2014. It entered into force on 12th October 2014. The Nagoya Protocol is part of Kenyan law as per the constitution which states that every international agreement Kenya is a signatory to is law. *Article 2 Section 6* Kenya signed in 01/02/2012 and Ratified in 7th April 2014.

The Protection of Genetic Resources and associated Traditional Knowledge in Kenya is a subject matter in the new constitution of Kenya, under clauses touching on the protection of right to property, culture and environment. Article 69 states that the State shall:

- 69 (a). ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits,
- 69(c). protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities; and
- 69 (e). protect genetic resources and biological diversity.

At the national level, Article 11 of Chapter Two 10 of the new constitution recognizes the value of our culture as the foundation of our nation, and as the cumulative civilization of the Kenyan people and nation. Among other points, this article states that the State shall promote all forms of national and cultural expressions through literature, the arts, traditional celebrations, science, communication, information, mass media, publications, libraries and other cultural heritage; recognize the intellectual property rights of the people of Kenya; and shall also promote the intellectual property rights of the people of Kenya. Article 40(5) of the new constitution provides that the state shall support, promote and protect the intellectual property rights of the people of Kenya. The Traditional knowledge and Culture expression Act of 2016 was enacted.

Further, the Environment Management and Coordination Act, EMCA 1999 was amended in 2015 with the following underlined sections in relation to access and benefit sharing of genetic resources:

"The Cabinet Secretary shall, on the recommendation of the Authority":, issue guidelines and prescribe measures for the sustainable management and utilization of genetic resources of Kenya for the benefit of the people of Kenya.

Without prejudice to the general effect of subsection (1), the guidelines issued, or measures prescribed under that subsection shall specify –

- (a) "(a) appropriate arrangements for access to biological resources, genetic resources and ecological services of Kenya by noncitizens, including the issue of licences and fees to be paid for that access";
- (b) measures for regulating the import or export of germplasm,
- (c) the sharing of benefits derived from genetic resources of Kenya,
- (d) biosafety measures necessary to regulate biotechnology,
- (e) measures necessary to regulate the development, access to and transfer of biotechnology,
- (f) measures necessary for the recognition, protection and enhancement of indigenous knowledge and associated practices in the conservation of the environment and natural resources,
- (g) measures necessary for the protection of indigenous knowledge of biodiversity and genetic resources of communities, and

(h) any other matter that the Cabinet Secretary considers necessary for the better management of the genetic resources of Kenya.

Other relevant legal and policy instruments include:

- The Science, Technology and Innovation Act 2013 recognizes traditional and indigenous knowledge as part of innovations.
- National Museums and Heritage act

The Ministry of Environment and Forestry is the focal point organization and NEMA is the competent National Authority, Clearing-House and publishing authority for access and benefits sharing. The designated checkpoints include Kenya Wildlife Service, Kenya Forest Service, Kenya Plant Health Inspectorate Services (KEPHIS), NACOSTI, State Department of Immigration, Kenya Industrial Property Institute (KIPI) and Universities. No person shall transfer any genetic resources outside Kenya unless such person has executed a Material Transfer Agreement (MTA). Regulation 19 requires that benefit sharing shall apply, subject to the laws in force relating to intellectual property rights. In Kenya, institutions responsible for intellectual property rights include the Kenya Industrial Property Institute (KIPI), the Kenya Plant Health Inspectorate Service (KEPHIS) and the Kenya Copyright Board (KECOBO). Since ratification, the Government has issued one hundred and thirty (130) access permits for research and development.

Kenya is in the process of preparing regulations for conservation on biodiversity, access to genetic resources and benefit sharing to be aligned with the provisions of the Protocol.

The Government has put in place an Access and Benefit Sharing (ABS) Committee that reviews and determines the approval of applications for research and development related to utilization of biological resources. It has also initiated capacity building and awareness Programmes in the counties for enhanced sharing of benefits arising from utilization of genetic resources and associated traditional knowledge. The access and benefit sharing toolkit for genetic resources and associated traditional knowledge toolkit was developed in 2014 to train in PIC, MAT, MTA. A website for ABS was developed with training materials and ABS projects information (<http://meas.nema.go.ke/abs/list-of-abs-projects/>)

The Country has a robust ABS CHM. The platform is used to exchange information for both users and providers. Efforts are ongoing on the development of an ABS Toolkit for both providers and users of genetic resource in the country. Templates for PIC and MAT that regulates ABS have been developed and an online monitoring permitting system for ABS permits launched. Kenya is preparing the Draft ABS Law- to address the ABS matters that is in 16 different sectors to be enacted into National Action Plans. The country submitted their interim report on the implementation of Nagoya Protocol on 1st November 2018.

Need details on the NEMA regulations and KWS regulations

Cartagena Protocol

The Cartagena Protocol of the CBD is an International Agreement on bio safety which aims to ensure the safe handling, transport and use of Living Modified Organisms (LMOs), also referred to as Genetically Modified Organisms (GMOs) resulting from modern biotechnology that may have adverse effect on biological diversity, taking also into account risks to human health. Kenya signed the Protocol in the year 2000 and ratified it in 2013.

The Protocol obliges member states to establish Competent Authorities which act as the National Focal Point for the Protocol and serve as the Biosafety Clearing House (BCH) for the purpose of providing international linkages and exchanges of information. Member states are also obliged to pay an annual subscription fee determined during Conventions of the CBD.

Kenya enacted the Biosafety Act, 2009, which established the National Bio Safety Authority (NBA) to manage bio safety issues and also serve as the national focal point for the BCH. The Government has met and continues to meet her obligations under the Protocol through the National Competent Authority. The Government has also put in place the Whistle Blowing Policy which aims at providing an avenue for employees, stakeholders and customers to raise concerns and reassurance that they will be protected from reprisals or victimization.

Indicators used in this assessment

No indicator used

- Trends in the implementation of the Nagoya Protocol
 - Number of Parties to the CBD that have deposited the instrument of ratification, acceptance, approval or accession of the Nagoya Protocol
 - Number of countries that have adopted legislative, administrative and policy frameworks for the implementation of the Nagoya Protocol (SDG indicator 15.6)

Please describe any other tools or means used for assessing progress

- Kenya Law reviews
- Monitoring reports – NEMA
- EMCA 1999 and 2015
- MEAs ABS website
- NEMA CBD CHM website

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

Kenya Constitution

<http://kenyalaw.org:8181/exist/kenyalex/actview.xql?actid=Const2010>

Protection of Traditional Knowledge and Cultural Expressions Act

http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/ProtectionofTraditionalKnowledgeandCulturalExpressionsAct_No33of2016.pdf

ABS toolkit

<https://absch.cbd.int/api/v2013/documents/A5F8E9A7-C066-77CC-7446-D188F351F10A/attachments/ABS%20TOOL%20KIT%20FINAL.pdf>

National Museums Heritage Act

[National Museums and Heritage Act](#)

NEMA CHM

<http://meas.nema.go.ke/cbdchm/>

Kenya ABS CHM

<http://meas.nema.go.ke/abs/>

Level of confidence of the above assessment

Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

1. The ABS Laws and instruments are being developed to be streamlined in National Action Plans among the users and providers.
2. Designation of National Focal Points, Competent National Authority, Publishing Authority, Check points and the CHM have been done by the country.
3. Development on an online permitting system is ongoing for monitoring utilization of genetic resources

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

- The National Focal Points, Competent National Authority, Publishing Authority, Check points and the CHM have been established and are responsible for monitoring.
- There is an online permitting system for monitoring utilization of genetic resources. There is progress in development of online monitoring system (MAT and PIC templates)

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)

NEMA CHM

<http://meas.nema.go.ke/cbdchm/>

Kenya ABS CHM

<http://meas.nema.go.ke/abs/>

4.17 TARGET 17

Target 17: By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Category of progress towards the implementation of the selected target

On track to achieve target

Date the assessment was done

March 12 2020

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

Kenya has developed the draft NBSAP 2019-2030. This will be updated based on the post 2020 framework. Baseline Review has been undertaken and stakeholder consultations undertaken. The CHM has provided key resources for the implementation and review of the targets. There have been various mainstreaming activities into key sectors. Although in the absence of an approved NBSAP, Kenya has put in place sectoral policies and legal frameworks within the reporting period 2010-2020 for implementation of the NBSAP.

For instance:

- [Species Management Strategies](#),
- The Community Land Act,
- WCMA 2013 recognition of conservancies.
- Revised EMCA 2015-
- Access to bio-resources toolkit,
- Bioprospecting strategy within and outside protected area developed,
- Masterplan for rehabilitation and restoration of water catchment areas
- Fisheries Management and Development Act-2016
- Forest Conservation and Management Act 2016
- Forest Management Strategy
- National Museums and Heritage Act
- REDD+
- Climate Change Act 2016
- National Climate Change Action Plan

<ul style="list-style-type: none"> • National Strategy for Achievement and Maintaining over 10% tree cover by 2022 • National Environment Policy 2014
<p>Indicators used in this assessment</p> <input type="checkbox"/> No indicator used
<p>Please describe any other tools or means used for assessing progress</p> <ul style="list-style-type: none"> • Reports • Publications • CHM website
<p>Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).</p> <p>http://meas.nema.go.ke/cbdchm/</p> <p>http://meas.nema.go.ke/cbdchm/download/Meas/Biodiversity/Plans-and-Strategies/KENYA-NBSAPFINAL-DRAFT.pdf</p>
<p>Level of confidence of the above assessment</p> <input type="checkbox"/> Based on partial evidence
<p>Please provide an explanation for the level of confidence indicated above.</p> <p>CBD focal point validation</p>
<p>Adequacy of monitoring information to support assessment</p> <input type="checkbox"/> No monitoring system in place
<p>Please describe how the target is monitored and indicate whether there is a monitoring system in place.</p> <p>http://meas.nema.go.ke/cbdchm/download/Meas/Biodiversity/Plans-and-Strategies/KENYA-NBSAPFINAL-DRAFT.pdf</p> <p>Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)</p> <p>Draft NBSAP</p> <p>http://meas.nema.go.ke/cbdchm/download/Meas/Biodiversity/Plans-and-Strategies/KENYA-NBSAPFINAL-DRAFT.pdf</p> <p>NEMA CHM</p> <p>http://meas.nema.go.ke/cbdchm/</p> <p>Kenya ABS CHM</p>

4.18 TARGET 18

<p>Target 18</p>

By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, **are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected** in the implementation of the Convention with **the full and effective participation of indigenous and local communities**, at all relevant levels.

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

12th March 2020

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

The Constitution of Kenya 2010, in Article 11 on culture¹⁶⁹, states that

“This Constitution recognizes culture as the foundation of the nation and as the cumulative civilization of the Kenyan people and nation.

The State shall—

- (a) promote all forms of national and cultural expression through literature, the arts, traditional celebrations, science, communication, information, mass media, publications, libraries and other cultural heritage,
- (b) recognize the role of science and indigenous technologies in the development of the nation; and
- (c) promote the intellectual property rights of the people of Kenya

Parliament shall enact legislation to—

- (a) ensure that communities receive compensation or royalties for the use of their cultures and cultural heritage; and
- (b) recognize and protect the ownership of indigenous seeds and plant varieties, their genetic and diverse characteristics and their use by the communities of Kenya.

In response, the Traditional knowledge and Traditional Cultural expression Act of 2016 was enacted¹⁷⁰.

Part two of the Act stipulates that county governments shall collect information, document and register traditional knowledge within their jurisprudence for the purpose of recognition. Under the Act, Kenya’s 47 counties are also charged with protection of traditional knowledge from misuse and misappropriation, among other roles. These include county governments working with the national government to establish mechanisms to prevent misappropriation, misuse or unlawful access and exploitation of traditional knowledge and cultural expression without prior consent. The Act also states that county governments are supposed to work with institutions such as KIPI, the Kenya Copyright Board (KECOBO) and Kenya Plant Health Inspectorate Service (KEPHIS) in establishment and maintenance of a national repository for genetic resources, traditional knowledge and cultural expressions. The Ministry of Culture has established a task force to develop the roadmap for the implementation of the Act.

The Act was passed with the objective of creating a framework for the protection and promotion of traditional knowledge and traditional cultural expressions in Kenya. The nature of the sui generis right granted by the Act is that it allows the relevant “holders” to exclude traditional knowledge from use, or to license it at a fee. Under the Act, a “holder” is defined as a recognized individual or organization within

¹⁶⁹ Kenya Constitution 2010. <http://kenyalaw.org:8181/exist/kenyalex/actview.xql?actid=Const2010>

¹⁷⁰ The Protection of Traditional Knowledge and Cultural Expressions Act 2016. http://kenyalaw.org/ki/fileadmin/pdfdownloads/Acts/ProtectionofTraditionalKnowledgeandCulturalExpressionsAct_No33of2016.pdf

the community entrusted with the custody of traditional knowledge or traditional cultural expressions according to customary law. Before statutory intervention in 2016, Kenya had a National Policy on Traditional Knowledge, Genetic Resources and Traditional Cultural Expressions ("the Policy") in 2009 which was in various aspects the forerunner to the statutory law to be discussed shortly. The Policy was aimed at laying the ground for a national framework that recognizes, preserves, protects and promotes sustainable use of traditional knowledge as well as the mainstreaming of traditional knowledge systems in view of national development targets. Other than equitable, benefit-sharing, sustainable development and international cooperation, the Policy had prior informed consent and good faith as guiding principles. It is notable that employing a sui generis regime suited to particular local communities finds significant grounding in the two latter objectives. The question is, however, how faithful the subsequent regime is to such foundational principles¹⁷¹.

The policy document recognizes that the three themes of traditional knowledge, genetic resources and folklore/ Traditional Cultural Expressions are closely intertwined and hence need to be addressed together. Their common characteristics, the similar problems they raise, and the question of intellectual property rights (IPR's) for their protection render it difficult to deal with them separately and sequentially. It is thus generally accepted that GR (being one category of biological resources) and folklore are both aspects of traditional knowledge.

The Kenya Industrial Property Institute established the Traditional Knowledge and Genetic Resources Unit. The functions are to develop a traditional knowledge database for Kenya, develop a simplified classification system of Kenya's traditional knowledge products and processes based on the hierarchical structure of the International Patent Classification, develop office guidelines on avoiding inappropriate intellectual property claims by placing the information in the public domain, ascertain the potential TK holder's have as individuals or communities, and create awareness in local communities on the importance of traditional knowledge and genetic resources¹⁷².

The Presidential Task Force on Parastatal Reforms (2013) proposed that three Intellectual Property Rights agencies namely: the Kenya Industrial Property Institute (KIPI) , The Kenya Copyright Board (KECOBO) and the Anti-Counterfeit Authority (ACA) be merged into one Government Owned Entity (GOE). The Task Force proposed that the GOE be named Intellectual Property Office of Kenya (IPOK) and has drafted Intellectual Property Office Bill, 2020 for establishing IPOK.¹⁷³

The Kenya Wildlife Service is working with communities and farmers in conservation and protection of genetic resources and traditional knowledge to ensure their sustainable utilization and proper benefit-sharing schemes especially where their commercial exploitation is involved¹⁷⁴.

Other relevant policy and legal frameworks include the:

- The Community Land Act, WCMA 2013 recognition of conservancies. EMCA 2015- Access to bio-resources
- ST&I Science Technology and Innovation Act 2013- Provides for documentation of all traditional technologies of Kenya and ensures innovation encompasses IPLC PART 1:2d Recognition of TK as part of innovation
- County Governments have established community protocols for accessing traditional knowledge.
- National Museums and Heritage act part 1 Section 4b, c the Act defines Natural heritage
- Kenya's access and benefit sharing toolkit for genetic resources and associated traditional knowledge-2014

Case study: The Loita Forest Case Forest of The Lost Child (Entim e Naimina Enkiyo)

¹⁷¹ Mwangi, C. K. (2019). Protecting traditional knowledge in Kenya through African Customary Law: An analysis of inclusive subordination (Thesis, Strathmore University). Retrieved from <http://su-plus.strathmore.edu/handle/11071/6632>

¹⁷² <https://www.kipi.go.ke/index.php/traditional-knowledge>

¹⁷³ <https://www.kipi.go.ke/index.php/ipok-bill-2020>

¹⁷⁴ Kenya Works With Communities On Genetic Resources And Traditional Knowledge Protection - Busia County Biodiversity Policy – Article by Justus Wanzala for the Intellectual Property Watch. 2017. <https://www.ip-watch.org/2017/02/15/kenya-works-communities-genetic-resources-traditional-knowledge-protection/>

The Loita Forest occupies a special place in Maasai legend and mythology. The Maasai name of the forest, Naimina Enkiyio (Forest of the Lost Child), signifies a conservation morality and consciousness that for generations has guarded it against any form of encroachment that did not respect local communal interests. Legend has it that a young girl was tending her father's calves at the edge of the forest. When some calves strayed into the forest and she followed to retrieve them, she could not find her way back. In the evening the calves arrived home without her, and young warriors were sent out to look for the girl. They called out her name but there was no response, and they, too, went home without her. The forest never gave her back - hence the name, Forest of the Lost Child.

The Loita area - approximately 2,000 km² and is 320 km southwest of Nairobi, in Narok district, Osupuko division. Loita straddles the Kenya-Tanzania border for approximately 100 kilometers stretching north to southwest and is part of the Ngurman Escarpment ecosystem on the north and southeast. The area is classified into two distinct ecological zones, high and medium potential. The zones are technical terms applied by the Kenya soil survey to classify climatic zones and their potential for food production per unit area and amount of precipitation a given ecological zone receives annually. The high potential zones receive 1,500-2,000 mm of rainfall annually whereas the medium potential is less than 800-1,000 mm of rainfall per year.

The Loita Forest covers about 300 square kilometers of tropical rainforest. It occupies the mountainous, eastern corridor of Loita, bordering the Ngurman Escarpment and Lake Magadi to the southeast. Although there have not been extensive scientific studies of the forest due to its remote location and inaccessibility, it is known to harbor significant biodiversity. It is an important watershed for the drier parts of Loita and a dry season refuge for livestock, the economic mainstay. The forest is also a spiritual ground for performing a number of traditional rites and ceremonies important to the Maasai of both Kenya and Tanzania. Policing its use has been in the culture of the people. The local community has jealously protected Loita Forest from both external and internal interference. For example, largely because of Maasai efforts, the Loita Forest is the only forest that in the late 1970s and 1980s withstood the mass destruction from the settlement and crop farming of migrant populations.

Loita has an estimated 22,000 inhabitants, a majority of them pastoralists. The local economy is livestock based, although recently, for reasons of food security and following the 1992 drought, groups of families and individuals added grain production to supplement the pastoralist diet of milk and meat. Supplementary grains are sold or exchanged for either stock replenishment or for cash, to meet financial obligations that livestock production alone cannot meet. The land is legally Trust Land not yet registered and the Narok County Council is the legal trustee, but in practice it is managed as common property by the Maasai.

Case Study: IIN

IIN has been working with different communities in different counties on conservation and Traditional knowledge. The target was to restore and recognize the knowledge they have and how this can be shared and transferred to the younger generation. There was clear evidence that the traditional institutions had broken down and a need to motivate the communities to revive it. Activities were undertaken in West Pokot- (Chebareria and Naramum) Narok (Transmara and Ololulunga) Marsabit (Logologo) Samburu (Kiltamany)The communities in these areas have been encouraged to start knowledge centers for learning and information sharing. The women who are the majority have been focusing on restoring medicinal and other indigenous plants that have disappeared because of logging and clearing of land for large scale farming, population increase , encouragement of land by other communities and impacts of climate change . The women and communities in the mentioned areas and especially in Narok and West Pokot have done a lot work and have restored that land and farms by planting the indigenous plants and fruits. At the Paran women knowledge center when writing this report have 50,000 Indigenous trees seedling collectively planted by both transmara and Ololulunga. Most of the tree seedling are part of traditional medicinal plants ready for planting. Clearly showing that the communities are ready to restore and continue having conservation of Biodiversity while at the same time using their traditional knowledge

Indicators used in this assessment

CBD Indicators

- Trends in which traditional knowledge and practices are respected through their full integration, safeguards and the full and effective participation of indigenous and local communities in the national implementation of the Strategic Plan
 - Number of local community-based monitoring on traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity
- Trends of linguistic diversity and numbers of speakers of indigenous languages (decision VII/30 and VIII/15)
 - Index of Linguistic Diversity

Please describe any other tools or means used for assessing progress

1. Stakeholders consultations
2. Expert Opinions
3. Desk Review
4. Relevant Institutions reports

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

Busia Policy Case Study

Kenya Works With Communities On Genetic Resources And Traditional Knowledge Protection - Busia County Biodiversity Policy – Article by Justus Wanzala for the Intellectual Property Watch. 2017.

<https://www.ip-watch.org/2017/02/15/kenya-works-communities-genetic-resources-traditional-knowledge-protection/>

Kenya Constitution

Kenya Constitution 2010. <http://kenyalaw.org:8181/exist/kenyalex/actview.xql?actid=Const2010>

Traditional Knowledge Act 2016

The Protection of Traditional Knowledge and Cultural Expressions Act 2016. http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/ProtectionofTraditionalKnowledgeandCulturalExpressionsAct_No33of2016.pdf

KIPI

<https://www.kipi.go.ke/index.php/traditional-knowledge>

<https://www.kipi.go.ke/index.php/ipok-bill-2020>

Journal Article

Mwangi, C. K. (2019). Protecting traditional knowledge in Kenya through African Customary Law: An analysis of inclusive subordination (Thesis, Strathmore University). Retrieved from <http://su-plus.strathmore.edu/handle/11071/6632>

Kenya Works With Communities On Genetic Resources And Traditional Knowledge Protection - Busia County Biodiversity Policy – Article by Justus Wanzala for the Intellectual Property Watch. 2017.

<https://www.ip-watch.org/2017/02/15/kenya-works-communities-genetic-resources-traditional-knowledge-protection/>

Other websites

<https://kwcakenya.com/>

<https://www.maraconservancies.org/>

<https://www.nrt-kenya.org/>

<https://absch.cbd.int/api/v2013/documents/A5F8E9A7-C066-77CC-7446-D188F351F10A/attachments/ABS%20TOOL%20KIT%20FINAL.pdf>

Level of confidence of the above assessment

Based on partial evidence

Check this box if some information and indicators exist for assessing progress towards the target but that not all elements can be assessed or that information limitations exist.

Please provide an explanation for the level of confidence indicated above.

1. Provisions in the supreme law: Constitution of Kenya (Articles....69): Promulgation of the constitution with provisions on protection of intellectual property rights associated with traditional knowledge and associated genetic resources (Article 11, 40.5 & 69) among others.
2. Provisions in Enactment of the other Acts as above (TK, Land rights- women and land rights, community rights)
3. Capacity strengthening on TK
4. Institutional Mandate: Under Ministry of Culture, a taskforce to create the implementation roadmap-Ongoing

Adoption of TK in biodiversity (holistic rangeland management, conservancies)

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

- o The Ministry of Culture has established a task force to establish the implementation road map for the Act.
- o KIPI has the mandate to monitor and implement with Partners the provisions of the Act
- o The Intellectual Property Office Bill 2020 is under review to define the institutional framework.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)

KIPI

<https://www.kipi.go.ke/index.php/traditional-knowledge>

<https://www.kipi.go.ke/index.php/ipok-bill-2020>

4.19 TARGET 19

Target 19: By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

Category of progress towards the implementation of the selected target

On track to achieve target

Date the assessment was done

March 12th 2020

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

The integration of Science, Technology and Innovation (ST&I) in national productive processes was considered central to the success of the government's policy priorities and Programmes outlined in Kenya Vision 2030. The capabilities of STI were, therefore, considered critical in ensuring sustainable development with natural resource management and disasters. Further, STI capabilities are to promote sustainable development, especially through social integration, conservation and sustainable management of biodiversity; sharing opportunities and benefits of a knowledge-based society and economy and strengthening local and indigenous knowledge and culture.¹⁷⁵ Under MTP I, The STI sector made the following achievements:

- o The establishment of the National Biosafety Authority in 2009,
- o The National Science, Technology and Innovation Fund,
- o an Award Scheme for recognition of outstanding scientists in Kenya.

Under MTP II, the following achievements were made:

- o Draft STI and Information Bill was finalized,
- o The Research fund was established under the National Council for Science and Technology.

The Natural Product Initiative was prioritized as one of the flagship projects of the Vision 2030 which aims to create an interface between indigenous knowledge and Science, Technology, Innovation and business expertise; spurring home-grown innovation culture and promote quality production and growth while developing Kenyan unique products that meet national and international standards. Under the MTP II, the National Council for Science, Technology and Innovation (NACOSTI) supported the creation of enabling policy, legal, regulatory and institutional framework to ensure formal recognition and anchoring of natural products in the mainstream economy. Key success factors include harnessing of indigenous knowledge and related genetic resources; creation of a comprehensive inventory of ethno-botanical resources and building capacity for product discovery, improvement, development and commercialization capability with Government support and participation of private sector and individuals.

The Natural Products Policy and Bill on natural products has been proposed to provide guidelines on the utilization of natural products for commercial purposes while ensuring environmental sustainability. The Natural Products Industry (NPI) Policy, 2012, seeks to contribute to the objectives of the Kenya Vision 2030, and is firmly premised on the strength of the letter and spirit of the Kenya Constitution, 2010 which recognizes the role of culture, indigenous knowledge, science, and protection and utilization of biodiversity in national development. The NPI policy and legal framework intends to create an institutional set-up that will serve as the primary custodian of the natural products industry by strategically promoting, directing and coordinating all the activities of the multiple and diverse players in the knowledge and product value chain.¹⁷⁶

Under MTP III, the proposal for Natural Products Programme include support for the development, acquisition, deployment and uptake of appropriate indigenous technologies to ensure optimal use of available natural resources in a sustainable manner. This will spur home-grown innovative culture and develop Kenyan unique products that meet international standards. The following projects will be undertaken:

- Manufacture of Pharmaceuticals through Public Private Partnership Initiative: implemented through a Public-Private Partnership between the Kenya Medical Research Institute (KEMRI) and local pharmaceutical industries in the manufacture of pharmaceutical products through appropriate technology transfer and acquisition.

¹⁷⁵ GOK 2018. The Presidency – Marking Ten Years of Progress of Vision 2030 - 2008-2018. <http://vision2030.go.ke/inc/uploads/2018/09/Kenya-Vision-2030-Sector-Progress-Project-Updates-June-2018.pdf>

¹⁷⁶ GOK 2013: Vision 2030 Sector Plan for Science Technology and Innovation. <http://vision2030.go.ke/inc/uploads/2018/05/SECTOR-PLAN-FOR-SCIENCE-TECHNOLOGY-AND-INNOVATION-2013-2017-1.pdf>

- Development of Indigenous Technologies for the Manufacture of Niche Products: identify, profile, document and secure indigenous technologies and home-grown innovations for application in the manufacture of niche products¹⁷⁷.

For policy reform, proposals include development of the Natural Products Policy; National Intellectual Property Policy; National Innovation Policy; Indigenous knowledge and Technology Policy. The following bills will be reviewed and enacted: The Biosciences Bill; Kenya Institute of Nanotechnology Legal Framework; and Natural Products Bill.

Information Management:

The Ministry of planning has developed a knowledge management policy.

The Kenya National Bureau of Statistics is seeking to develop indicators for biodiversity and environment for inclusion in the national reporting framework.

Strengthening National Biodiversity Information Systems: National Museums of Kenya and GBIF

With over 8 million specimens of cultural and natural heritage in its custody, the National Museums of Kenya (NMK) are designated as the country's national repository. Reference collections are at the heart of the institutions' functions of preserving, studying, documenting and presenting past and present heritage for the purpose of enhancing knowledge, appreciation, respect and sustainable utilization of resources, nationally and globally. There has been a concerted effort through various entities such as the project funded by the JRS Biodiversity Foundation on the development of Kenya's Biodiversity Atlas¹⁷⁸, an open access platform for hosting and supporting biodiversity data¹⁷⁹. Other efforts were made through the Global Biodiversity Information Facility (GBIF) Biodiversity Information for Development (BID) Programme with the aim of increasing the amount of biodiversity data available about a country so as to respond to national priorities; and the Intergovernmental Authority on Development's (IGAD) Biodiversity Management Programme (BMP)¹⁸⁰, whose main objective was to establish biodiversity databases, build technical capacity and digitise biodiversity collections so as to generate a map of biodiversity and other key information products for the IGAD Region¹⁸¹. Kenya published 389,349 new occurrence records during 2019 out of a total of 305,637,165 occurrence records added globally to GBIF. The National Museums of Kenya, Kenya Wildlife Service and other institutions have published datasets with GBIF. Researchers from Kenya contributed to 5 peer-reviewed articles citing GBIF use during 2019 and a total of 31 articles since 2008¹⁸². There are specific data mobilization projects such as for butterflies¹⁸³. Another project was

Kenya is participating in various GBIF projects:

- GBIF Africa Nodes data mobilization, ecological niche modelling and data paper training and mentorship Capacity Enhancement Support Programme, 2015–2016 This project is centred on providing practical training on ecological niche modelling and the preparation of data papers to participants from up to 10 nodes in Africa using real datasets for threatened or invasive species to be published to the GBIF network. <https://www.gbif.org/project/82204>

¹⁷⁷ GOK 2018. Vision 2030. Third Medium Term Plan. <https://planning.go.ke/wp-content/uploads/2018/12/THIRD-MEDIUM-TERM-PLAN-2018-2022.pdf>

¹⁷⁸ Biodiversity Atlas of Kenya Portal. <http://biodiversityatlaskenya.org/>

¹⁷⁹ <https://jrsbiodiversity.org/grants/african-conservation-centre-2018/>

¹⁸⁰ <https://igad.int/executive-secretary/1806-igad-closes-its-biodiversity-management-Programme>

¹⁸¹ Monda, Lawrence. "Biodiversity Data Management: Regional challenges." *Biodiversity Information Science and Standards*, 2019. Accessed 28 May 2020. <https://go.gale.com/ps/anonymouse?id=GALE%7CA613229834&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=25350897&p=AONE&sw=w>

¹⁸² GBIF Kenya Country Activity Report. 28-5-2020. https://www.gbif.org/sites/default/files/gbif_analytics/country/KE/GBIF_CountryReport_KE.pdf

¹⁸³ Kioko E, Musyoki A, Luanga A, Sese J, Nyangena L (2018): Occurrence of Skipper butterflies (Lepidoptera:Hesperiidae) in Invertebrate Zoology Collection at National Museums of Kenya. v1.5. National Museums of Kenya. Dataset/Occurrence. <http://ipt.museums.or.ke/ipt/resource?r=hesperidaenmk&v=1.5>

- Kenya's other carnivores: harnessing biodiversity data for conservation BID: Biodiversity Information for Development, 2016–2017 This project mobilizes existing biodiversity data for 31 species of Kenya's small carnivores to develop a national strategy for their conservation. <https://www.gbif.org/project/82779>
- Mobilizing data on freshwater snails in Kenya BID: Biodiversity Information for Development, 2016–2017 This project is mining and will publish records of freshwater snails from existing voucher collections of the National Museums of Kenya and other research institutions. <https://www.gbif.org/project/82725>
- Mobilizing biodiversity information from the Kenya Wildlife Service BID: Biodiversity Information for Development, 2016–2018 This project organizes biodiversity data collected in Kenya's protected areas since the 1950's. <https://www.gbif.org/project/82706>
- Prioritizing conservation management in an East African forest landscape BID: Biodiversity Information for Development, 2017–2019 A Rocha Kenya, the National Museum of Kenya (NMK), Kenya Wildlife Service (KWS), Animal Demography Unit of University of Cape Town (ADU), and the Arabuko- Sokoke Forest Guides Association (ASFGA) will access, assess, digitize, engage and improve the data for birds, mammals, invertebrates, reptiles and higher plants in order to inform the management of important, unique and threatened forest ecosystem. <https://www.gbif.org/project/7EOzw96rgAoSKKUgYaoaCe>

Some recent datasets are:

- Occurrence data of Rhiniid flies at the Natural History collection of the National Museums of Kenya. Published by National Museums of Kenya <https://doi.org/10.15468/6xjpkj>
- Occurrence data of some marine invertebrates and freshwater crabs housed in the natural history collection at the National Museums of Kenya. Published by National Museums of Kenya <https://doi.org/10.15468/ewyl4o>
- Species checklist of fresh/brackishwater prawns genus Macrobrachium in Kenya available at the National Museums of Kenya's Natural History Collections, Invertebrates Zoology Section. Published by National Museums of Kenya <https://doi.org/10.15468/7vxlcl>
- Fish species occurrences in the Tana River Basin, Kenya, digitized from the Ichthyology collection at the National Museums of Kenya and from recent field expeditions. Published by National Museums of Kenya <https://doi.org/10.15468/vwww5k>
- Amphibian and reptile species occurrences in the Tana River Basin, Kenya, digitized from preserved specimens at the National Museums of Kenya. Published by National Museums of Kenya <https://doi.org/10.15468/a3a7nt>

Case Study: TANA River Basin¹⁸⁴

The goal of the NMK JRS Foundation funded Tana River Biodiversity Informatics Project is “to Develop a Freshwater Biodiversity Data and Information System for Improved Ecosystem Management and Development Planning”. The project focus on the Tana River Catchment Basin, as shown in Figure 1XX below.

The Tana River Basin is Kenya's largest river basin (c. 95800 km²) & longest river (c. 1000 km). The Basin covers 14 Counties and is a key pillar for Kenyan economy supporting 11 million livelihoods. The river supplies 80% of the drinking water for Nairobi as well as several other municipalities, and hydropower generation the Seven Forks Dam. The Basin supports national food security through major irrigation schemes such as Bura and Hola. The Basin is also a Key Biodiversity Area being home to twelve protected areas such as Mt. Kenya, Aberdares, Meru NP, Tana River Primate Reserve, Tana Delta, and other small forest fragments under Kenya Forest Service. Others include ecosystems of international significance such as the Mt. Kenya World Heritage Site, Tana Delta Ramsar Site, several designated Important Bird Areas, Cultural Sites, Monuments and Historical Sites.

The project aspires to achieve five outcomes:

- Project partner institutions formerly recognize the importance of sharing data and information in standard formats for improved ecosystem management and development planning.

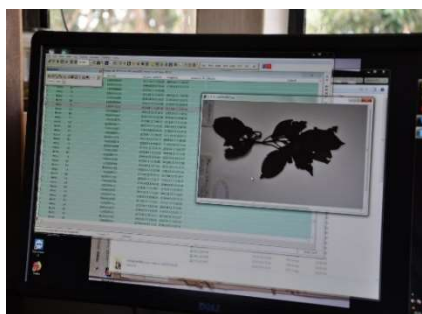
¹⁸⁴ <https://jrsbiodiversity.org/grants/national-museums-of-kenya-2018/>

- Biodiversity data and contextual information about TRB becomes openly accessible through a web portal.
- Data and information gaps on TRB identified and analyzed to guide future work.
- Capacity development in biodiversity informatics and GIS technology.
- Increased awareness on importance of TRB ecosystems and their biodiversity.

Plants Database

There are over 1 million collections at East African Herbarium (EA), however only about 250,000 collections databased and digitized; mainly Type specimens, endemics, rare and threatened species, indicator species, Photos, slides and botanical illustrations. The focus on digitization has been to enhance easy access to information for efficient utilization by researchers and other scholars and reduce physical handling of delicate specimens.

For the TRB, it is estimated that there are over 4500 species of plant in TRB in 220 families and 1345 genera. This data is mainly collected from key biodiversity areas i.e. mountain regions while data from mid Tana is scanty i.e. from Masinga dam down to Garissa and Tana River counties mainly due to security concerns. These gaps have been already identified hence more field survey needed.



The botanical databases have been created using BRAHMS software which is used globally for plant specimen data management. The database is generated from passport data for the specimens using standard fields and FAIR principles. The Data can be exported to other formats such as Excel and Ms ACCESS. It is easy to generate reports of particular species including distribution maps. Over 17,000 specimens from TRB have been digitized in the BRAHMS main database. This includes species name, locality, date of collection, taxonomy.

Figure 63: Data Capture using BRAHMS software at the National Herbarium

More data generated from JRS field trips include specimens data; specimens preserved at EA, sight records, images and video recording. For the first time this project is collecting sight records with images and video recording, which is not typical for botanical collections. This enhances digital data. This has been augmented by data from other NMK collaborative projects working in TRB shared e.g. the TNC project. For data mobilization strategy, efforts have been made to contact individuals with plant data from TRB region to incorporate in our database and make it accessible. In addition, published data and grey literature, Online databases and Information/data from our partner institutions are being included using FAIR principles. There are many online databases for the Upper Tana but not for the Lower Tana. We ensure that we check our data to confirm taxonomy, use of international standards and editing of GIS files. This takes time hence delays publishing after field work.

The use of the TRB data will include collection management, collection gaps analysis, forensic investigation esp. in CITES listed species, conservation assessment & species restoration, climate change modelling, identification of indicator species for various habitats/ecosystems, monitoring of Invasive and Alien Species (IAS) and generation of distribution maps. The two field trips have been completed but access to many sites is a challenge.

Indicators used in this assessment

CBD Indicators

- Number of maintained species inventories being used to implement the Convention
 - Species represented in the barcode of life data system
 - Growth in species occurrence records accessible through GBIF
 - Species Status Information Index
 - Proportion of known species assessed through the IUCN Red List

Please describe any other tools or means used for assessing progress

- GBIF WEBSITE
- NMK and related Information Management Systems
- KWS Website
- JRS Biodiversity Website Kenya Projects

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

Biodiversity Atlas of Kenya Portal.

<http://biodiversityatlaskenya.org/>

GBIF Kenya Country Report

https://www.gbif.org/sites/default/files/gbif_analytics/country/KE/GBIF_CountryReport_KE.pdf

GOK 2018. The Presidency – Marking Ten Years of Progress of Vision 2030 - 2008-2018.

<http://vision2030.go.ke/inc/uploads/2018/09/Kenya-Vision-2030-Sector-Progress-Project-Updates-June-2018.pdf>

GOK 2013: Vision 2030 Sector Plan for Science Technology and Innovation.

<http://vision2030.go.ke/inc/uploads/2018/05/SECTOR-PLAN-FOR-SCIENCE-TECHNOLOGY-AND-INNOVATION-2013-2017-1.pdf>

GOK 2018. Vision 2030. Third Medium Term Plan.

<https://planning.go.ke/wp-content/uploads/2018/12/THIRD-MEDIUM-TERM-PLAN-2018-2022.pdf>

Biodiversity Atlas of Kenya Portal.

<http://biodiversityatlaskenya.org/>

<https://jrsbiodiversity.org/grants/african-conservation-centre-2018/>

IGAD Biodiversity Programme

<https://igad.int/executive-secretary/1806-igad-closes-its-biodiversity-management-Programme>

Kenya wildlife Services

<http://kws.go.ke/downloads>

Level of confidence of the above assessment

Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above.

This assessment is based on expert input and desk review.

Adequacy of monitoring information to support assessment

Please indicate the adequacy of the national monitoring systems in place for this national target.

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

- The NACOSTI monitoring is part of the national reporting for the Vision 2030.
- Further, the GBIF website provides a status report in the Country data.

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)

Biodiversity Atlas of Kenya Portal.

<http://biodiversityatlaskenya.org/>

GBIF Kenya Country Report

https://www.gbif.org/sites/default/files/gbif_analytics/country/KE/GBIF_CountryReport_KE.pdf

GOK 2018. The Presidency – Marking Ten Years of Progress of Vision 2030 - 2008-2018.

<http://vision2030.go.ke/inc/uploads/2018/09/Kenya-Vision-2030-Sector-Progress-Project-Updates-June-2018.pdf>

4.20 TARGET 20

Target 20: By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

Category of progress towards the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

March 12th 2020

Additional information (Please provide information on the evidence used in the assessment of this target, drawing upon relevant information provided in section II, including obstacles in undertaking the assessment).

The government is taking steps to take stock of the contribution by development partners towards biodiversity. In the interim, the Public Finance and Management Act of 2015 provides for funding of all sectors and creation of specialized funds. These include:

- Debt Conversion for nature in Kenya marine and terrestrial conservation
 - Revised EMCA
 - Wildlife Act 2013-Provides for the Establishment of the Wildlife Conservation Trust Fund and other Conservation Trust Funds-Water Funds (*A good example for a case study*)
 - Forest Act- fund for conservation and management
 - Climate change fund, 2016
 - Science Technology and Innovation Act has established formation of a national research fund
(To check other funds established under other sectors)
- The Ministry of Environment and Forestry (Netfund) has adopted a Resource mobilization priority investment area linked to Biodiversity-(Ministry to provide document)
- The Ministry has adopted Integrated approach towards GEF programming targeting biodiversity, climate change and land degradation.

The National Treasury and Planning through the State Department for Planning in partnership with development partners and stakeholders, produces a Comprehensive Public Expenditure Review (CPEP) report on a three-year period that is well researched to replace the annual public expenditure review.

The second Comprehensive Public Expenditure Review (CPER) 2017¹⁸⁵ presented a comprehensive analysis of public expenditure during the first three years of devolution thereby linking expenditure to achievements while taking cognizance of cost of achieving the results. The CPER also assesses the extent to which expenditure addresses national and county level priorities in order to strengthen the link between policies, planning and budgeting. Consequently, it informs current and future expenditure and budget decisions and is also a key input in the MTEF budget cycle. The CPER included an in-depth sectoral analysis for health, agriculture, infrastructure and energy sectors. However, the Environment Protection, Water and Natural Resources Sector was reviewed under the overall analysis. The trends are shown in Fig. 62 below.

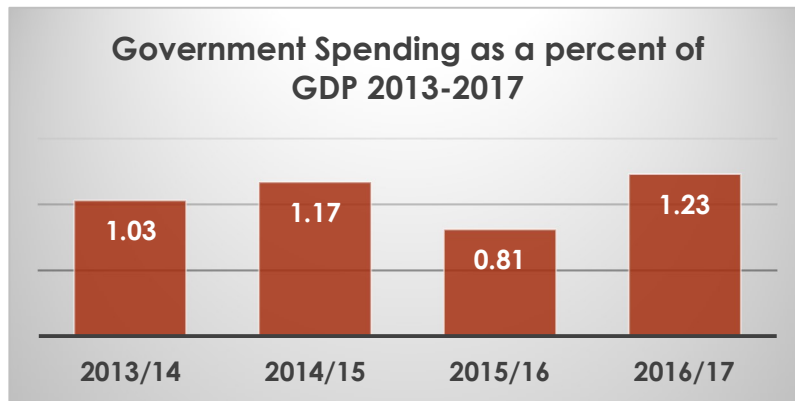


Figure 64: Government Spending as % of GDP on Environment Protection, Water and Natural Resources 2013-2017

(Source: CPER 2017 Report)

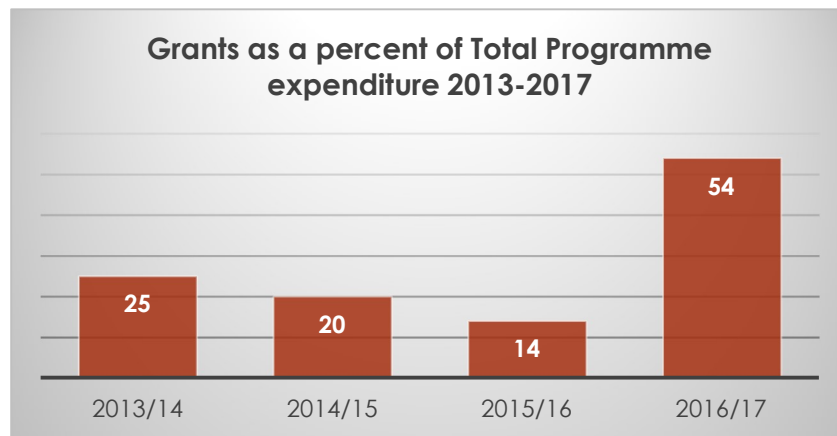


Figure 65: Grants as part Total Programme Expenditure on Environment Protection, Water and Natural Resources 2013-2017

(Source: CPER 2017 Report)

A more recent public expenditure analysis in 2018 was prepared by the World Bank as shown in Fig. 64

¹⁸⁵ Republic of Kenya. THE NATIONAL TREASURY AND PLANNING STATE DEPARTMENT FOR PLANNING MONITORING AND EVALUATION DEPARTMENT. 2017. Comprehensive Public Expenditure review. From Evidence to Policy. <https://planning.go.ke/wp-content/uploads/2018/12/CPER-2017.pdf>

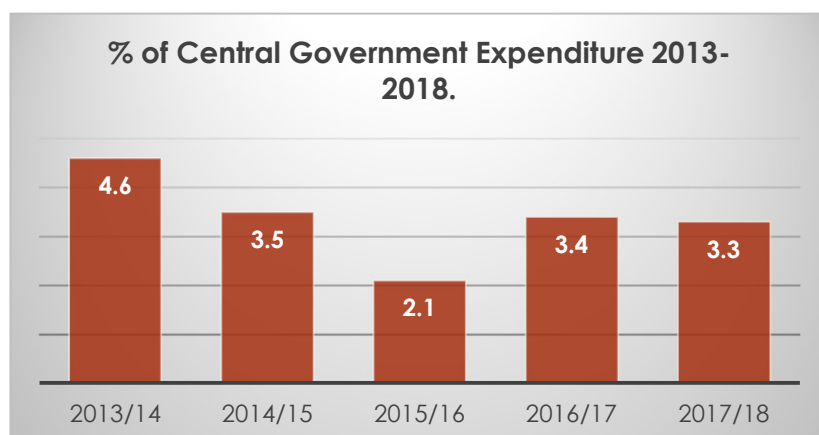


Figure 66: % of Government Expenditure on Environment Protection, Water and Natural Resources 2013-2018

(Source: CPER 2017 Report Source: World Bank Calculations based on National Treasury ¹⁸⁶

Kenya's first Climate Public Expenditure and Budget Review processes has provided some critical lessons, experiences, findings on the budgeting and expenditure frameworks, and where more opportunities for climate mainstreaming exist. In defining climate finance for Kenya's landscape, the CPEBR has evolved three key climate finance concepts, which are summarized as Climate Relevant Expenditure (CRE) and include: i) Climate Change Adaptation (CCA) ii) Climate Change Mitigation (CCM) and iii) Climate Change Enabling Environment (CCEE) - Between 2011 and 2014, the country spent approximately 52.768 Billion (USD 527.680 Million) as Climate Relevant Expenditure in only three MTEF Sectors: Agriculture, Rural and Urban Development (ARUD); Energy, Infrastructure and ICT (EI); and, Environment Protection, Water and Natural Resources (EPW). This is equivalent to about 8% of the total external funds (Ksh 650 Billion) invested in the entire budget during the same period. The CPEBR process has also helped generate a new Segment 8, within the IFMIS SCOA which will be enhanced as a sustainable mechanism to track climate relevant expenditure. The National Treasury will continue improving the IFMIS system, to ensure climate change is effectively mainstreamed¹⁸⁷.

County Governments are working on developing their County Climate Change Fund model legislation to offer counties an opportunity to finance their own Climate change budget.

A Biodiversity Public Expenditure and Budget Review is recommended to monitor and achieve this target.

Kenya has a structured coordination and dialogue platform with her partners for discussing national development priorities which includes development partners, private sector, civil society organizations and the philanthropists. Through the multi-stakeholder dialogue forums, all stakeholders are encouraged align their support to the Country's Medium-Term Plans, with the current one having integrated the SDGs. Kenya now has a vibrant philanthropic organizations platform, the Kenya Philanthropy Forum, which has brought together over 40 philanthropic organizations with the objective of bringing coherence and championing alignment to the national development priorities and providing support towards the implementation of the Sustainable Development Goals. Civil Society Organizations are also being encouraged to align the resources they receive to the national development agenda.

Civil Society modeling innovating resource mobilization mechanisms from private sector- Nature Kenya has developed a business case for Mt. Kenya forest restoration targeting private sector in Kenya.

¹⁸⁶ World Bank 2019. Kenya Public Expenditure Analysis 2019 Creating fiscal Space to deliver the Big 4 while undertaking a needed fiscal consolidation. <https://openknowledge.worldbank.org/bitstream/handle/10986/32252/Kenya-Public-Expenditure-Analysis-2019-Creating-Fiscal-Space-to-Deliver-the-Big-Four-while-Undertaking-a-Needed-Fiscal-Consolidation.pdf?sequence=1&isAllowed=y>

¹⁸⁷ Republic of Kenya 2016. Kenya Climate Public Expenditure and Budget Review. https://www.undp.org/content/dam/kenya/docs/energy_and_environment/2016%20CPEBR%20Report.pdf

Indicators used in this assessment**CBD Target**

- Trends in the mobilization of financial resources
 - Information provided through the financial reporting framework, adopted by decision XII/3 (<https://chm.cbd.int/search/financial-reporting>)
 - Official development assistance and public expenditure on conservation and sustainable use of biodiversity and ecosystems (indicator for SDG target 15.a and 15.b)

Please describe any other tools or means used for assessing progress

IFMIS

1. Budget appropriation report
2. Auditor General financial report
3. Comprehensive public budget and expenditure reviews

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to this assessment can be found).

CPER 2017

Republic of Kenya. THE NATIONAL TREASURY AND PLANNING STATE DEPARTMENT FOR PLANNING MONITORING AND EVALUATION DEPARTMENT. 2017. Comprehensive Public Expenditure review. From Evidence to Policy. <https://planning.go.ke/wp-content/uploads/2018/12/CPER-2017.pdf>

WORLD BANK Kenya Public Expenditure Analysis

World Bank 2019. Kenya Public Expenditure Analysis 2019 Creating fiscal Space to deliver the Big 4 while undertaking a needed fiscal consolidation. <https://openknowledge.worldbank.org/bitstream/handle/10986/32252/Kenya-Public-Expenditure-Analysis-2019-Creating-Fiscal-Space-to-Deliver-the-Big-Four-while-Undertaking-a-Needed-Fiscal-Consolidation.pdf?sequence=1&isAllowed=y>

Kenya Climate Change Public Expenditure and Budget Review

Republic of Kenya 2016. Kenya Climate Public Expenditure and Budget Review. https://www.undp.org/content/dam/kenya/docs/energy_and_environment/2016%20CPEBR%20Report.pdf

Other:

www.treasury.go.ke
www.planning.go.ke
<https://kippra.or.ke/>

Level of confidence of the above assessment

Based on partial evidence

Check this box if some information and indicators exist for assessing progress towards the target but that not all elements can be assessed or that information limitations exist.

Please provide an explanation for the level of confidence indicated above.

TNT and Planning to Provide

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

- IFMIS
- The National Treasury

- Kenya national Bureau of Statistics
- SDG Monitoring
- Development Partners Projects Matrix

Relevant websites, web links and files (Please use this field to indicate any relevant websites, web links or documents where additional information related to the monitoring system can be found.)

www.treasury.go.ke

www.planning.go.ke

<https://kippra.or.ke/>

5 SECTION IV. DESCRIPTION OF THE NATIONAL CONTRIBUTION TO THE ACHIEVEMENT OF EACH GLOBAL AICHI BIODIVERSITY TARGET

5.1 TARGET 1:

(a) Kenya's Contribution to the achievement of the Global target.

Please see the description on the achievement in Section III.

Kenya has been an active player in the conservation of species in trade and has put in place national and global communication strategies. Kenya hosts various international events that promote awareness of biodiversity and conservation such as the Lewa Marathon¹⁸⁸ and the Rhino Charge¹⁸⁹. Both events amongst others have been used to raise millions of dollars for the conservation of endangered species. Others include the Forest Challenge¹⁹⁰ and Kakamega Forest Marathon to support Forest Conservation; Masai Mara Marathon¹⁹¹ and Kenya Wildlife Marathon¹⁹² to support protected areas and the Ndakaini Dam¹⁹³ and Sasamua Dam Marathons to support water towers and water conservation.

Beyond hosting great marathons and winning them, Kenya is also known for the Ivory Burn, a strong message against trade in endangered wildlife products.¹⁹⁴

(b) Other activities at the Global level

Underscoring how much the Blue Economy (BE) has become a priority for Kenya, the government hosted the first-ever global 'Sustainable Blue Economy' conference on 26 to 28 November 2018 with Japan and Canada. Over 16,000 participants from 184 countries attended the conference, which resulted in the [Nairobi Statement of Intent on Advancing a Sustainable Blue Economy](#).

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Kenya has mainstreamed conservation, environment and sustainable development in the national curriculum as elaborated in Section III. The relevant indicators addressed are summarized below.

SDG	Relevant Target and Indicator
SDG Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all:	Target 4.7: By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development: Indicator 4.7.1: Extent to which (i) global citizenship education and (ii) education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in: (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment
Goal 12. Ensure sustainable consumption and production patterns:	Target 12.8: By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature: Indicator 12.8.1: Extent to which (i) global citizenship education and (ii) education for sustainable development (including climate change education) are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment

¹⁸⁸ <https://www.lewasafarimarathon.co.ke/>

¹⁸⁹ <http://rhinocharge.co.ke/>

¹⁹⁰ <https://www.forestchallenge.com/>

¹⁹¹ <http://www.masaimaramarathon.co.ke/masai1/>

¹⁹² <https://www.kenyawildlifemarathon.com/#kenya-wildlife-marathon-half-marathon-10k-5k-oct-3-2020>

¹⁹³ <https://ndakaini.co.ke/>

¹⁹⁴ https://en.wikipedia.org/wiki/Destruction_of_ivory

5.2 TARGET 2

(a) Kenya's Contribution to the achievement of the Global target.

The details provided in section III highlight Kenya's contribution to the achievement of this target at global level. Kenya has been active not only in spearheading national but also regional and global action. These include through the

- (i) **Gaborone Declaration for Sustainability in Africa 195**: Kenya has signed the Gaborone Declaration and committed to develop institutional arrangements to strengthen the implementation of natural capital accounting and develop science-based methodologies on an experimental basis for ecosystem accounting as a complement to GDP and corporate performance. Kenya also plans to pilot and demonstrate the economic, social and environmental aspects of scaled up and integrated approaches to natural capital accounting.
- (ii) **African Ministerial Conference on the Environment: Kenya is implementing the Decisions of AMCEN of 30th Sept. 2019**¹⁹⁶ on biodiversity economy and natural capital accounting in Africa, spurred by Africa Agenda 2063. This decision called for African countries to set up valuation of its ecosystems and ecosystem services to build a strong foundation for developing comprehensive natural capital accounts. This includes development a regional cooperation framework on advancing the biodiversity economy that enhances the value of biological goods and services, integrates natural capital accounting and scales up investment in the sustainable utilization of biological resources as part of Africa's transformation.

(b) Other activities at the Global level

Following the Gaborone Summit, Kenya participated in the International Conference to discuss Valuation and Accounting of Natural Capital for Green Economy (VANTAGE) in Africa from 3-4 December 2013, at UNEP Headquarters in Nairobi, Kenya¹⁹⁷. Kenya also participated in the Gaborone Declaration for sustainability in Africa Regional Perspectives on Natural Capital Accounting in June 2016 to set priorities for NCA across the region.¹⁹⁸ Kenya has signed the communiqué for natural capital accounting (related to Rio+20 Conference).

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 11: SDG targets implementation in Kenya relevant to Aichi Target 1.

SDG Target	Kenya's contribution
SDG Target 15.9: By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts: Indicator 15.9.1: Progress towards national targets established in accordance with Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011-2020	(i) Green Economy Strategy and Implementation Plan – Kenya 2016-2030 (GOK 2016) : Under Objective 3.1 GESIP has committed to develop a natural resource accounting system, pursue application of environment policy measures including Payment for Ecosystem Services, Watershed management, biodiversity, conservation, carbon sequestration and storage, and promote establishment of nature-based enterprises including ecotourism and community conservancies especially by youth and women groups and people with special needs. In developing and applying tools of benefit sharing to support Payment for Ecosystem Services, Kenya will work with partners at national, regional and global level. (ii) National Forest Programme 2016-2030: Under the 8th Cluster on Forest Financing Kenya has defined Programme on Forest Resource Valuation whose objective is to determine the total value of forest resources and increase financing to the forest sector. The first intervention strategies is to determine Total Economic Value (TEV) of forest resources so as to increase investment in forestry sector, document TEV by 2020 , revise costing and pricing of goods and services from forests and enhance willingness to pay for environmental goods and services. The second strategy is to develop a satellite forestry resource account to document contribution to GDP established and increase resource allocation (county and national government) towards forestry sector. A good example is the study on the cost of restoration in Kenya, as a basis for planning and investment in Forest Landscape restoration.

¹⁹⁵ <https://www.conservation.org/projects/gaborone-declaration-for-sustainability-in-africa>

¹⁹⁶

https://wedocs.unep.org/bitstream/handle/20.500.11822/30652/AMCEN_17_5.pdf?sequence=1&isAllowed=y

¹⁹⁷ https://pfbc-cbfp.org/news_en/items/green-economy-International-conference.html

¹⁹⁸ <http://www.gaboronedeclaration.com/s/NCA-Workshop-Report-Compressed-n6it.pdf>

5.3 TARGET 3:

(a) Kenya's Contribution to the achievement of the Global target.

The details on Kenya's contribution are provided under Section III.

The Ban on plastics: Through a Gazette Notice No.2334 & 2356, the use, manufacture and importation of plastic bags used for commercial and household packaging was banned in Kenya. The penalties for contravening the ban are commensurate to the crime.

The EMCA Act 1999 was amended in 2015 hence EMCA Amendment Act 2015. NEMA is charged with enforcing EMCA's provisions as well as the subsidiary legislation that has been passed over the last decade. The subsidiary legislation includes water quality, waste management, controlled substances, biodiversity, wetland, river and seashore, and environmental impact assessment (EIA) regulations. Most of the provisions contained in EMCA, as well as the subsidiary legislation, are intended to provide regulations for the usage and type of allowable activity in the different ecosystems and habitats of Kenya. SEIA, EIA and EA mandatory for projects within PAs and outside that are likely to impact biodiversity negatively.

The Wildlife Conservation and Management Act 2013, the Forest Conservation and Management Act, 2016, Natural Resources Act, 2016, Water Act 2016, and Climate Change Act 2016 provide for various incentive measures. Some economic instruments include

- viii. **NEMA** – e.g. Pollution taxes Discharge licences and permits
- ix. **Forest** taxes, permits and fees e.g. Land rates exemptions for those engaged in private forestry
- x. **KWS** taxes, permits, fees etc e.g. Increased fines/ conviction limits for poachers, bio piracy
- xi. **PES SCHEMES**
- xii. **Sustainable financing under the Green Economy:** the government seeks to enhance diversification of policy and financial instruments that support the green economy such as green bonds and eco taxes.

(b) Other activities at the Global level

On the Green bond¹⁹⁹ Under the Green Bond Programme – Kenya aims to promote financial sector innovation by developing a domestic green bond market, brought together by the Kenya Bankers Association (KBA), Nairobi Securities Exchange (NSE), Climate Bonds Initiative, Financial Sector Deepening (FSD) Africa and FMO - Dutch Development Bank. Other partners who provide technical assistance and guidance include International Finance Corporation (IFC) and the WWF - Kenya. The Green Bonds Programme - Kenya is endorsed by the National Treasury, Central Bank of Kenya and Capital Markets Authority.

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs. N/A

5.4 TARGET 4:

(a) Kenya's Contribution to the achievement of the Global target.

The country is implementing the Green Economy Strategy initiatives that aim to support development efforts towards addressing key challenges such as poverty, unemployment, inequality, environmental degradation, climate change and variability, infrastructure gaps and food insecurity. A green growth path results in faster growth, a cleaner environment and high productivity.

The Minerals and Mining Policy was developed and approved in 2016. The enactment of Mining Act 2016 included development of 14 regulations necessary to operationalize this Act. In addition, the Mining Policy 2016 has put sustainable mining at the core of all extractive industries.

¹⁹⁹<https://www.nse.co.ke/products-services/debt-securities/the-green-bond.html> and <https://www.greenbondskenya.co.ke/>

In order to enhance efficiency in the use of natural resources and energy, the industrial sector has embraced cleaner production technologies through technical assistance by the Kenya National Cleaner Production Centre. The Centre has built capacity of industries in improving efficiency in the status of production systems/equipment in order to reduce wastage of raw materials and energy aimed at minimizing waste generation at source.

The private sector in Kenya is also championing sustainable consumption and production under the SWITCH Africa Green Project. Several companies have mainstreamed use of biodegradable materials in their production and consumption.

Driven by a commitment to deliver on sustainable development goals, Kenya has adopted several green economy-related approaches and policies, which include implementing renewable energy feed-in tariffs in 2008, embedding sustainable natural resource utilization into its 2010 Constitution and mainstreaming green economy in its Second Medium Term Plan (2013-2017). https://www.greengrowthknowledge.org/sites/default/files/downloads/resource/KenyaGEassessment_UNEP.pdf

(b) Other activities at the Global level

Clean Development Mechanism (CDM) Projects There are 20 registered CDM projects in Kenya, which have been issued 0.4 Mt of CERs. Most of these were renewable energy projects (wind, hydro, biomass, geothermal) and 5 were reforestation projects (Fenhann, 2018).

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Kenya is addressing sustainable production and consumption addressing various SDG targets. These are outlined below.

Table 12: Implementation of SDGs relevant to Aichi Target 4.

SDG	Target and relevant indicator	Kenya's Action
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products. 8.9.1 Tourism direct GDP as a proportion of total GDP and in growth rate 8.9.2 Number of jobs in tourism industries as a proportion of total jobs and growth rate of jobs, by sex	Wildlife Policy 2018
SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities. 9.4.1 CO2 emission per unit of value added	The Kenya National Cleaner Production Centre
SDG 12 Ensure sustainable consumption and production patterns	Target 12.2: By 2030, achieve the sustainable management and efficient use of natural resources • Indicator 12.2.1: Material footprint, material footprint per capita, and material footprint per GDP • Indicator 12.2.2: Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP	Green Economy Strategy 2030
	12.3 By 2030, halve per capita global food waste at the retail and consumer levels	The food loss index decreased from 73.3 per cent in 2016 to 60.3 per cent in 2018.

	and reduce food losses along production and supply chains, including post-harvest losses 12.3.1 Global food loss index	Towards halving per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses, Techno Serve, the Rockefeller Initiative and YieldWise Initiative teamed up to mitigate waste in fruit production with 20,000 farmers in four regions of Kenya.
	Target 12.4: By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment <ul style="list-style-type: none"> Indicator 12.4.1: Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement Indicator 12.4.2: Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment 	In order to achieve environmental sound management of chemicals, the government has developed a draft Chemicals policy and terms of reference for inter-ministerial coordination on chemicals. In addition, the country Participated in international dialogue, BRS, triple 86 COP 2017,2019, Minamata Convention COP1 and COP2, Strategic Approach to International Chemicals Management (SAICM).
	Target 12.5: By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse <ul style="list-style-type: none"> Indicator 12.5.1: National recycling rate, tons of material recycled 	The National Solid Waste Management Strategy; Action plans on waste management and pollution levels in Mombasa, Thika, Nakuru, Eldoret and Kisumu as well as county solid waste management roadmap. Implemented Plastic Bags Initiative vide Gazette notice No. 2334. Harmonized Municipal and Industrial effluent standards within the Lake Victoria Basin; constructed sewerage treatment plants in Kisumu, Homa Bay, and Bomet towns; and developed a system to monitor Nutrient and Sediment Losses from Land Use and Cover in the Nyando Basin.
SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Target 15.9: By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts Indicator 15.9.1: Progress towards national targets established in accordance with Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011-2020	See details in Section III for target 2.

5.5 TARGET 5:

(a) Kenya's Contribution to the achievement of the Global target.

Please see details are provided in Section III for this target.

Kenya's Constitution and Vision 2030 require forest and tree cover to be increased to at least 10% of the total land area. Further, Kenya has developed and enacted several policy and legal instruments related to reduce habitat loss, degradation and fragmentation. Key policy responses include the National Environment Policy 2013 (Pg. 36), National Strategy and Action Plan for the Management of Invasive Species in Kenya,

The Plant Health Protection Act Cap 324, Agriculture, Fisheries and Food Authority Act. No. 13 of 2013, Environmental Management and Coordination Act 1999 (amendment 2015), Wildlife Conservation and Management Act 2013, Forest Conservation and Management Act 2016 and Fisheries Management and Development Act 2016.

The National Climate Change Action Plan (NCCAP 2018-2022) takes cognizance of the impacts of climate change on Kenya's socioeconomic sectors. It identifies strategic areas where climate change action over the next five years will be linked to the Big Four Agenda. Under the Food and Nutrition Security Agenda, over the next five years the government shall invest heavily in securing our water towers and river ecosystems to harvest and sustainability exploit the potential of our water resources. The government aims to provide, together with other actors, key enablers within the farming process that will address distribution, wastage, storage, and value-addition of agricultural commodities.

The Government of Kenya has made significant strides towards the formulation of Wetlands Conservation and Management Policy 2015 and supported the development of the Kenya Wetlands Atlas (2012) which maps the country's wetland resources. The National Mangrove Ecosystem Management Plan covers all gazetted mangrove forest reserves in Kenya and is implemented over 10-year period (2017 – 2027). This management plan addresses the lack of ecosystem-based management approaches for mangroves in Kenya and supports sustainable utilization of mangrove resources while enhancing biodiversity conservation and ecosystem integrity. Further, Integrated Coastal Zone Management Policy, 2015 guides actions and policies which are related to the management and use of Kenya's coastal zone resources. This also covers the restoration of the degraded areas and the protection of the resources, the development a legal framework for the purpose of ensuring sustainable conservation and management of the deltas and estuaries; and development of comprehensive research information to aid in the proper conservation and management of said ecosystems.²⁰⁰

(b) Other activities at the Global level

N/A

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 13: Implementation of SDGs relevant to Aichi Target 5.

SDG	Relevant target and Indicator	Kenya's contribution
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	Target 14.5: By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information Indicator 14.5.1: Coverage of protected areas in relation to marine areas	The coverage of protected areas in relation to marine areas includes the Marine parks, Marine Reserves, and National Sanctuaries. This has remained the same for the period under review. The Marine Parks in the country are: Kisite Marine (28km ²); Malindi Marine (6km ²); Mombasa Marine (26.1km ²); and Watamu Marine (10km ²). While the Marine Reserves includes: Diani Chale Marine (165km ²); Kiunga Marine (250km ²); Malindi Marine (213km ²); Mombasa Marine (200km ²); Mpunguti Marine (11km ²); and Watamu Marine (32km ²). On the other, hand, the National Sanctuaries in the country are: Maralal (6km ²); L. Simbi (0.4km ²); Ondago Swamp (0.2km ²); and Kisumu Impala Sanctuary (0.3km ²)
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt	Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands,	The Forest Conservation and Management Act, 2016 and Climate Change Act 2016 enacted, the Strategy to achieve 10% tree cover by 2022, the National Forest Programme 2016-2030, Wildlife Policy 2018-2030 developed. The current forest stands at over 7.4% but it is targeted to be at 10% by 2022.

²⁰⁰ Nile Basin Initiative: Kenya Wetlands Governance and Management Profile. <http://www.nilebasin.org/wetlands/wp-content/uploads/2019/03/Kenya-Wetlands-Governance-and-Management-Profile.pdf>

<p>and reverse land degradation and halt biodiversity loss</p>	<p>mountains and drylands, in line with obligations under international agreements</p> <ul style="list-style-type: none"> •Indicator 15.1.1: Forest area as a proportion of total land area •Indicator 15.1.2: Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type. 	<p>There has been an increase protected areas so as to enhance connectivity and protection of habitats through gazettment of forest areas (from 1.57m ha in 2003 to 2.59m ha in 2019 201 and creation of community wildlife conservancies covering (6.36m ha equivalent to 11%) 202 across the country,</p> <p>The government imposed a moratorium on logging and extraction of timber in public and community forests to aid in the restoration and rehabilitation of the critical water catchment and natural resources areas. In addition the government facilitated production of 222,124 bamboo seedlings and 800 million tree seedlings and availed these for planting 500,000 hectares on farmlands for livelihood improvement; restored 156,000ha of degraded natural forests, established 19,359ha of commercial forest plantations and promoted planting of 300,109ha of tree on farmlands and in schools across the country. Further 565,607.4ha of new forests in Tana River, Lamu and Garissa were gazette.</p>
	<p>Target 15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally</p> <ul style="list-style-type: none"> •Indicator 15.2.1: Progress towards sustainable forest management 	<p>National Forest Programme 2016-2030 developed based on sustainable forest management principles.</p> <p>The country is continuously rehabilitating and protecting Kenya's five major water towers namely: the Aberdares, Cherangany, Mau, Mt. Kenya and Mt. Elgon and other smaller significant Water Towers and catchment areas. The rehabilitation, protection and securing of Enoosupukia (12,000 Ha), South West Mau (19,000 Ha), Masai Mau (64,000 Ha) and Olpusimoru (26,000 Ha) was realized. An area of 1,250 Ha was surrendered voluntarily at Mau complex.</p>
	<p>Target 15.3: By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world</p> <ul style="list-style-type: none"> • Indicator 15.3.1: Proportion of land that is degraded over total land area 	<p>The Land Degradation Assessment (LADA) in 2015 assessed the causes, extent and types of land degradation in Kenya. Generally, agricultural/cultivated areas increased by 7.3% and bare lands increased by 2.6%. The study showed at least 61% the total area of Kenya is at high risk of land degradation, while very high degradation affects 27% of the land. The lower levels of land degradation in the since 2000 also coincides with the policy change. The KSIF has a development and environmental objective.</p>
	<p>Target 15.5: Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species</p> <ul style="list-style-type: none"> • Indicator 15.5.1: Red List Index 	<p>Vision 2030 accords prominence to a clean, secure, and sustainable environment under its economic and social pillars, and is inspired by the principles of ecosystem integrity and equitable access to resource benefits. Kenya's Vision 2030 flagship project for securing wildlife dispersal areas and migratory routes/corridors developed a Conservation Connectivity Framework (CCF), which has identified and mapped all the wildlife dispersal areas and migratory corridors in the southern and northern Kenya rangelands and coastal terrestrial ecosystems.</p> <p>A total of 58 migratory routes and corridors were identified in the southern Kenya rangeland ecosystems: Maasai-Mara ecosystem (17); Eburu Forest and Lakes Naivasha-Elementaita-Nakuru conservation and ecological area (8), Athi-Kaputiei and Nairobi National Park (7), South Rift (8),</p>

[201 http://www.kenyaforestservice.org/documents/STATUS%20OF%20GAZETTED%20FORESTS%20IN%20KENYA.pdf](http://www.kenyaforestservice.org/documents/STATUS%20OF%20GAZETTED%20FORESTS%20IN%20KENYA.pdf)

[202 \(https://kwckkenya.com/conservancies/\)](https://kwckkenya.com/conservancies/)

		Amboseli and west Kilimanjaro (8), and the Tsavo xvii Conservation Area (10). Fifty-two migratory routes or corridors were identified in the northern Kenya rangelands and coastal terrestrial ecosystems, with the majority found in the greater Ewaso ecosystem.
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5.6 TARGET 6

(a) Kenya's Contribution to the achievement of the Global target.

Revision of the National Oceans and Fisheries Policy, 2008 was completed; Sector Plan for Blue Economy, 2018-2022 was completed and launched among others on 23rd November, 2018: The Fisheries Management and Development Act 2016 provides for the conservation, management and development of fisheries and other aquatic resources to enhance the livelihood of communities that depend on fishing. It gives guidance on the import and export trade of fish and fish products, fish quality and safety among other provisions that support sustainable utilization of marine products in Kenya. Other actions are; development of Fisheries Management Plans; Kenya Tuna Fisheries Development and Management Strategy 2013 -2018, establishment of an Monitoring, Control and Surveillance (MCS) centre in Mombasa and installation of a Vessel Monitoring System (VMS), restocking of 135 dams, 11 rivers and 3 lakes with a total of 4,881,663 assorted fish fingerlings to increase productivity, mapping and delineation of thirteen (13) critical fish habitats, 5 in Lake Naivasha, 3 in Lake Baringo and 5 in Lake Turkana to protect the breeding areas and thus increase in-situ stock recruitment.

Under Blue Economy Sector that has been recently launched, the priorities are:

- 56 sub-catchment management plans developed, and 236 sub-catchment management plans implemented to assist local communities to protect wetlands, lakes, and other water catchment areas.
- Integrated catchment approach and ecosystem-based adaptation structural/ mechanical design, such as structural catchment protection, especially in the upper catchments,
- Livelihood systems improved on 60,000 hectares of degraded land through the development of water pans and ponds; and
- Rehabilitating and restoring mangrove forests; and
- Conserving at least 15% of coastal and marine areas, especially areas of importance for biodiversity and ecosystem services.
- Develop the Blue Economy Master Plan (BEMP) to provide a blueprint to guide the long-term holistic development of the Blue Economy.

Kenya produced the Kenya State of the Coast Report²⁰³ which describes the status of Kenya's coastal and marine environment, demographic and resource-use trends, current impacts and threats to sustainability, and management measures to mitigate and prevent continued resource overexploitation and environmental degradation. The document will serve as the foundation for the development of an Integrated Coastal Zone Management (ICZM) Plan for Kenya.

(b) Other activities at the Global level

Kenya played an important role in the establishment of a legal order of the seas and oceans, the United Nations Convention on the Law of the Sea, (UNCLOS) of 1982 and continues to be active in national, regional and global efforts. Kenya is an active member of the Nairobi Convention for the Protection, Management and Development of Coastal and Marine Environment of the Western Indian Ocean (WIO)²⁰⁴. Kenya is participating in the implementation of the Strategic Action Programme for the protection of the Western Indian Ocean from land-based sources and activities (WIO-SAP) and The Western Indian Ocean Large Marine Ecosystems Strategic Action Programme Policy Harmonisation and Institutional Reforms (WIO LME SAPHIRE). Kenya is addressing at the continental level, the 2050 African Integrated Maritime Strategy (AIMS) which provides a broad framework for the protection and sustainable exploitation of African maritime domain for wealth creation and the Policy Framework and Reform Strategy for Fisheries and Aquaculture in

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https://www.nema.go.ke/images/Docs/REPORTS/SOC%202nd%20Edition%20final%20report_19%2010%202017.pdf

²⁰⁴ <https://www.unenvironment.org/nairobiconvention/>

Africa of 2010 also provides a comprehensive framework for governance and exploration of Africa's fisheries and aquaculture resources. Additionally, the Africa's Blue Economy: A Policy HandBook (2016) provides a guideline for sustainable blue economy development for African Union (AU) Member States.

At International and Regional level Kenya is a signatory to many regional and international Conventions, Agreements and Protocols, governing fisheries. The Country is also a member of Regional Fisheries Bodies such as the Indian Ocean Tuna Commission, International Whaling Commission, Lake Victoria Fisheries Organization, South West Indian Ocean Fisheries Commission, and the Committee of Fisheries and Aquaculture of Africa.

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 14: Implementation of SDGs relevant to Aichi Target 6

SDGs	Relevant Target and Indicators	Kenya's contribution
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	<p>Target 14.2: By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans</p> <ul style="list-style-type: none"> Indicator 14.2.1: Proportion of national exclusive economic zones managed using ecosystem-based approaches 	<p>Based on the available information and data, 40% was the proportion of fish stocks within biological sustainable levels. Hence, six fish species out of ten were found to be over-exploited. The observed declines in catches and Catch Per Unit Effort (CPUE) for some species were an indication of potential localized depletion in some fishing grounds. In response,</p> <ul style="list-style-type: none"> enactment of the Fisheries Management and Development Act No. 35 of 2016, Blue Economy Sector Plan, 2018-2022 Fisheries Management Plans; Kenya Tuna Fisheries Development and Management Strategy 2013 - 2018, enactment of the Fisheries Management and Development Act No. 35 of 2016, restocking of 135 dams, 11 rivers and 3 lakes with a total of 4,881,663 assorted fish fingerlings to increase productivity, mapping and delineation of thirteen (13) critical fish habitats, 5 in Lake Naivasha, 3 in Lake Baringo and 5 in Lake Turkana to protect the breeding areas and thus increase in-situ stock recruitment.
	<p>Target 14.4: By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics</p> <ul style="list-style-type: none"> Indicator 14.4.1: Proportion of fish stocks within biologically sustainable level 	<ul style="list-style-type: none"> The Government established the Kenya Coast Guard Service through the Kenya Coast Guard Service Act, 2018 to address and strengthen Monitoring, Control and Surveillance (MCS) systems to combat Illegal, Unreported and Unregulated (IUU) fishing and the persistent threats to safety and security in the maritime domain, including piracy, dumping of toxic waste, drug and human trafficking. The Government also acquired and commissioned Offshore Patrol Vessel (P.V Doria) in 2018 to facilitate MCS of the Exclusive Economic Zone (EEZ). Establishment of an Monitoring, Control and Surveillance (MCS) centre in Mombasa and installation of a Vessel Monitoring System (VMS).
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat	<p>Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains</p>	<p>Implementation of the EMCA Amendment Act 2015; Key policy responses include the National Environment Policy 2013 (Pg 36), National Strategy and Action Plan for the Management of Invasive Species in Kenya, The Plant Health Protection Act Cap 324, Agriculture, Fisheries and</p>

<p>desertification, and halt and reverse land degradation and halt biodiversity loss</p>	<p>and drylands, in line with obligations under international agreements</p> <ul style="list-style-type: none"> • Indicator 15.1.1: Forest area as a proportion of total land area • Indicator 15.1.2: Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type 	<p>Food Authority Act. No. 13 of 2013, Environmental Management and Coordination Act 1999 (amendment 2015), Wildlife Conservation and Management Act 2013, Forest Conservation and Management Act 2016 and Fisheries Management and Development Act 2016.</p>
	<p>Target 15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally Indicator 15.2.1: Progress towards sustainable forest management</p>	<ul style="list-style-type: none"> • National Forest Programme 2016-2030 developed based on sustainable forest management principles. • Kenya's five major water towers namely: the Aberdares, Cherangany, Mau, Mt. Kenya and Mt. Elgon and other smaller significant Water Towers and catchment areas. The rehabilitation, protection and securing of Enosupukia (12,000 Ha), South West Mau (19,000 Ha), Masai Mau (64,000 Ha) and Olpusimoru (26,000 Ha) was realized. An area of 1,250 Ha was surrendered voluntarily at Mau complex. • The Fisheries Management and Development Act 2016 provides for the conservation, management and development of fisheries and other aquatic resources to enhance the livelihood of communities that depend on fishing. It gives guidance on the import and export trade of fish and fish products, fish quality and safety among other provisions that support sustainable utilization of marine products in Kenya. • Wetlands Conservation and Management Policy 2015. A master plan for the conservation and sustainable management of water catchment areas in Kenya has also been developed to guide practical and transformative actions for the sustainable management of these complex ecosystems.
	<p>Target 15.9: By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts Indicator</p>	<ul style="list-style-type: none"> • National mangrove Ecosystem Management Plan 2017-2027²⁰⁵ • Various valuation studies have been undertaken in Coastal and Marine Ecosystems, River basins, Water Catchments and Lake Basins in Kenya. See details in Section III Target 2. <p>The Green Economy Strategy and Implementation Plan provide the policy push under Thematic area 3 on Sustainable Natural Resource Management which encompasses agriculture, forestry, water, wildlife, land use and extractive industries. In order to address the degradation and loss of natural resources, the tools under this thematic area include spatial planning and targeted periodic valuation of natural capital, payment for ecosystem services and environmental accounting.</p>

5.7 TARGET 7

(a) Kenya's Contribution to the achievement of the Global target.

Please see detail on the implementation of this global target in section 111.

Main action include establishing legal and policy frameworks to support implementation of the Constitution 10% target for area under forest, Sustainable forest management, Participatory forest management/Community forest management, Climate Smart Agriculture (climate smart technologies and practices), Water Resource Users (WRUAs) for water resources management, Enhanced /increased Protected areas systems, and Community conservation Sustainable aquaculture.

The Key Policy actions include the National Strategy to achieve the 10% tree cover target, The Green Economy Strategy (GESIP) and Implementation Plan 2030, National Climate Change Action Plan (NCCAP) 2013-2017 and 2018-2022, MTP II and MTP III sector Plans, and various Acts, Policies and Plans for Water for Water, Agriculture and Environment respectively. GESIP provide the policy push under Thematic area 3 on Sustainable Natural Resource Management which encompasses agriculture, forestry, water, wildlife, land use and extractive industries.

The size of protected forest area has increased from 1.57 million hectares in 2010 to 2.59 million hectares in 2019 mainly through gazetting of new forests with sustained increase and since 2015. The Forest Conservation and Management Act, 2016 (Section 42) indicates that indigenous forests and woodlands are to be managed on a sustainable basis for, inter alia, carbon sequestration. Section 8 indicates that KFS is to manage water catchment areas in relation to soil and water conservation, carbon sequestration, and other environmental services; and Section 21 notes that County Governments are to promote afforestation activities.

The National Forest Programme 2016-2030 defines the national forest framework which is premised on sustainable forest management. The overall goal: "To develop and sustainably manage, conserve, restore and utilize forests and allied resources for socio-economic growth and climate resilience." The first strategic objectives is to increase tree cover and reverse forest degradation through sustainable forest management.

The *Kenya Climate Smart Agriculture Strategy 2017-2026*, seeks, among others, to minimize GHG emissions from these sectors. The Strategy elaborates efforts mainstream sustainable natural resource management into production systems to minimize emissions in agricultural production systems and enhance resilience of agriculture systems to climate change impacts. This involves promotion of agroforestry/farm forestry and adoption of practices that encourage inclusion of trees in the farming systems e.g. conservation agriculture with trees for reduction of emissions from deforestation and forest degradation.

In *NCCAP 2013-2017* and the *SNC*, the following three mitigation actions were prioritized for the agriculture sector,

- Limiting the use of fire in range and cropland management, which has mitigation potential of 0.29 MtCO₂e by 2030;
- Conservation tillage, which has mitigation potential of 1.09 MtCO₂e by 2030; and
- Agroforestry, which has mitigation potential of 4.16 MtCO₂e by 2030.s

Key results are:

- Number of households and acreage under sustainable land management (SLM) increased for agricultural production;
- Support for the reclamation of 60,000 hectares of degraded land;
- Area under integrated soil nutrient management increased by 250,000 acres;
- Farm area under conservation agriculture increased to 250,000 acres, incorporating minimum/no tillage; and
- Total area under agroforestry at farm level increased by 200,000 acres.

Further, Kenya is actually ranked the fourth major producer of aquaculture in Africa with production from aquaculture systems recording a growth from 4,218 metric tonnes (MT) in 2006 to peak at 24,096 MT in 2014, representing 15% of total national fish production.

(b) Other activities at the Global level.

N/A

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 15: Implementation of SDGs relevant to Aichi Target 7

SDG	Relevant Targets and indicators	Kenya's actions
Goal 1. End poverty in all its forms everywhere	By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	The Kenya Livestock Insurance Programme (KLIP) which so far covers 8 counties in the ASAL areas provides a subsidized government funded insurance scheme to cushion farmers against livestock sub-sector risks. So far 90,600 Tropical Livestock Units and 18,012 households have been covered. In 2018 KShs. 88 million (USD 880,000) was paid to 6,286 households.
	By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters	The 'Regional Pastoral Livelihoods Resilience Project (RPLRP, 2014- 2019)' covers 14 ASAL Counties and aims to develop and implement regional approaches that enhances livelihoods resilience of pastoral and agro-pastoral communities in the Arid and Semi-Arid lands (ASALs) of Kenya e.g. water infrastructure (64); range reseeding (1400 ha); construction of hay sheds (6); construction of livestock markets (5); Livestock Market Information System; Livestock value chain standards; and Early Warning System and Emergency Response; among others.
Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture	By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round 2.1.1 Prevalence of undernourishment 2.1.2 Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)	The national food poverty headcount rate (proportion of food poor individuals) declined significantly from 45.8 per cent in 2005/06 to 32.0 percent in 2015/16, implying that in the last ten years, the incidence of food poverty dropped by over 13 percentage points. The results also indicate that the total population of food poor individuals declined substantially from 16.3 Million in 2005/06 to 14.5 Million in 2015/16.
	Target 2.3: By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets	Agriculture sub sector accounts for 65 per cent of Kenya's total exports, 18 per cent and 60 per cent of the formal and total employment respectively. The sector contributes about 26 percent to directly GDP and another 25 percent indirectly. The indicator of food price anomalies was 10.1% in 2016 before decreasing to 1.37% in 2018. For example, the fisheries sub - sector plays a significant role in employment and income generation. The sector supports about 1.1 million people directly and indirectly, working as fishers, traders, processors, suppliers and merchants of fishing

	<p>and opportunities for value addition and non-farm employment</p> <ul style="list-style-type: none"> Indicator 2.3.1: Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size 	<p>accessories and employees and their dependents'. Besides fish consumption provides a rich source of protein especially for riparian communities.</p>
	<p>Target 2.4: By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality</p> <ul style="list-style-type: none"> Indicator 2.4.1: Proportion of agricultural area under productive and sustainable agriculture 	<p>Kenya Climate Smart Agriculture Strategy (KCSAS) 2017-2026 and the ongoing Kenya Climate Smart Agriculture Framework Programme (KCSAFP) to guide the implementation of the strategy.</p> <p>To cushion farmers against risks associated with farming, 400,000 farmers will be assisted to access crop insurance cover. Crops insurance has been launched for maize and wheat producers in 20 counties and will be rolled out to other counties and to cover other crops.</p> <p>To address degradation of soil and water resources a national soil and water conservation strategy will be developed; enhance utilization and productivity of land through land reclamation, restoration and rehabilitation of 50,000 acres of degraded, marginal and wastelands; improve agricultural water harvesting and storage by constructing 15 medium to large size dams, 50 sub-surface dams and sand dams, and 3,000 small dams and pans</p>
Goal 12. Ensure sustainable consumption and production patterns	<p>Target 12.2: By 2030, achieve the sustainable management and efficient use of natural resources</p> <ul style="list-style-type: none"> Indicator 12.2.1: Material footprint, material footprint per capita, and material footprint per GDP Indicator 12.2.2: Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP 	<p>The potential area for fish farming on land stands at 1.4 million hectares of which only 2 % (about 55,000 hectares) is utilized.</p> <ul style="list-style-type: none"> A sustainable charcoal system promoted by encouraging the uptake of efficient kiln technologies to increase yields to 30-42% and, the establishment of a charcoal certification and eco labelling. Standards and regulations, including social and environmental safeguards, for sustainable forestry management (voluntary moving to regulated), developed.
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	<p>Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements</p> <ul style="list-style-type: none"> Indicator 15.1.1: Forest area as a proportion of total land area Indicator 15.1.2: Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type 	<ul style="list-style-type: none"> Forest area as a proportion of total land area has increased from 7.21 per cent in 2016 to 7.28 per cent in 2018 while the proportion of land that is degraded over total land area stood at 11.4 per cent in 2018. Moratorium on logging and extraction of timber in public and community forests to aid in the restoration and rehabilitation of the critical water catchment and natural resources areas. In addition the government facilitated production of 222,124 bamboo seedlings and 800 million tree seedlings and availed these for planting 500,000 hectares on farmlands for livelihood improvement; restored 156,000ha of degraded natural forests, established 19,359ha of commercial forest plantations and promoted planting of 300,109ha of tree on farmlands and in schools across the country. Further 565,607.4ha of new forests in Tana River, Lamu and Garissa were gazette.

	<p>Target 15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally</p> <ul style="list-style-type: none"> Indicator 15.2.1: Progress towards sustainable forest management 	<p>Enacted Kenya enacted Forest Conservation and Management Act, 2016 and developed National Forest Programme 2016-2030 and Wetlands Conservation and Management Policy.</p> <p>Rehabilitation and protection of Kenya's five major water towers namely: the Aberdares, Cherangany, Mau, Mt. Kenya and Mt. Elgon and other smaller significant Water Towers and catchment areas. The rehabilitation, protection and securing of Enosupukia (12,000 Ha), South West Mau (19,000 Ha), Masai Mau (64,000 Ha) and Olpusimoru (26,000 Ha) was realized. An area of 1,250 Ha was surrendered voluntarily at Mau complex.</p>
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5.8 TARGET 8

(a) Kenya's Contribution to the achievement of the Global target.

These key actions include EMCA ACT 2015, Agriculture Act 2013, Polluter pays principle, Water Act 2016, Fisheries Management and Development Act, 2016 (No. 35 of 2016), Wetlands policy 2013, Kenya Agricultural and Livestock Research Act, 2013 (No. 17 of 2013), Agriculture, Fisheries and Food Authority Act, 2013 (No. 13 of 2013), Kenya 10% tree cover strategy, Forest Conservation and Management Act, 2016 (No. 34 of 2016) and Wildlife Conservation and Management Act, 2013 (No. 47 of 2013).

In support of the East Africa Community (EAC) Polythene Materials Control Bill, 2016 which proposes a total ban of plastic bags in the EAC countries. Kenya has already placed a total BAN on plastic bags with effect from August 2017. The Draft Environmental Management and Co-ordination (e-Waste Management) Regulations, 2013, to restrict the prior informed consent chemicals are under consideration. Through NEMA, Kenya monitors chemical and hazardous facilities on their impact on human health and environment.

Laws related to air pollution include Environmental Policy , 2013, Air Quality Regulations, 2014 , Kenya Standards Act, Cap 496, Kenya Standard(KS 1515): Code of Practice on Inspection of Occupational Health and Safety Act, 2007, Public Health Act, cap 242, National Transport and Safety Act, 2012 and Energy Act, 2006.

(b) Other activities at the Global level

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 16: Implementation of SDGs relevant to Aichi Target 8

<p>Goal 3. Ensure healthy lives and promote well-being for all at all ages</p>	<p>3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p> <p>3.9.1 Mortality rate attributed to household and ambient air pollution</p> <p>3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)</p>	<p>In order to achieve environmental sound management of chemicals, the government has developed a draft Chemicals policy and terms of reference for inter-ministerial coordination on chemicals. In addition, the country Participated in international dialogue, BRS, triple 86</p> <p>COP 2017,2019, Minamata Convention COP1 and COP2, Strategic Approach to International Chemicals Management (SAICM).</p>
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<p>Goal 6. Ensure availability and sustainable management of water and sanitation for all</p>	<p>6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally 6.3.1 Proportion of wastewater safely treated 6.3.2 Proportion of bodies of water with good ambient water quality</p>	<p>Article 43 of the Constitution, 2010 gives every person the right to clean and safe water in adequate quantities and reasonable standards of sanitation. Provision of these rights is a shared responsibility between the National and County Governments. The water Act 2016 has provided an enabling environment for the universal access to water by separating policy, regulation and implementation roles. In the medium term, the sector is targeting to increase the percentage of national population with access to safe water from 60% in 2017 to 80% by 2022.</p>
<p>Goal 6. Ensure availability and sustainable management of water and sanitation for all</p>	<p>4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities 9.4.1 CO2 emission per unit of value added</p>	<p>The water Act 2016 has provided an enabling environment for the universal access to water by separating policy, regulation and implementation roles. In the medium term, the sector is targeting to increase the percentage of national population with access to safe water from 60% in 2017 to 80% by 2022. only about 25% of urban areas in the country have some form of sewerage collection. The sector target is to increase the percentage of the national population with access to improved sanitation from 68% in 2017 to 80% by 2022 and increase the percentage of urban population with access to sewerage system connection from 25% in 2017 to 40% in 2022.</p>
<p>Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable</p>	<p>11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management 11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities 11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)</p>	<p>The proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated increased from 56.6% in 2016 to 57.4% in 2018 Towards reduction of waste generation, the Ministry developed a National Solid Waste Management Strategy ; developed action plans on waste management and pollution levels in Mombasa, Thika, Nakuru, Eldoret and Kisumu as well as county solid waste management roadmap; implemented Plastic Bags Initiative vide Gazette notice No. 2334; harmonized Municipal and Industrial effluent standards within the Lake Victoria Basin; constructed sewerage treatment plants in Kisumu, Homa Bay, and Bomet towns; and developed a system to monitor Nutrient and Sediment Losses from Land Use and Cover in the Nyando Basin.</p>

<p>Goal 12. Ensure sustainable consumption and production patterns</p>	<p>12.2 By 2030, achieve the sustainable management and efficient use of natural resources 12.2.1 Material footprint, material footprint per capita, and material footprint per GDP 12.2.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP</p>	<p>In order to enhance efficiency in the use of natural resources and energy, the industrial sector has embraced cleaner production technologies through technical assistance by the Kenya National Cleaner Production Centre. The Centre has continued to capacity build industries in improving efficiency in the status of production systems/equipment in order to reduce wastage of raw materials and energy aimed at minimizing waste generation at source.</p>
<p>Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development</p>	<p>14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution 14.1.1 Index of coastal eutrophication and floating plastic debris density</p>	<p>The Government established the Kenya Coast Guard Service through the Kenya Coast Guard Service Act, 2018 to address and strengthen Monitoring, Control and Surveillance (MCS) systems to monitor dumping of toxic waste, drug and human trafficking. The Kenyan government banned "the use, manufacture and importation of all plastic bags used for commercial and household packaging" in February 2017. Different organizations both government (Kenya Wildlife Service and Kenya Marine and Fisheries Research Institute) and Non-governmental organizations (Watumu Marine Association) are working on marine debris projects aimed at understanding the sources and effects of marine litter, the effects of policies and other actions and enhancing public awareness on marine litter pollution on the coastal area.</p>

5.9 TARGET 9

(a) Kenya's Contribution to the achievement of the Global target.

Please see section III for details on the contribution to the global target.

The Wildlife Conservation and Management Act 2013 on seventh schedule on invasive species lists 1 mammal, 7 reptiles and amphibians, 17 birds, 10 plants and 1 invertebrate.

The Kenya Plant Health Inspectorate Service (KEPHIS) ensures that the introduction of plant pests, diseases and noxious weed into Kenya is prevented or delayed. All phytosanitary measures are based on international standards as in International Plant Protection Convention (IPPC) and World Trade Organisation (WTO) agreement on sanitary and phytosanitary (SPS) regulations and guidelines. The Plant Protection Act (CAP 324), the suppression of Noxious weeds (Cap 325) and the Agricultural produce (Export) Act (Cap 319) provide the legal framework through which the authority carries out phytosanitary regulation service.

Kenya Wildlife Services have also identified invasive alien species in protected areas²⁰⁶ and developed a strategy on IAS management and control. CABI working with key stakeholders have developed a guide to

²⁰⁶ KWS Alien Invasive Species <http://www.kws.go.ke/content/priority-ecosystems-and-species>

the naturalized and invasive species of Laikipia²⁰⁷. There have been various projects especially on point source pollution and eradication of the water hyacinth in Lake Victoria through the three phases of the Lake Victoria Environment Management Programme (LVEMP)²⁰⁸ among others.

(b) Other activities at the Global level

N/A

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 17: Implementation of SDGs relevant to Aichi Target 9

SDGs	Relevant Target and Indicators	Kenya's contribution
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	Target 14.2: By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans <ul style="list-style-type: none"> Indicator 14.2.1: Proportion of national exclusive economic zones managed using ecosystem-based approaches 	Based on the available information and data, 40% was the proportion of fish stocks within biological sustainable levels. Hence, six fish species out of ten were found to be over-exploited. The observed declines in catches and Catch Per Unit Effort (CPUE) for some species were an indication of potential localized depletion in some fishing grounds. In response, <ul style="list-style-type: none"> enactment of the Fisheries Management and Development Act No. 35 of 2016, Blue Economy Sector Plan, 2018-2022 Fisheries Management Plans; Kenya Tuna Fisheries Development and Management Strategy 2013 - 2018, enactment of the Fisheries Management and Development Act No. 35 of 2016, restocking of 135 dams, 11 rivers and 3 lakes with a total of 4,881,663 assorted fish fingerlings to increase productivity, mapping and delineation of thirteen (13) critical fish habitats, 5 in Lake Naivasha, 3 in Lake Baringo and 5 in Lake Turkana to protect the breeding areas and thus increase in-situ stock recruitment.

5.10 TARGET 10

(a) Kenya's Contribution to the achievement of the Global target.

Kenya's coral reefs cover an area of approximately 639 km². Long-term monitoring has been pursued by Kenyan institutions since 1998/99, to follow the trends and status of corals and fish populations at a country level²⁰⁹. Kenyan coral reefs have an average hard coral cover of 18%, with fleshy algae at 34%, across a range of healthy and degraded reefs. Fully protected reef lagoons have higher hard coral cover (15-40%), focal fish species abundance (>100 indiv./ha) and less algal cover (40%), and high coral rubble cover (>10%).

Key legislation include the Fisheries Act has recently been updated (2016), EMCA Act 2015, Agriculture, Fisheries and Food Authority Act, 2013 (No. 13 of 2013), Water Act 2016, Fisheries Management and Development Act, 2016 (No. 35 of 2016), Wetlands Policy 2013, Forest Conservation and Management Act, 2016 (No. 34 of 2016 and Wildlife Conservation and Management Act, 2013 (No. 47 of 2013).

²⁰⁷ Witt, A. Guide to the naturalized and invasive species of Laikipia. <https://www.cabi.org/isc/FullTextPDF/2017/20173158960.pdf>

²⁰⁸ LVEMP II <https://www.lvbcom.org/node/48>

²⁰⁹ Jelvas Mwaura, Juliet Karisa, Mohamed Omar Said, Mike Olendo, Jillo Katello, Harrison Onganda, Judith Nyunja, Rose Ambae, Dishon Murage, Stephen Mussembi, David Obura, James Kamula, Noah Ngiasange Stephen Katua. 2017. In: David Obura, Mishal Gudka, Fouad Abdou Rabi, Suraj Bacha Gian, Jude Bijoux, Sarah Freed, Jean Maharavo, Jelvas Mwaura, Sean Porter, Erwan Sola, Julien Wickel, Saleh Yahya and Said Ahamada 2017. Coral reef status report for the Western Indian Ocean (2017). Pages 60-69. Global Coral Reef Monitoring Network. <https://www.icriforum.org/sites/default/files/COI%20REEF%20LR%20F2.compressed.pdf>

A Coral Reef and Seagrass Ecosystems Conservation Strategy Plan (2014) was launched for 2015-2019. To reduce the fragmentation among different institutions and their mandates that affect coral reefs, the Integrated Coastal Zone Management (ICZM) Action Plan and Coral Reef and Seagrass Strategy provide ways to bridge the gaps. The National Coral Reef Restoration Protocol (NCRRP) is expected to provide information on replacing dead coral reefs and adversely affected fish breeding grounds along the coastline. Kenya Coral Reef and Sea Grass Ecosystems Conservation Strategy 2015-2019 also targets the coral and associated ecosystems recovery. The National Mangrove Ecosystem Management Plan also supported by the KCDP project. This is a 10 year management plan spanning from 2017 –2027 period; and with an estimated implementation budget of KES 3.8 billion.

In 2016, the 3rd global bleaching event impacted the WIO, with 30% of reefs showing evidence of high or severe bleaching, but only 10% showing high or severe mortality²¹⁰. Recovery was slightly better in no-take MPAs, followed by partially protected reserves and community-conserved areas, and least in unprotected areas. Fish abundances show a similar pattern, being highest in no-take areas and lowest in unprotected areas, but with high levels of variation among sites

Historically, management of coral reefs in Kenya has been the domain of central government, with a network of 4 marine parks (fully protected) and 6 marine reserves (partially protected, allowing traditional fishing) under the management of Kenya Wildlife Service (KWS). In recent years, coastal fishing communities have embraced the concept of community-based conservation and established 12 demarcated CCAs (the local term for Locally Managed Marine Areas, LMMAs), to enhance sustainable fisheries and other livelihood options such as eco-tourism.

(b) Other activities at the Global level

At International and Regional level Kenya is a signatory to many regional and international Conventions, Agreements and Protocols, governing fisheries. The Country is also a member of Regional Fisheries Bodies such as the Indian Ocean Tuna Commission, International Whaling Commission, Lake Victoria Fisheries Organization, South West Indian Ocean Fisheries Commission, and the Committee of Fisheries and Aquaculture of Africa.

The countries have implemented measures to reduce fishing pressures, including controls on dynamite, fishing in Tanzania, through joint community, NGO and government pressure, and put a ban on aquarium fish collection in Mozambique until it can be shown to be sustainable. All countries are devolving more power to local communities to monitor and manage their own fishery resources, largely through the mediation of conservation and community development initiatives.

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 18: Implementation of SDGs relevant to Aichi Target 10

SDG	Relevant Targets and Indicators	Kenya's actions
Goal 13. Take urgent action to combat climate change and its impacts	13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries 13.1.1 Number of countries with national and local disaster risk reduction strategies 13.1.2 Number of deaths, missing persons and	Kenya has adopted and implemented national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030. A National Disaster Reduction Strategy & Policy 2010 and National Disaster Preparedness and Response Strategies have also been prepared. Additionally, all the 47 County Governments have mainstreamed Disaster Risk Management Planning which is implemented through the County Integrated Development Plans (CIDPs). The Country has put in place an integrated policy/strategy/plan that increases the ability to adapt to the adverse impacts of climate

²¹⁰ Mishal Gudka, David Obura, Jelvas Mwaura, Sean Porter, Saleh Yahya and Randall Mabwa (2018). Impact of the 3rd Global Coral Bleaching Event on the Western Indian Ocean in 2016. Global Coral Reef Monitoring Network (GCRMN)/Indian Ocean Commission. pp. 65. https://wedocs.unep.org/bitstream/handle/20.500.11822/25700/CORDIO_GCRMN2018_Post_Bleaching_WIO.pdf?sequence=2&isAllowed=y

	persons affected by disaster per 100,000 people	change, and foster climate resilience and low greenhouse gas emissions development. The National Climate Change Action Plan 2013-2017 and 2018-2022, Kenya Independent Nationally Determined Contribution (INDC) 2015; The Climate Change Act 2016; National Climate Change Framework Policy 2016; Kenya National Adaptation Plan 2015-2030 have been developed and re being implemented.
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels 14.3.1 Average marine acidity (pH) measured at agreed suite of representative sampling stations	Recognizing the important socio-economic and ecological values of coral reefs and their associated ecosystems, the WIO countries (South Africa, Comoros, France / Réunion, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, and Tanzania), through regional cooperation frameworks (Indian Ocean Commission, Nairobi Convention), have aligned themselves with the International Coral Reef Initiative (ICRI) in an attempt to provide solutions to help manage and maintain coral reef ecosystems, including a regional framework for monitoring and reporting the coral reef status through the Global Coral Monitoring Network (GCRMN). Key interventions include: Project on adaptive management of coral reef in 5 MPAs through a project funded by the Western Indian Ocean Marine Science Association (WIOMSA), Marine for Science Management Program (MASMA). Implementation of the National Coral Reef and Sea Grass Ecosystem Conservation and Management Strategy (2014 –2018) supported by the Kenya Coast Development Project (KCDP). The KCDP project supported the following activities in Kenya's MPAs: monitoring and information management; enhancing stakeholder awareness and participation; and enhancing capacity for coral reef and seagrass ecosystems conservation. Development of Management plans 3 coral reef MPAs. These include: Kisite/Mpunguti, Malindi and Watamu Marine Protected Area Management Plans (2015 -2025).

5.11 TARGET 11

(a) Kenya's Contribution to the achievement of the Global target.

Kenya has officially protected over 8% of its terrestrial and marine ecosystems with a network of National Parks, National Reserves, Forest Reserves, and Sanctuaries. This is complemented by a further 160 Conservancies, ensuring an additional 11% of Kenya is actively managed for wildlife conservation. These Conservancies are estimated to contain as much as 60% of Kenya's large mammals and protect a diverse array of habitats and other species²¹¹. Presently, Kenya has 24 terrestrial National Parks which occupy an area of 29,504km² that is approximately 5.08% of the total area of Kenya. There are 31 terrestrial National Reserves in Kenya occupying 17,358.8km² which is 3% of the country's total area. Most of the National reserves are managed by county governments with technical advice from Kenya Wildlife Service.

Kenya has 257 sites categorized as natural forests which harbor a variety of wildlife species and are also water towers or water catchment areas. These natural forests fall under 4 key management regimes namely; community forests (52 sites covering 180, 245 ha), forest reserves (201 sites covering 2,045, 406 ha), national monuments (3 sites covering 401 ha) and trust land (1 site covering 188,2017ha) with a total area of 24,142.59km² which is 4.2% of Kenya's total area. Marsabit forest ecosystem management plan 2015-2025 is under legal notice No. 1894 of March 2016.

There are 5 National Sanctuaries in Kenya located in Nakuru, Samburu, Kisumu and Homa bay counties. They cover 12.47km² of the country. These sites were designated as Sanctuaries for various reasons amongst them:

²¹¹ GOK 2018. National Wildlife Strategy 2030. <http://www.tourism.go.ke/wp-content/uploads/2018/06/WILDLIFE-STRATEGY2030-Final-V1-Online.pdf>

spectacular views and abundant birdlife; conservation education and rescue centers; or due to historical reasons.

There are over 160 conservancies covering over 63,600Km² representing 11% of the country's area. Of these, 4 are Marine, 76 are community, 58 are private, and 26 are group while 60 are listed under World Database Protected Area (WPDA). They mostly operate as Community Based Organizations (CBOs), Trusts or private companies.

The Wildlife Conservation Management Act of 2013 (WCMA, 2013) provide for the protection, conservation, sustainable use and management of wildlife in Kenya and for connected purposes. The Act requires the Ministry to prepare and present to Parliament a Wildlife Status report which gives the status of: all National Parks and Reserves; Conservancies and Sanctuaries; community wildlife scouts in Conservancies; Management Plans; all listed species in Schedule 6 and 7 and their recovery status. The National Wildlife strategy 2030, promotes an ecosystem approach and inclusion of biodiversity in totality²¹². The establishment of County Wildlife Conservation and Compensation Committee under wildlife Conservation and management Act 2013, has improved management and conservation of wildlife at the county level through a participatory approach in land use planning initiatives and in consultation with all the stakeholders with particular regard to critical wildlife habitats, corridors and dispersal areas for better management and conservation of wildlife²¹³. The (National Wildlife conservation Status Report 2015-2017) outlines measures to ensure sustainable management of protected areas in Kenya.

The Kenya's Important Bird and Biodiversity Areas status and Trends report in 2016 indicates that there were two more additional areas identified which totals up to 67 Areas in Kenya. This is attributed to increase in patrolling and surveillance especially in the protected areas. ²¹⁴. Kenya has several wildlife corridors with the major ones being the Amboseli-Kilimanjaro and Mt. Kenya-Lewa downs-Samburu-Meru elephant corridors. The latter is a world heritage site

The Fisheries Act 2016 also provide an avenue for conservation and management of the Marine Protected areas and other aquatic resources to enhance the livelihood of the communities dependent on the resources.²¹⁵

Kenya's Vision 2030 flagship project for securing wildlife dispersal areas and migratory routes/corridors developed a Conservation Connectivity Framework (CCF), which has identified and mapped all the wildlife dispersal areas and migratory corridors in the southern and northern Kenya rangelands and coastal terrestrial ecosystems. The first phase of the mapping process focused on the southern Kenya rangeland ecosystems comprising six contiguous sub-ecosystems while the second phase focused on the northern Kenya rangelands and coastal terrestrial ecosystem comprising the greater Ewaso ecosystem, South Turkana-Mt. Elgon ecosystem, northeast Kenya landscapes, and coastal terrestrial ecosystems.

A total of 58 migratory routes and corridors were identified in the southern Kenya rangeland ecosystems: Maasai-Mara ecosystem (17); Eburu Forest and Lakes Naivasha-Elementaita-Nakuru conservation and ecological area (8), Athi-Kaputiei and Nairobi National Park (7), South Rift (8), Amboseli and west Kilimanjaro (8), and the Tsavo xvii Conservation Area (10). Fifty-two migratory routes or corridors were identified in the northern Kenya rangelands and coastal terrestrial ecosystems, with the majority found in the greater Ewaso ecosystem. More salient routes and corridors used by other wildlife species also exist in the Kenya rangelands, but were not considered and need further investigation.

Kenya has six wetlands in the RAMSAR list: Lake Naivasha, Lake Baringo, Lake Bogoria, Lake Elementaita, Lake Nakuru and Tana River Delta. The process of listing more wetlands in RAMSAR site is underway to include sites such as Lake Ol Bolossat in Nyandarua county

²¹² http://www.tourism.go.ke/wp-content/uploads/2018/06/WILDLIFE_STRATEGY2030-Final-V1-Online.pdf.

²¹³ <http://kenyalaw.org/8181/exist/kenyalex/actview.xql?actid=No.%2047%20of%202013>.

²¹⁴ https://issuu.com/nature_kenya/docs/2016_iba_report_final_web

²¹⁵

http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/FisheriesManagementandDevelopmentAct_No35of2016.pdf

(b) Other activities at the Global level

Kenya is a signatory to and implementing various regional agreements relevant to this target. These include:

Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean (Nairobi Convention) and its Protocols - to protect and manage the marine environment of the coastal areas of Western Indian Ocean.

Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora.

Kenya hosts the Secretariat (LATF) established under the Agreement. The Secretariat is run by law enforcement officers seconded from the wildlife authorities of the signatory states and coordinates with the National wildlife authorities of signatory states and other law enforcement agencies to control cross-border illegal wildlife trade in member states. Through the Agreement the country has strived to control poaching and trafficking of wildlife especially of ivory and rhino horns. The Wildlife Conservation and Management Act, 2013 and The East African Community Customs Management Act, 2004 (Rev. 2008) implement the Lusaka Agreement.

Revised African Convention on the Conservation of Nature and Natural Resources. (The Algiers Convention).

Parties are required to increase vegetation cover, promote traditional rights of local communities and traditional knowledge, and participate in meetings for the conservation and rehabilitation of shared natural resources for future generations.

East Africa Community Protocol on Environment and Natural Resources Management.

Partner states are currently re-negotiating the Protocol to streamline certain aspects with respect to use and protection of natural resources in the East Africa Community (EAC).

The 2010 Nile Basin Cooperative Framework Agreement (CFA).

Kenya has a keen interest in the conclusion of the CFA given its rising water demands and hence the need to fully utilize the potential of the Nile River Basin as an important and indispensable water resource to her people. Moreover, the main water towers that are the source of the rivers that feed into Lake Victoria are in Kenya. The Cabinet and the National Assembly approved the ratification process of the instrument. Kenya hosted the 27th Nile Council of Ministers meeting in Nairobi on 29th November 2019, to review status of ratification of the CFA by 10 member countries and review progress made towards earlier resolutions.

East Africa Community Protocol for the Sustainable Development of Lake Victoria Basin.

The Protocol provides a framework for cooperation among the Partner States in the conservation and sustainable utilization of the resources in the Lake Victoria Basin. EAC partner states and stakeholders are obliged to protect, conserve, and where necessary rehabilitate Lake Victoria Basin and its ecosystems; and to develop Programmes to reduce environmental degradation within the Lake Victoria Basin and explore means of having coordinated implementation of Programmes on the Lake's basin by different institutions. The Protocol establishes the Lake Victoria Basin Commission (LVBC) with its headquarters based in Kisumu, Kenya. Key projects include the Lake Victoria Environmental Management Program LVEMP I, II and III as well as the Lake Victoria Water and Sanitation (LVWATSAN) I and II Project, under the Focal Point Ministry.

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 19: Implementation of SDGs relevant to Aichi Target 11

SDGs	Relevant Targets and Indicators	Key Actions
Goal 6. Ensure availability and sustainable management of water and sanitation for all	6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and	Operationalization of the legal, regulatory and policy frameworks such as National Water Policy and Water Act 2016. The Ministry has signed an Inter-Governmental Water Sector Coordination Framework with the Council of Governors. The Framework will be operationalized through development on water sector inter-governmental relations to steer the attainment of a robust and sustainable sector through the attainment of policy and

	<p>substantially reduce the number of people suffering from water scarcity</p> <p>6.4.1 Change in water-use efficiency over time</p> <p>6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources.</p>	<p>standards including monitoring and reporting on the implementation of SDG 6.</p> <p>Completion of on-going water projects in urban and rural areas will increase the number of people connected to safe piped water from 3.6 million to 9 million. The proportion of people with access to potable water will be increased from 60 per cent to 80 per cent by 2022 with a focus on slums and arid areas. The Water Trust Fund will provide grants to counties to assist in financing water projects towards ensuring all Kenyans have access to safe potable water.</p>
	<p>6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate</p> <p>6.5.1 Degree of integrated water resources management implementation (0-100)</p> <p>6.5.2 Proportion of transboundary basin area with an operational arrangement for water cooperation</p>	<p>The Blue Economy Sector Plan 2018-2022 has provided an opportunity to invest in marine, rivers and lakes ecosystems and natural/water resources management.</p> <p>The 2010 Nile Basin Cooperative Framework Agreement (CFA). The main water towers that are the source of the rivers that feed into Lake Victoria are in Kenya.</p> <p>East Africa Community Protocol for the Sustainable Development of Lake Victoria Basin. The Protocol provides a framework for cooperation among the Partner States in the conservation and sustainable utilization of the resources in the Lake Victoria Basin. The Protocol establishes the Lake Victoria Basin Commission (LVBC) with its headquarters based in Kisumu, Kenya. Key projects include the Lake Victoria Environmental Management Program LVEMP I, II and III as well as the Lake Victoria Water and Sanitation (LVWATSAN) I and II Project, under the Focal Point Ministry.</p> <p>In Kenya, a key approach to ecosystem management is through the concept of basins-based planning practiced since early 1970s through establishment of Regional Development Authorities (RDAs). According to the Acts that created them, the RDAs were constituted based on river basins and large water bodies to spur regional development through sustainable utilization and conservation of natural resources.</p>
	<p>6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes</p> <p>6.6.1 Change in the extent of water-related ecosystems over time</p>	<p>Kenya Water Towers Agency (KWTA) is mandated to coordinate and oversee the protection, rehabilitation, conservation and sustainable management of all the critical water towers in Kenya.²¹⁶ The rehabilitation and protection of Kenya's five (5) major water towers namely; the Aberdares, Cherangany, Mau, Mt. Kenya and Mt. Elgon and other smaller significant Water Towers and catchment areas such as Chyulu Hills, Nyambene, Ngong Hills, Taita Hills, Maragoli, Marsabit, Shimba Hills, Ndotos, Nyiru, Hills in Machakos, Makueni and Kitui, Leroghi, Matthews Range and Dunes in Lamu and Northern Kenya has been undertaken in this period. Under Vision 2030, the major achievements included:</p> <ul style="list-style-type: none"> • rehabilitation, protection and securing of 121,000 Ha in Enosupukia (12,000 Ha), South West Mau (19,000 Ha), Maasai Mau (64,000 Ha) and Olpusimuru (26,000 Ha) through Joint Enforcement Unit providing basis for natural regeneration, • assessment of 18 water towers and developed water towers ecological health status reports, • Identified critical catchment, wetlands and Biodiversity Hotspots in Mt. Kenya, Mau Complex, Mt. Elgon, Shimba Hills and Chyulu water towers, • Community Development Action Plans for Leroghi, Shimba Hills & Chyulu, • Mau Ecosystem Strategic Management Plan, • Micro-Catchment Conservation Plan for Taita Hills, • Voluntary surrender of 1,250 Ha in Mau complex, and the • Establishment of the Water Towers Conservation Fund.

216 <https://watertowers.go.ke/wtowers/>

<p>Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable</p>	<p>11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage 11.4.1 Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage), level of government (national, regional and local/municipal), type of expenditure (and type of private funding</p>	<p>The Constitution of Kenya 2010, in Article 11 on culture ²¹⁷, recognises culture as the foundation of the nation and as the cumulative civilization of the Kenyan people and nation. In response, Kenya promotes all forms of national and cultural expression through literature, the arts, traditional celebrations, science, communication, information, mass media, publications, libraries and other cultural heritage. Relevant provisions are elaborated within the Traditional knowledge and Traditional Cultural expression Act of 2016 and the National Museums and Heritage Act 2012 which provides for declaration of, preservation, conservation and protection of cultural and natural heritage.</p> <p>The National Museums of Kenya manages many Regional Museums, Sites and Monuments of national and international importance alongside priceless collections of Kenya's living cultural and natural heritage. Kenya has six biosphere reserves, seven World Heritage Sites (4 Cultural and 3 Natural) and 17 proposed sites.</p>
<p>Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development</p>	<p>14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans 14.2.1 Proportion of national exclusive economic zones managed using ecosystem-based approaches</p>	<p>The National Mangrove Ecosystem Management Plan covers all gazetted mangrove forest reserves in Kenya and is implemented over 10-year period (2017 – 2027). This management plan addresses the lack of ecosystem-based management approaches for mangroves in Kenya and supports sustainable utilization of mangrove resources while enhancing biodiversity conservation and ecosystem integrity. Integrated Coastal Zone Management Policy, 2015 guides actions and policies which are related to the management and use of Kenya's coastal zone resources. This also covers the restoration of the degraded areas and the protection of the resources, the development a legal framework for the purpose of ensuring sustainable conservation and management of the deltas and estuaries; and development of comprehensive research information to aid in the proper conservation and management of said ecosystems.²¹⁸</p>
	<p>14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information 14.5.1 Coverage of protected areas in relation to marine areas</p>	<p>There are five marine protected areas covering total area 1,139 Km² managed by Kenya Wildlife Service.²¹⁹ Kisite-Mpunguti Marine Protected Area Management Plan 2015-2025 was finalized and gazetted through gazette notice no. 1896 of March 2016. Malindi and Watamu were grouped together and both are internationally recognized by UNESCO as Man and Biosphere Reserves.</p> <p>The coverage of protected areas in relation to marine areas includes the Marine parks, Marine Reserves, and National Sanctuaries. This has remained the same for the period under review. The Marine Parks in the country are: Kisite Marine (28km²); Malindi Marine (6km²); Mombasa Marine (26.1km²); and Watamu Marine (10km²). While the Marine Reserves includes: Diani Chale Marine (165km²); Kiunga Marine (250km²); Malindi Marine (213km²); Mombasa Marine (200km²); Mpunguti Marine (11km²); and Watamu Marine (32km²). On the other, hand, the National Sanctuaries in the country are: Maralal (6km²); L. Simbi (0.4km²); Ondago Swamp (0.2km²); and Kisumu Impala Sanctuary (0.3km²)</p>
<p>Goal 15. Protect, restore and promote</p>	<p>15.1 By 2020, ensure the conservation,</p>	<p>The Wildlife Conservation Management Act of 2013 (WCMA, 2013) provide for the protection, conservation, sustainable use and</p>

²¹⁷ Kenya Constitution 2010. <http://kenyalaw.org:8181/exist/kenyalex/actview.xql?actid=Const2010>

²¹⁸ Nile Basin Initiative: Kenya Wetlands Governance and Management Profile. <http://www.nilebasin.org/wetlands/wp-content/uploads/2019/03/Kenya-Wetlands-Governance-and-Management-Profile.pdf>

²¹⁹ <http://www.kws.go.ke/marine-national-park>

<p>sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</p>	<p>restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements</p> <p>15.1.1 Forest area as a proportion of total land area</p> <p>15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type</p>	<p>management of wildlife in Kenya and for connected purposes. The National Wildlife Strategy 2030 developed in 2018 creates an enabling environment under pillar one to build resilience for species conservation in the protected areas. The National Forest Programme 2016-2030 identifies loss of protected areas as a challenge towards forest management and conservation. It seeks under its strategy on water shed management to increase acreage of protected areas. The National Strategy for achieving and Maintaining 10% Tree Cover by 2022 has been launched. The Fisheries Act 2016 also provide an avenue for conservation and management of the Marine Protected areas and other aquatic resources to enhance the livelihood of the communities dependent on the resources</p> <p>Forest area as a proportion of total land area has increased from 7.21 per cent in 2016 to 7.28 per cent in 2018 while the proportion of land that is degraded over total land area stood at 11.4 per cent in 2018. Presently, Kenya has 24 terrestrial National Parks which occupy an area of 29,504Km² that is approximately 5.08% of the total area of Kenya. Tsavo East and Tsavo West National Parks -including the Tsavo. There are 31 terrestrial National Reserves in Kenya occupying 17,358.8km² which is 3% of the country's total area.</p> <p>Kenya has 257 sites categorized as natural forests which harbor a variety of wildlife species and are also water towers or water catchment areas. These natural forests fall under 4 key management regimes namely; community forests (52 sites covering 180, 245 ha), forest reserves (201 sites covering 2,045, 406 ha), national monuments (3 sites covering 401 ha) and trust land (1 site covering 188,2017ha) with a total area of 24,142.59km² which is 4.2% of Kenya's total area. Marsabit forest ecosystem management plan 2015-2025 is under legal notice No. 1894 of March 2016.</p> <p>There are 5 National Sanctuaries in Kenya located in Nakuru, Samburu, Kisumu and Homa bay counties. They cover 12.47km² of the country. There are over 160 conservancies covering over 63,600Km² representing 11% of the country's area. Of these, 4 are Marine, 76 are community, 58 are private, and 26 are group while 60 are listed under World Database Protected Area (WPA). They mostly operate as Community Based Organizations (CBOs), Trusts or private companies.</p> <p>Kenya has six wetlands in the RAMSAR list: Lake Naivasha, Lake Baringo, Lake Bogoria, Lake Elementaita, Lake Nakuru and Tana River Delta. The process of listing more wetlands in RAMSAR site is underway to include sites such as Lake Ol Bolosait in Nyandarua county</p>
	<p>15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development</p> <p>15.4.1 Coverage by protected areas of important sites for mountain biodiversity</p> <p>15.4.2 Mountain Green Cover Index</p>	<p>The National Forest Programme 2016-2030 identifies loss of protected areas as a challenge towards forest management and conservation. It seeks under its strategy on water shed management to increase acreage of protected areas. The National Strategy for achieving and Maintaining 10% Tree Cover by 2022 has been launched</p> <p>The country is continuously rehabilitating and protecting Kenya's five major water towers namely the Aberdares, Cherangany, Mau, Mt. Kenya and Mt. Elgon and other smaller significant Water Towers and catchment areas. The rehabilitation, protection and securing of Enosupukia (12,000 Ha), South West Mau (19,000 Ha), Masai Mau (64,000 Ha) and Olpusimoru (26,000 Ha) was realized. An area of 1,250 Ha was surrendered voluntarily at Mau complex.</p>

5.12 TARGET 12

(a) Kenya's Contribution to the achievement of the Global target.

Please see details on this target in section III

The Wildlife Conservation Management Act of 2013 (WCMA, 2013) provide for the protection, conservation, sustainable use and management of wildlife in Kenya and for connected purposes. The **National Wildlife Strategy 2030 developed in June 2018** creates an enabling environment under pillar one to build resilience for species conservation in the protected areas. **The National Forest Programme 2016-2030** identifies loss of protected areas as a challenge towards forest management and conservation. It seeks under its strategy on water shed management to increase acreage of protected areas. The National Strategy for achieving and Maintaining 10% Tree Cover by 2022 has been launched. The Fisheries Act 2016 also provide an avenue for conservation and management of the Marine Protected areas and other aquatic resources to enhance the livelihood of the communities dependent on the resources

The Wildlife Conservation and Management Act, 2013; The East African Customs and Management Act, 2004 (Rev. 2008); EMCA, 2015; are among the key legislation for penalties, seizures and confiscation, and permitting. In 2014, the Government enhanced the penalties under the Wildlife Conservation and Management Act, 2013, to curb the illegal trade in endangered species. The National Wildlife Strategy 2030 launched in June 2018, forms the blueprint for wildlife conservation and management in the country. In order to have a comprehensive and coordinated policy framework, the Government is reviewing the 1975 Wildlife Policy.

The 2017 IUCN list of threatened species showed that Kenya had 463 plant and animal species which were threatened. These include 30 mammal, 43 bird, 73 fish and 234 plant species. The broad classification by IUCN while listing threatened species includes. Critically endangered, endangered, vulnerable, near threatened, least concern, data deficient, and not evaluated. (KWS report 2017).

The Wildlife Conservation and Management Act (WCMA, 2013) in schedule 6 lists 245 wildlife species under various categories of threats ranging from critically endangered to protected species. The Act requires that the status of these species be reported to the National Assembly every 2years and the recovery measures being implemented to restore the said species be indicated. Focus is given to the conservation status of endangered listed species, their habitats and factors that influence their population trends. Whereas the listed number of species in schedule 6 is 245, only 31 species recovery plans have been developed out of which 13 have since expired.

The National Wildlife Conservation Status Report 2015-2017 provides an overview of the status and trends of wildlife species in Kenya, the current population and its viability, population trends, breeding success rates, threats, and management interventions undertaken.

Section 49 (4) WCMA, 2013 requires KWS to develop and implement recovery plans for all nationally listed species and on the status of all species for which such plans have been developed. KWS in collaboration with relevant stakeholders has developed and is championing implementation of 19 species specific recovery plans, including for Black Rhino, Elephants, Cheetah and Wild Dogs, Lion and Hyena, Grevy's Zebra, Sea Turtles, sable antelopes, giraffes, Eastern Mountain Bongos, Roan Antelope, Sitatunga, Hirola antelopes. Others include for Sagalla Caecilian, Critically Endangered birds in Taita Hills (Taita Thrush, Taita Apalis), Spotted Ground Thrush (*Zoothera guttata*), Bird, Coral reefs and sea grasses ecosystems, and Aloe, for invasive species, and for bioprospecting. With Partners, others included for Blue Swallow, Lesser Flamingo, Madagascar Pond Heron, Maccoa Duck, Grey Crowned Crane and Lappet-faced Vulture. These are available from the KWS website.²²⁰

(b) Other activities at the Global level

Kenya has designated the Kenya Wildlife Service (KWS) as CITES Management Authority and the National Museums of Kenya as the CITES Scientific Authority as required by the Convention.

²²⁰ <http://www.kws.go.ke/downloads>

Due to limited human resource and technical capacity on some specific areas, there is inadequate information on some of the listed species thus their population status is listed as data deficient. Remnant population of some of the listed species are non-viable e.g. the Roan antelope and the bearded vulture. The management through the MOE&NR has requested for two herds of roan antelopes and a pair bearded vulture from the People Republic of Tanzania and Ethiopia respectively thus require follow up.

Rhinos: Three out of five sub-species of rhinos in the world are found in Kenya. The Black rhino – *Diceros bicornis michaeli* is native to the country while the Southern white rhino – *Ceratotherium simum simum* and the Northern white rhino *Ceratotherium simum cottoni* are exotic. In the 1970's Kenya had a population of 20,000 black rhinos widely spread mainly in the protected areas. Presently there are 10 black rhino sanctuaries in National Parks with two of the parks, Tsavo East and West having free ranging rhinos in Intensive Protection Zones (IPZ). Only Masai Mara National Reserve- - is a rhino Reserve and 8 Conservancies have rhino sanctuaries. Both the White and Black Rhino have shown a positive trend in their population growth This can be attributed to a number of factors among them: the creation of specific rhino sanctuaries, Heightened security against poaching, strict control of diseases, and development and implementation of a National Rhino strategy.

The Government submitted twenty (20) proposals at CITES COP 18 in Geneva, Switzerland, 2019, 19 of which successfully went through. The proposal to restrict trade in elephant ivory and rhino horns among other species which were considered at COP 18 in Geneva in August 2019. The proposed revisions aimed at strengthening the language in the Resolution 10.10 on elephants and in Resolution 9.14 on rhinoceroses to restrict any ivory and rhino horn trade, by ensuring all domestic ivory markets across the globe are closed; enhanced management by parties of ivory and rhino horn stock piles to ensure such stocks do not leak from Government stores into the illegal markets; and in Resolution 11.20 to restrict trade in live elephants to only apply for purposes of promoting conservation of the species only in-situ respectively. The proposal further aimed at countering proposals to trade in rhino and rhino horns. COP 18 approved the proposed changes. In adopting the changes in Resolution 11.20 the COP approved a near complete ban on capturing and sending African elephants from their natural habitats to zoos and other captive facilities abroad.

Kenya's proposal on Pancake Tortoise were adopted. Kenya proposed forty-four (44) and forty-five (45) for inclusion of White-Spotted Wedge Fish and Teat Fish, respectively, to regulate trade through CITES permits and certificates were approved. Proposal 5 to include Giraffe in Appendix II was accepted overwhelmingly. Decisions adopted at the CITES COP 18 entered into force on 26th November 2019, for implementation. However, the decision on the listing of the Teat Fish in Appendix II will enter into force in November 2020.

Kenya's participation to and adequate representation at COP 18 was instrumental in the realization of the following conservation milestones:

- The rejection by CITES of lifting the international ivory trade ban means that the international trade ban in ivory and rhino horns remains,
- stringent regulation on live elephant trade to only allow any transfer of live elephants to appropriate and acceptable destinations within the elephant's natural range,
- strict and time bound compliance requirements for those countries that still have domestic ivory markets to work towards closing such markets and report to CITES on a regular basis the efforts being made to achieve the measure and to ensure their trade do not contribute to poaching and illegal ivory trade.

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 20: Implementation of SDGs relevant to Aichi Target 12

SDG	Relevant Targets and Indicators	Key Actions
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based	The Fisheries Act 2016 also provide an avenue for conservation and management of the Marine Protected areas and other aquatic resources to enhance the livelihood of the communities dependent on the resources Historically, management of coral reefs in Kenya has been the domain of central government, with a network of 4

	management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics 14.4.1 Proportion of fish stocks within biologically sustainable levels	marine parks (fully protected) and 6 marine reserves (partially protected, allowing traditional fishing) under the management of Kenya Wildlife Service (KWS). In recent years, coastal fishing communities have embraced the concept of community-based conservation and established 12 demarcated CCAs (the local term for Locally Managed Marine Areas, LMMAs), to enhance sustainable fisheries and other livelihood options such as eco-tourism.
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species 15.5.1 Red List Index	The 2017 IUCN list of threatened species showed that Kenya had 463 plant and animal species which were threatened. These include 30 mammal, 43 bird, 73 fish and 234 plant species. The broad classification by IUCN while listing threatened species includes. Critically endangered, endangered, vulnerable, near threatened, least concern, data deficient, and not evaluated. (KWS report 2017). The Wildlife Conservation and Management Act (WCMA, 2013) in schedule 6 lists 245 wildlife species under various categories of threats ranging from critically endangered to protected species Assessment of the conservation status has been active particularly for plants coordinated through the East African Plant Red Listing Authority committee of IUCN. The EAPRLA organises annual workshop drawing members or experts from the lead botanical institutions in the region (East African herbarium, National Museums of Kenya, National Herbarium of Ethiopia, Makerere University Herbarium and Dar es salaam University herbarium) and has managed to assess over 4781 taxa over the last decade Gereau et al., 2019 per. Comm. Also see the appendix i), where threatened species makes up to 19% or more of the coastal flora.

5.13 TARGET 13

(a) Kenya's Contribution to the achievement of the Global target.

Some relevant policy and legal frameworks for GR in Kenya²²¹ include the Environment Management and Coordination Act (EMCA, 2015); Industrial Properties Act Cap 509 (2001); the Forestry Act (2005); the National Biosafety Act (2009); the Land Act (No. 2 of 2012); Seeds and Plant (Amendment) Act 2012; Crops Act No. 16 of 2013; Wildlife Conservation and Management Act (No. 47 of 2013); the Science, Technology and Innovations Act (2013); Kenya Agricultural and Livestock Research Act No. 17 of 2013; the National Biotechnology Development Policy (2006); Kenya National Seed Policy (2010); Natural Resources Bill (2014) and Kenya's Protection of Traditional Knowledge and Cultural Expressions Act of 2016. GERRI developed National Strategy on Genetic Resources Within the context of Climate Change 2016 – 2020 as a response to the second Global Plan of Action (GPA) for GRFA, and the National Climate Change Action Plan (NCCAP). The Strategy provides a comprehensive framework for:

- sustainable use, development and conservation of Plant Genetic Resources for Food and Agriculture,
- mainstreaming climate change impacts into the conservation agenda, and

²²¹ The legislative framework put in place (KALR ACT, The Seed and Plant Varieties Act)-Laws of Kenya (www.genetic.kalro.org/docs/Genetic_Regulations_PGRFA.pdf)

- systems for consensus building when engaging different stakeholders to develop mechanisms for equitable sharing of benefits accrued from utilization of plant Genetic Resources for Food and Agriculture.

The National Gene Bank of Kenya, now operating under the auspices of GeRRI, is the only long-term ex situ conservation facility in the country which currently holds a repository of about 50,000 plant accessions representing 165 families, 893 genera and 2,000 species. These materials have been assembled through both in-country collecting expeditions and donations from within and outside Kenya. Out of the 2,000 species conserved at the GeRRI gene bank, only 144 have been characterized, none of which has been comprehensively evaluated for biotic and abiotic stresses.

Only 4,000 accessions out of the more than 50,000 conserved at the GeRRI gene bank have been distributed for utilization in the last 15 years, of which a total of 3,189 accessions have been distributed over the last 5 years. This is partly because less than 10% of the accessions have been characterized and evaluated due to insufficient scientific staffing and financial constraints. Plant genetic resources secured under long term ex situ conservation increased by over two thousand (2000) accessions (ecotypes) comprise of 78 Families, 200 genera and 321 species (National Genebank database). More significantly, over eighty (80) of the collected and secured species (which constitutes close to 25%) during the period under review were new to conservation in the country. The Genetic Resources Research Institute has to date amassed over 50,000 accessions comprising close to 2000 species of diverse plant genetic resources at its conservation facility.

GeRRI in partnership with the National Museums of Kenya, the Royal Botanic Gardens, Kew of the United Kingdom, and Kenya Forestry Research Institute, working under the auspices of the Seeds for Life Project, have recently described some more than 10 plant species that are new to science, collected and banked close to 1,000 plant species that are new to ex situ conservation in Kenya.

(b) Other activities at the Global level

GeRRI in partnership with the National Museums of Kenya, the Royal Botanic Gardens, Kew of the United Kingdom, and Kenya Forestry Research Institute, working under the auspices of the Seeds for Life Project, have recently described some more than 10 plant species that are new to science, collected and banked close to 1,000 plant species that are new to ex situ conservation in Kenya.

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 21: Implementation of SDGs relevant to Aichi Target 13

SDG	Relevant Target and Indicators	Key Actions
Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture	2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round 2.1.1 Prevalence of undernourishment 2.1.2 Prevalence of moderate or severe food insecurity in the population	Agriculture and Livestock policies particularly the 'Agricultural Sector Transformation and Growth Strategy (ASTGS) 2018-2028' emphasize on commercialization of agriculture. The 'Smallholder Dairy Commercialization Program (SDCP, February 2007- March 2020)' operates in 9 Counties and aims at increasing the income of the rural poor households that depend substantially on production and trade in dairy products for their livelihoods.
	2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons 2.2.1 Prevalence of stunting 2.2.2 Prevalence of malnutrition	The national food poverty headcount rate (proportion of food poor individuals) declined significantly from 45.8 per cent in 2005/06 to 32.0 percent in 2015/16, implying that in the last ten years, the incidence of food poverty dropped by over 13 percentage points. The results also indicate that the total population of food poor individuals declined substantially from 16.3 Million in 2005/06 to 14.5 Million in 2015/16.

	<p>2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed</p> <p>2.5.1 Number of plant and animal genetic resources for food and agriculture secured in either medium or long-term conservation facilities</p> <p>2.5.2 Proportion of local breeds classified as being at risk, not-at-risk or at unknown level of risk of extinction</p>	<p>The country has two running animal genetic resource production and conservation centers namely: Kenya Animal Genetics Resource Center (KAGRC); and Agricultural Development Corporation (ADC). The National Gene Bank of Kenya, now operating under the auspices of GeRRI, is the only long-term ex situ conservation facility in the country which currently holds a repository of about 50,000 plant accessions representing 165 families, 893 genera and 2,000 species. These materials have been assembled through both in-country collecting expeditions and donations from within and outside Kenya. Out of the 2,000 species conserved at the GeRRI gene bank, only 144 have been characterized, none of which has been comprehensively evaluated for biotic and abiotic stresses.</p> <p>Only 4,000 accessions out of the more than 50,000 conserved at the GeRRI gene bank have been distributed for utilization in the last 15 years, of which a total of 3,189 accessions have been distributed over the last 5 years. Plant genetic resources secured under long term <i>ex situ</i> conservation increased by over two thousand (2000) accessions (ecotypes) comprise of 78 Families, 200 genera and 321 species (National Genebank database). More significantly, over eighty (80) of the collected and secured species (which constitutes close to 25%) during the period under review were new to conservation in the country. The Genetic Resources Research Institute has to date amassed over 50,000 accessions comprising close to 2000 species of diverse plant genetic resources at its conservation facility.</p>
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5.14 TARGET 14

(a) Kenya's Contribution to the achievement of the Global target.

In Kenya, a key approach to ecosystem management is through the concept of basins-based planning practiced since early 1970s through establishment of Regional Development Authorities (RDAs). According to the Acts that created them, the RDAs were constituted based on river basins and large water bodies to spur regional development through sustainable utilization and conservation of natural resources. The six Regional Development Authorities (RDAs), are; Tana and Athi Rivers Development Authority (TARDA²²²), Kerio Valley Development Authority (KVDA²²³), Lake Basin Development Authority (LBDA²²⁴), Ewaso Ng'iro South Development Authority (ENSDA²²⁵), Ewaso Ng'iro North Development Authority (ENNDA²²⁶) and Coast Development Authority (CDA²²⁷). ²²⁸

Kenya Water Towers Agency (KwTA) is mandated to coordinate and oversee the protection, rehabilitation, conservation and sustainable management of all the critical water towers in Kenya.²²⁹ The rehabilitation

²²² <http://www.tarda.co.ke/>
²²³ <http://kvda.go.ke/>
²²⁴ <https://lbda.go.ke/>
²²⁵ <https://ensda.go.ke/>
²²⁶ <http://www.ennda.go.ke/>
²²⁷ <http://cda.go.ke/>
²²⁸ <https://meac.go.ke/directorate-of-regional-development/>
²²⁹ <https://watertowers.go.ke/wtowers/>

and protection of Kenya's five (5) major water towers namely; the Aberdares, Cherangany, Mau, Mt. Kenya and Mt. Elgon and other smaller significant Water Towers and catchment areas such as Chyulu Hills, Nyambene, Ngong Hills, Taita Hills, Maragoli, Marsabit, Shimba Hills, Ndotos, Nyiru, Hills in Machakos, Makueni and Kitui, Leroghi, Matthews Range and Dunes in Lamu and Northern Kenya has been undertaken in this period.

Many government MDAs and civil society have supported ecosystem-based approaches to secure ecosystem services and support livelihoods. For example: Nature Kenya²³⁰ - Nature Kenya has championed the use of the Toolkit for Ecosystem Services Site-based Assessment in Kenya in Kenya, which gives guidance in measuring ecosystem services provided by a habitat. So far Ecosystem Services Assessment has been carried out in Kakamega Forest, Yala wetland complex, Taita Hills forests, Dakatcha Woodland and Arabuko Sokoke Forest IBAs.

Forest Conservation and Management Act 2016 outlines public participation and community involvement in the management of forests through Community Forest Association and recognising establishment of community forests. The Wildlife Management and Conservation Act of 2013 established conservancies, sanctuaries community, and wildlife association and wildlife managers. The act developed County Conservation Committee whose role included compensation scheme which seek to compensate communities against loss of life, disabilities and destruction of property occasioned by human-wildlife conflicts.

Water Act 2016 provides for establishment of Water Resource User Associations (WRUAs), which are community-based associations for collective management of water resources and resolution of conflicts concerning the use of water resource.

Community Land Act, 2016 Act provides for the recognition and registration of community land rights, management and administration of community land, and the role of county government in relation to unregistered community land.

(b) Other activities at the Global level

Trans boundary Waters: The Programme entailed negotiations on mutual utilization and conservation of trans-boundary waters. The locations of trans-boundary surface waters and their status were established while three bilateral frameworks developed, negotiated and finalized for the management of transboundary water resources. These are Sio-Malaba-Malakisi River, Mara River and lakes Challa-Jibe and Uмба River. Other regional processes include the **2010 Nile Basin Cooperative Framework Agreement (CFA)**. The main water towers that are the source of the rivers that feed into Lake Victoria are in Kenya and **East Africa Community Protocol for the Sustainable Development of Lake Victoria Basin**. The Protocol provides a framework for cooperation among the Partner States in the conservation and sustainable utilization of the resources in the Lake Victoria Basin.

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 22: Implementation of SDGs relevant to Aichi Target 14

SDG	Relevant Targets and indicators	Key Actions
Goal 6. Ensure availability and sustainable management of water and sanitation for all	6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and	The Ministry through the implementation of Upper Tana Natural Resources Management Project (UTaNRP) has put 800 Ha under upgraded small-scale irrigation schemes in Nyeri, Embu, Kirinyaga, Meru and Tharaka Nithi counties. Also implementation of Thwake Multipurpose Water Development Programme to put 40,000 hectares of land

²³⁰ <https://naturekenya.org/publications/>

	<p>substantially reduce the number of people suffering from water scarcity 6.4.1 Change in water-use efficiency over time 6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources</p>	<p>under irrigation as well as Lower Nzoia Dykes and Irrigation project which involves the improvement of Flood Mitigation dykes 17km on either side of River Nzoia; and Intake water supply and conveyance for irrigation of 4,000 ha to benefit 2,000 households are ongoing.</p> <p>Completion of on-going water projects in urban and rural areas will increase the number of people connected to safe piped water from 3.6 million to 9 million. The proportion of people with access to potable water will be increased from 60 per cent to 80 per cent by 2022 with a focus on slums and arid areas. The Water Trust Fund will provide grants to counties to assist in financing water projects towards ensuring all Kenyans have access to safe potable water.</p>
	<p>6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate 6.5.1 Degree of integrated water resources management implementation (0-100) 6.5.2 Proportion of transboundary basin area with an operational arrangement for water cooperation</p>	<p>In Kenya, a key approach to ecosystem management is through the concept of basins-based planning practiced since early 1970s through establishment of Regional Development Authorities (RDAs). According to the Acts that created them, the RDAs were constituted based on river basins and large water bodies to spur regional development through sustainable utilization and conservation of natural resources.</p> <p>The locations of trans-boundary surface waters and their status were established, and three bilateral frameworks developed, negotiated and finalized for the management of transboundary water resources of Sio-Malaba-Malakisi River, Mara River and lakes Challa-Jibe and Uмба River. Other regional processes include the The 2010 Nile Basin Cooperative Framework Agreement (CFA). The main water towers that are the source of the rivers that feed into Lake Victoria are in Kenya. East Africa Community Protocol for the Sustainable Development of Lake Victoria Basin. The Protocol provides a framework for cooperation among the Partner States in the conservation and sustainable utilization of the resources in the Lake Victoria Basin.</p>
	<p>6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes 6.6.1 Change in the extent of water-related ecosystems over time</p>	<p>Under Vision 2030, the major achievements included:</p> <ul style="list-style-type: none"> • rehabilitation, protection and securing of 121,000 Ha in Enoosupukia (12,000 Ha), South.West Mau (19,000 Ha), Maasai Mau (64,000 Ha) and Olpusimuru (26,000 Ha) through Joint Enforcement Unit providing basis for natural regeneration, • assessment of 18 water towers and developed water towers ecological health status reports, • Identified critical catchment, wetlands and Biodiversity Hotspots in Mt. Kenya, Mau Complex, Mt. Elgon, Shimba Hills and Chyulu water towers, Community Development Action Plans for Lerroghi, Shimba Hills & Chyulu, • Mau Ecosystem Strategic Management Plan, • Micro-Catchment Conservation Plan for Taita Hills, • Voluntary surrender of 1,250 Ha in Mau complex, and the • Establishment of the Water Towers Conservation Fund. <p>Water Resources Management Programme: The Programme was geared towards sustainable utilization of water resources. Under MTP II six (6) catchment management strategies were reviewed, and 157 Sub Catchment Management Plans developed. The sector also implemented 30 sub-surface dams along seasonal rivers, especially in ASAL areas. In addition, 140 hydro-metrological stations were rehabilitated and installed across the 6 catchment regions. The sector developed and consolidated water allocation plans for three (3) basins namely Athi, Lake Victoria and Ewaso Ng'iro North.</p>

<p>Goal 13. Take urgent action to combat climate change and its impacts</p>	<p>13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries 13.1.1 Number of countries with national and local disaster risk reduction strategies 13.1.2 Number of deaths, missing persons and persons affected by disaster per 100,000 people</p>	<p>Kenya has adopted and implemented national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030. A National Disaster Reduction Strategy & Policy 2010 and National Disaster Preparedness and Response Strategies have also been prepared. Additionally, all the 47 County Governments have mainstreamed Disaster Risk Management Planning which is implemented through the County Integrated Development Plans (CIDPs). The Country has put in place an integrated policy/strategy/plan that increases the ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production. Towards this,; National Climate Change Response Strategy 2010; National Climate Change Action Plan 2013-2017; Kenya Independent Nationally Determined Contribution (INDC) 2015; The Climate Change Act 2016; National Climate Change Framework policy 2016; Kenya National Adaptation Plan 2015-2030 have been developed and re being implemented.</p>
<p>Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</p>	<p>15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts 15.9.1 Progress towards national targets established in accordance with Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011-2020</p>	<p>Kenya has strengthened environmental governance to support ecosystem conservation and restoration, including through the Environmental Management and Coordination Act 2015, Wildlife Conservation and Management Act 2013, Forest Conservation and Management Act 2016, Natural Resources Act 2016, Water Act 2016, Climate Change Act 2016, and Fisheries Management and Development Act 2016. Two relevant national targets are: the 10% tree cover target by 2022 in response to the 2020 Constitution while in 2018, the Government committed 5.1 Million Hectares of land under afforestation to reclaim degraded forested land under the Pan African Action Agenda on Eco-system restoration.</p>

5.15 TARGET 15

(a) Kenya's Contribution to the achievement of the Global target.

According to the National Forest Programme, 2016-2030, analysis of change in forest cover over the last 25 years revealed improved afforestation activities. Forest land has decreased by 311,000 ha while crop land increased by 1,018,000 ha between 1990 and 2015. Between 1990 and 2000, Kenya lost approximately 1.2 million ha of forest land, equivalent to 25% of forest cover. However, there is a remarkable increase in forest cover from 6.01% in 2000 to the predicted 7.46% in 2015. This is equivalent to an annual increase of 0.1%.²³¹

Kenya has enacted the Forest Conservation and Management Act 2016, the Environmental Management and Coordination Act 2015 and developed the National Forest Programme (2016-2030) which have helped to increase areas under conservation. The moratorium by the Government of Kenya on logging in public and community forests in February 2018 is aimed at reducing deforestation and forest degradation and enhancing regeneration and replanting for sustainable forest management and ecosystems protection through access to genetic materials such as the non- timber products.

Kenya has developed and enacted several policy and legal instruments related to reduce habitat loss, degradation and fragmentation. Key policy responses include the National Environment Policy 2013, National Strategy and Action Plan for the Management of Invasive Species in Kenya, The Plant Health Protection Act Cap 324, Agriculture, Fisheries and Food Authority Act. No. 13 of 2013, Environmental

Management and Coordination Act 1999 (amendment 2015), Wildlife Conservation and Management Act 2013, Forest Conservation and Management Act 2016 and Fisheries Management and Development Act 2016. Others include the National Forest Programme 2016-2030 and Wetlands Conservation and Management Policy.

Further the Government has formulated the ASAL Development Policy, 2019, to guide coordinated development of ASALs; formulated National Irrigation Policy, 2017 and enacted Irrigation Act, 2019 to promote development, management and regulation of irrigation; initiated formulation of Draft Land Reclamation Policy, 2018; and the Land Reclamation Bill, 2018. The Land Reclamation Policy and Bill formulation are ongoing concurrently. The draft policy is at the regional consultative stage and will be submitted to the Cabinet alongside the bill thereafter.

The Government institutionalized Drought Management by enacting the National Drought Management Act, 2016, creating the National Drought Management Authority to coordinate and manage drought in the country. In addition, the State Department for Development of ASALs is undertaking Programmes to enhance community resilience against drought through sustainable resource management of Natural Resources and livelihood diversification. The Government has integrated Ending Drought Emergencies (EDE) in National Development Plans through the EDE Sector Plans for MTP III 2018–2022.

The National Mangrove Ecosystem Management Plan covers all gazetted mangrove forest reserves in Kenya and is implemented over 10-year period (2017 – 2027). This management plan addresses the lack of ecosystem-based management approaches for mangroves in Kenya and supports sustainable utilization of mangrove resources while enhancing biodiversity conservation and ecosystem integrity. The Plan has taken cognizance of other existing policies relating to land and land use, tenure, agriculture, fisheries, energy, environment, mining, wildlife, and water. It also embraces collaborative and participatory approaches in natural resources governance that leads to ownership of the initiatives by the stakeholders.

Further, Integrated Coastal Zone Management Policy, 2015 guides actions and policies which are related to the management and use of Kenya's coastal zone resources. This also covers the restoration of the degraded areas and the protection of the resources, the development a legal framework for the purpose of ensuring sustainable conservation and management of the deltas and estuaries; and development of comprehensive research information to aid in the proper conservation and management of said ecosystems.²³²

The Government of Kenya has made significant strides towards the formulation of Wetlands Conservation and Management Policy 2015 and supported the development of the Kenya Wetlands Atlas (2012) which maps the country's wetland resources. The National Environment Management Authority (NEMA), pursuant to the Environmental Management and Coordination Act (EMCA), Cap 387 has prepared the draft Environmental Management and Coordination (Conservation and Management of Wetlands) Amendment Regulations, 2017 intended to amend the Environmental Management and Coordination (Wetlands, River banks, Lake shores and Sea shore Management) Regulations, 2009.

The Government of Kenya supported by the World Bank through the Kenya Agricultural Productivity and Sustainable Land Management Project (KAPSLMP) ²³³ carried out the Land Degradation Assessment (LADA)²³⁴ in 2015 to assess the causes, extent and types of land degradation in Kenya. Remote Sensing/GIS analyses were used to determine the extent of land degradation, the major determinants, the areas undergoing most serious land degradation and the severity of land degradation. Spatial analysis of the LULC changes showed an overall deterioration of vegetation cover over the last 20-year period. There was declining vegetation cover as depicted by NDVI, increasing bare lands, conversion of natural vegetation

²³² Nile Basin Initiative: Kenya Wetlands Governance and Management Profile. <http://www.nilebasin.org/wetlands/wp-content/uploads/2019/03/Kenya-Wetlands-Governance-and-Management-Profile.pdf>

²³³ <https://projects.worldbank.org/en/projects-operations/project-detail/P088600?lang=en&tab=details>

²³⁴ MINISTRY OF ENVIRONMENT AND NATURAL RESOURCES. 2016. Report of the: LAND DEGRADATION ASSESSMENT (LADA) IN KENYA: Based on a Study of Land Degradation Assessment (LADA) with Remote Sensing and GIS, for Sustainable Land Management (SLM) in Kenya. KENYA AGRICULTURAL PRODUCTIVITY AND SUSTAINABLE LAND MANAGEMENT PROJECT (KASLMP). <http://www.environment.go.ke/wp-content/uploads/2018/08/LADA-Land-Degradation-Assessment-in-Kenya-March-2016.pdf>

into agricultural lands and soil erosion. Generally, agricultural/cultivated areas increased by 7.3% and bare lands increased by 2.6%. The lower levels of land degradation in the since 2000 also coincides with the policy change. The study showed at least 61% the total area of Kenya is at high risk of land degradation, while very high degradation affects 27% of the land. Land degradation is especially severe in the arid and semi-arid lands (ASALs)

(b) Other activities at the Global level

N/A

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 23: Implementation of SDGs relevant to Aichi Target 15

SDG	Relevant Targets and Indicators	Key Actions
Goal 13. Take urgent action to combat climate change and its impacts	<p>13.2 Integrate climate change measures into national policies, strategies and planning</p> <p>13.2.1 Number of countries that have communicated the establishment or operationalization of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production</p>	<p>Kenya Climate Smart Agriculture Strategy and Implementation Plan to reverse impact of land degradation that has been exacerbated by unsustainable agricultural practices (over grazing, over cropping etc.)</p> <p>The Climate Change Act 2016 which identifies forest conservation and management as key to realizing Target 15 of the Aichi Strategic Plan.</p> <p>In the NDC Sectoral Analysis Report 2017, these mitigation actions were further analysed to determine the sectors' potential to contribute to Kenya's NDC mitigation target. It was determined that relative to the proportionate mitigation reduction target for the sector of 20.1 MtCO_{2e} by 2030, the sector's mitigation potential was between 11.3 and 20.1 MtCO_{2e} per year, with a technical maximum potential of 40.2 MtCO_{2e} per year by 2030. The government is taking action to address climate change in the forestry sector, including through tree planting initiatives and preparatory activities to enable the country participate in reducing emissions from deforestation and forest degradation plus (REDD+) role of conservation, sustainable management of forests, and enhancement of forest carbon stocks, as a climate change mitigation process²³⁵.</p> <p>In NCCAP 2013-2017, it was estimated that total GHG emissions from the LULUCF sector was 21 MtCO_{2e} per year, which was 30% of total national emissions in 2010, and was projected to increase to 26 MtCO_{2e}, which is 32.5% of the total national emissions by 2015 before reducing to 22 MtCO_{2e} per year (15.4%) by 2030. At this level, the forestry sector would be the second highest emitter of GHGs after the agriculture sector. To mitigate climate change in the forestry sector, the following three actions were proposed in both NCCAP 2013-2017 and SNC: Restoration of forests in degraded lands; Rehabilitation of degraded forests; and Reduction of deforestation and forest degradation.</p>
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	<p>14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by</p>	<p>National Mangrove Strategy and Action Plan to increase the spatial distribution of the species along the coastal line, development of Fisheries Management Plans; Kenya Tuna Fisheries Development and Management Strategy 2013 -2018,</p>

	strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans 14.2.1 Proportion of national exclusive economic zones managed using ecosystem-based approaches	Enactment of the Fisheries Management and Development Act No. 35 of 2016, The National Mangrove Ecosystem Management Plan covers all gazetted mangrove forest reserves in Kenya and is implemented over 10-year period (2017 – 2027). It supports sustainable utilization of mangrove resources while enhancing biodiversity conservation and ecosystem integrity. Further, Integrated Coastal Zone Management Policy, 2015 covers the restoration of the degraded areas, the protection of the resources, sustainable use, conservation and management of the deltas and estuaries.
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements 15.1.1 Forest area as a proportion of total land area 15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type	Strategy to Increase the Country's Tree Cover to 10% ²³⁶ : efforts towards achieving the national 10% forest cover include integrated land use planning; provide the forest sector with strong instruments for implementing sustainable management and conservation efforts; devolving and mainstreaming forestry functions into county government planning; and engaging communities and stakeholders in the sustainable management of public forests. National Mangrove Strategy and Action Plan to increase the spatial distribution of the species along the coastal line. The Government through Executive Order No. 1 of 2018 expanded the mandate of the State Department for Irrigation to include the function of Land Reclamation to reverse Land Degradation and ensure Land Degradation Neutrality. In November 2018, the Government committed 5.1 Million Hectares of land under afforestation to reclaim degraded forested land under the Pan African Action Agenda on Ecosystem restoration. The Government developed the Land Degradation Neutrality (LDN) Targets Report following the twelfth session of the UNCCD conference of parties (COP), held in Ankara, Turkey in October 2015, where parties agreed to move towards neutrality. Actions include production of 222,124 bamboo seedlings and 800 million tree seedlings and availed these for planting 500,000 hectares on farmlands for livelihood improvement; restored 156,000ha of degraded natural forests, established 19,359ha of commercial forest plantations and promoted planting of 300,109ha of tree on farmlands and in schools across the country. Further 565,607.4ha of new forests in Tana River, Lamu and Garissa were gazette. ²³⁷
	15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	GESIP provide the policy push under Thematic area 3 on Sustainable Natural Resource Management which encompasses agriculture, forestry, water, wildlife, land use and extractive industries. In order to address the degradation and loss of natural resources, the tools under this thematic area include spatial planning and targeted periodic valuation of natural capital, payment for ecosystem services and environmental accounting. The Forest Conservation and Management Act, 2016 (Section 42) indicates that indigenous forests and woodlands are to be managed on a sustainable basis for, inter alia, carbon

²³⁶ GOK 2019 – Strategy to increase tree cover by to 10% <http://www.environment.go.ke/wp-content/uploads/2019/08/Strategy-for-10-Tree-Cover-23-5-19-FINAL.pdf>

²³⁷ The National Treasury and Planning State Department for Planning Projects and Programmes Department SDGs PROGRESS REPORT JUNE 2019.

	15.2.1 Progress towards sustainable forest management	sequestration. Section 8 indicates that KFS is to manage water catchment areas in relation to soil and water conservation, carbon sequestration, and other environmental services; and Section 21 notes that County Governments are to promote afforestation activities. The National Forest Programme 2016-2030 defines the national forest framework which is premised on sustainable forest management. The overall goal: "To develop and sustainably manage, conserve, restore and utilize forests and allied resources for socio-economic growth and climate resilience." The first strategic objectives is to increase tree cover and reverse forest degradation through sustainable forest management.
	15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world 15.3.1 Proportion of land that is degraded over total land area	The Kenya Agricultural Productivity and Sustainable Land Management Project (KAPSLMP) carried out the Land Degradation Assessment (LADA) in 2015 which showed overall deterioration of vegetation cover over the last 20-year period. Generally, agricultural/cultivated areas increased by 7.3% and bare lands increased by 2.6%. Overall, at least 61% the total area of Kenya is at high risk of land degradation, while very high degradation affects 27% of the land. Hence the Kenya Strategic Investment Framework (KSIF) for sustainable land management (SLM) ²³⁸ was developed to guide in addressing land management issues through effective multi-sectoral, multi-stakeholder partnerships and collaboration. The Framework outlines clear roles for key sectors and stakeholders to guide and focus interventions which support securing ecosystems and actions for moving Kenya towards land degradation neutrality as part of contributing towards the attainment of Vision 2030. In 2014 the Landscape Restoration Technical Working Group mapped and quantified where different restoration options to help inform a national restoration target. Several maps and associated area statistics were presented in the assessment report ²³⁹ as potential areas for landscape restoration. These maps (http://ken.restoration-atlas.org/map/) can help various state and non-state actors identify opportunities to scale up agroforestry to reduce erosion, increase livelihood diversification, fodder production and soil fertility; define existing forests that can be restocked, as well as where new natural forests can be established, to increase carbon sequestration, biodiversity habitat, and prevent landslides and flooding.
	15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development 15.4.1 Coverage by protected areas of important sites for mountain biodiversity	Kenya Water Towers Agency (KWTA) is mandated to coordinate and oversee the protection, rehabilitation, conservation and sustainable management of all the critical water towers in Kenya. ²⁴⁰ The rehabilitation and protection of Kenya's five (5) major water towers namely; the Aberdares, Cherangany, Mau, Mt. Kenya and Mt. Elgon and other smaller significant Water Towers and catchment areas such as Chyulu Hills, Nyambene, Ngong Hills, Taita Hills, Maragoli, Marsabit, Shimba Hills, Ndotos, Nyiru, Hills in Machakos, Makueni and Kitui, Leroghi, Matthews Range and Dunes in Lamu and Northern Kenya has been undertaken in this period.

²³⁸ Republic of Kenya. Ministry of Environment and Natural Resources 2016. KENYA STRATEGIC INVESTMENT FRAMEWORK FOR SUSTAINABLE LAND MANAGEMENT 2017 – 2027. <http://www.environment.go.ke/wp-content/uploads/2018/08/KSIF-Kenya-Strategic-Investment-Framework-on-SLM-2017-2027.pdf>

²³⁹ GOK. Ministry of Environment and Natural Resources. 2016. TECHNICAL REPORT ON THE NATIONAL ASSESSMENT OF FOREST AND LANDSCAPE RESTORATION OPPORTUNITIES IN KENYA. https://afr100.org/sites/default/files/Kenya_Technical%20Report_Assessment%20of%20National%20Forest%20and%20Landscape%20Resto..._0.pdf

²⁴⁰ <https://watertowers.go.ke/watertowers/>

	15.4.2 Mountain Green Cover Index	The country is continuously rehabilitating and protecting Kenya's five major water towers namely the Aberdares, Cherangany, Mau, Mt. Kenya and Mt. Elgon and other smaller significant Water Towers and catchment areas. The rehabilitation, protection and securing of Enoosupukia (12,000 Ha), South West Mau (19,000 Ha), Masai Mau (64,000 Ha) and Olpusimoru (26,000 Ha) was realized. An area of 1,250 Ha was surrendered voluntarily at Mau complex
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5.16 TARGET 16

(a) Kenya's Contribution to the achievement of the Global target.

Kenya ratified the Nagoya Protocol on 7th April, 2014. The Nagoya Protocol is part of Kenyan law as per the constitution which states that every international agreement Kenya is a signatory to is law. The Traditional knowledge and Culture expression Act of 2016 was enacted. Further, the Environment Management and Coordination Act, EMCA 1999 was amended in 2015 with mainstream provisions related to access and benefit sharing of genetic resources in lien with the Nagoya Protocol.

Other relevant legal and policy instruments include:

- The Science, Technology and Innovation Act 2013 recognizes traditional and indigenous knowledge as part of innovations.
- National Museums and Heritage act

The Ministry of Environment and Forestry is the focal point organization and NEMA is the competent National Authority, Clearing-House and publishing authority for access and benefits sharing. The designated checkpoints are Kenya Wildlife Service, Kenya Forest Service, Kenya Plant Health Inspectorate Services (KEPHIS), NACOSTI, State Department of Immigration and Kenya Industrial Property Institute (KIPI). No person shall transfer any genetic resources outside Kenya unless such person has executed a Material Transfer Agreement (MTA). Regulation 19 requires that benefit sharing shall apply, subject to the laws in force relating to intellectual property rights. In Kenya, institutions responsible for intellectual property rights include the Kenya Industrial Property Institute (KIPI), the Kenya Plant Health Inspectorate Service (KEPHIS) and the Kenya Copyright Board (KECOBO). Since ratification, the Government has issued one hundred and thirty (130) access permits for research and development.

Kenya is in the process of preparing regulations for conservation on biodiversity, access to genetic resources and benefit sharing to be aligned with the provisions of the Protocol.

(b) Other activities at the Global level

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 24: Implementation of SDGs relevant to Aichi Target 16

SDG	Relevant Target sand Indicators	Key actions
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	15.6 Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed 15.6.1 Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits	Kenya ratified the Nagoya Protocol on 7th April, 2014. The Nagoya Protocol is part of Kenyan law as per the constitution which states that every international agreement Kenya is a signatory to is law. The Traditional knowledge and Culture expression Act of 2016 was enacted. Further, the Environment Management and Coordination Act, EMCA 1999 was amended in 2015 with mainstream provisions related to access and benefit sharing of

		genetic resources in lien with the Nagoya Protocol.	
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5.17 TARGET 17

(a) Kenya's Contribution to the achievement of the Global target.

Kenya has developed the draft NBSAP 2019-2030. This will be updated based on the post 2020 framework. Baseline Review has been undertaken and stakeholder consultations undertaken. The CHM has provided key resources for the implementation and review of the targets. There have been various mainstreaming activities into key sectors

Although in the absence of an approved NBSAP, Kenya has put in place sectoral policies and legal frameworks within the reporting period 2010-2020 for implementation of the NBSAP. These include:

- [Species Management Strategies](#),
- The Community Land Act,
- WCMA 2013 recognition of conservancies.
- Revised EMCA 2015-
- Access to bio-resources toolkit,
- Bioprospecting strategy within and outside protected area developed,
- Masterplan for rehabilitation and restoration of water catchment areas
- Fisheries Management and Development Act-2016
- Forest Conservation and Management Act 2016
- Forest Management Strategy
- National Museums and Heritage Act
- REDD+
- Climate Change Act 2016
- National Climate Change Action Plan
- National Strategy for Achievement and Maintaining over 10% tree cover by 2022
- National Environment Policy 2014

(b) Other activities at the Global level

N/A

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 25: Implementation of SDGs relevant to Aichi Target 17

SDG	Relevant Targets and Indicators	Key Actions
Goal 5. Achieve gender equality and empower all women and girls	5.1 End all forms of discrimination against all women and girls everywhere 5.1.1 Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex	Kenya is implementing the 2010 Constitution that expanded the Bill of Rights and introduced extensive provisions on economic, social and cultural rights. The Constitution also enhanced the institutional systems for the respect, protection and promotion of human rights, including right to equality and freedom from gender-based discrimination. The Constitution has various Articles specifically to address gender equality and empowerment of women and girls. These include Articles 27, 45, 59, 81, 97, 98, 100, 177, and 232.
	5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life 5.5.1 Proportion of seats held by women in	The Government has developed various Policies and Plans to reduce gender inequalities in all spheres. These include the National Land Policy, Kenya Health and Gender Equality policy 2015-2030, Education and Training sector Gender Policy 2015 and Kenya National Action Plan (2016) for the implementation of UNSCR 1325 on women peace and security. The National Gender and Development Policy is in the final stages of review.

	<p>national parliaments and local governments</p> <p>5.5.2 Proportion of women in managerial positions</p>	<p>The Government has developed guidelines for engendering of Medium-Term Plans of the Kenya Vision 2030 and the County Integrated Development Plans. These were used in engendering of the Third Medium Term Plan (MTP III) and the second-generation County Integrated Development Plans. The Third National Reporting Indicator HandBook for the Third Medium Term Plan has also been engendered.</p>
<p>Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels</p>	<p>16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels</p> <p>16.7.1 Proportions of positions (by sex, age, persons with disabilities and population groups) in public institutions (national and local legislatures, public service, and judiciary) compared to national distributions</p> <p>16.7.2 Proportion of population who believe decision making is inclusive and responsive, by sex, age, disability and population group</p>	<p>Citizen participation in public policy decisions making including in the prioritization, planning, ownership and, sustainability of sub national and national development is embedded in the constitution. Further, the Constitution in Article 201 (a) requires openness and unlimited accountability. As part of these processes the vulnerable and the poor should be fully and effectively involved in the country's development agenda and public participation is a mandatory constitutional requirement.</p>
<p>Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development</p>	<p>17.9 Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the Sustainable Development Goals, including through North-South, South-South and triangular cooperation</p> <p>17.9.1 Dollar value of financial and technical assistance (including through North-South, South-South and triangular cooperation) committed to developing countries</p>	<p>Kenya has a structured coordination and dialogue platform with her partners for discussing national development priorities, which includes development partners, private sector, civil society organizations and the philanthropists. Through the multi-stakeholder dialogue forums, all stakeholders are encouraged align their support to the Country's Medium-Term Plans, with the current one having integrated the SDGs.</p> <p>Kenya now has a vibrant philanthropic organizations platform, the Kenya Philanthropy Forum, which has brought together over 40 philanthropic organizations with the objective of bringing coherence and championing alignment to the national development priorities and providing support towards the implementation of the Sustainable Development Goals. Civil Society Organizations are also being encouraged to align the resources they receive to the national development agenda.</p> <p>During the 2015 Third Financing for Development Conference held in Addis Ababa, Developed Countries committed to provide 0.7 per cent of their Gross National Income as Official Development Assistance (ODA) to developing countries. In 2016, only five countries met this requirement (Denmark, Luxembourg, Norway, Sweden, United Kingdom and Germany).</p>
	<p>17.14 Enhance policy coherence for sustainable development</p> <p>17.14.1 Number of countries with mechanisms in place to enhance policy coherence of sustainable development</p>	<p>Vision 2030 and its five-year Medium-Term Plans provide a platform for enhancing policy coherence in Kenya. In order to ensure quality and adequate data on SDGs, the policy priority of the Kenya Government is to strengthen the National Statistical System to support planning, monitoring and evaluation of government policies and Programmes. The Kenya National Bureau of Statistics (KNBS) is therefore, expected to generate official statistics that are comprehensive, reliable, timely and disaggregated up to the sub national level. Towards this end, the Bureau has established offices in each of the 47 counties to coordinate</p>

		<p>statistical capacity building Programmes at the sub national level and ensure that international standards are applied in the production and dissemination of county statistics</p> <p>The rolling out of the National Integrated Monitoring and Evaluation System (NIMES) and fast-tracking implementation of electronic Project Monitoring Information System (e-promis) to provide a non-stop information portal where information is easily and readily available is ongoing. Additionally, the County Monitoring and Evaluation System has been rolled out.</p>
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5.18 TARGET 18

- (a) Kenya's Contribution to the achievement of the Global target.

The Constitution of Kenya 2010, in Article 11 on culture²⁴¹, states that

"This Constitution recognizes culture as the foundation of the nation and as the cumulative civilization of the Kenyan people and nation.

The State shall—

- (d) promote all forms of national and cultural expression through literature, the arts, traditional celebrations, science, communication, information, mass media, publications, libraries and other cultural heritage,
- (e) recognize the role of science and indigenous technologies in the development of the nation; and
- (f) promote the intellectual property rights of the people of Kenya

In response, the Traditional knowledge and Traditional Cultural expression Act of 2016 was enacted²⁴². Under the Act, Kenya's 47 counties are also charged with protection of traditional knowledge from misuse and misappropriation, among other roles. These include county governments working with the national government to establish mechanisms to prevent misappropriation, misuse or unlawful access and exploitation of traditional knowledge and cultural expression without prior consent. The Act also states that county governments are supposed to work with institutions such as KIPi, the Kenya Copyright Board (KECOBO) and Kenya Plant Health Inspectorate Service (KEPHIS) in establishment and maintenance of a national repository for genetic resources, traditional knowledge and cultural expressions. The Ministry of Culture has established a task force to develop the roadmap for the implementation of the Act.

Before statutory intervention in 2016, Kenya had a National Policy on Traditional Knowledge, Genetic Resources and Traditional Cultural Expressions ("the Policy") in 2009 which was in various aspects the forerunner to the statutory law to be discussed shortly. The Policy was aimed at laying the ground for a national framework that recognizes, preserves, protects and promotes sustainable use of traditional knowledge as well as the mainstreaming of traditional knowledge systems in view of national development targets.

The Presidential Task Force on Parastatal Reforms (2013) proposed that three Intellectual Property Rights agencies namely: the Kenya Industrial Property Institute (KIPi) , The Kenya Copyright Board (KECOBO) and the Anti-Counterfeit Authority (ACA) be merged into one Government Owned Entity (GOE). The Task

²⁴¹ Kenya Constitution 2010. <http://kenyalaw.org:8181/exist/kenyalex/actview.xql?actid=Const2010>

²⁴² The Protection of Traditional Knowledge and Cultural Expressions Act 2016. http://kenyalaw.org/ki/fileadmin/pdfdownloads/Acts/ProtectionofTraditionalKnowledgeandCulturalExpressionsAct_No33of2016.pdf

Force proposed that the GOE be named Intellectual Property Office of Kenya (IPOK) and has drafted Intellectual Property Office Bill, 2020 for establishing IPOK.²⁴³

The Kenya Wildlife Service is working with communities and farmers in conservation and protection of genetic resources and traditional knowledge to ensure their sustainable utilization and proper benefit-sharing schemes especially where their commercial exploitation is involved²⁴⁴.

Other relevant policy and legal frameworks include the:

- The Community Land Act, WCMA 2013 recognition of conservancies. EMCA 2015- Access to bio-resources
- ST&I Science Technology and Innovation Act 2013- Provides for documentation of all traditional technologies of Kenya and ensures innovation encompasses IPLC PART 1:2d Recognition of TK as part of innovation
- County Governments have established community protocols for accessing traditional knowledge.
- National Museums and Heritage act part 1 Section 4b, c the Act defines Natural heritage
- Kenya's access and benefit sharing toolkit for genetic resources and associated traditional knowledge-2014

(b) Other activities at the Global level

N/A

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 26: Implementation of SDGs relevant to Aichi Target 18

SDG	Relevant Target and Indicators	Key Actions
Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture	<p>2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed</p> <p>2.5.1 Number of plant and animal genetic resources for food and agriculture secured in either medium or long-term conservation facilities</p> <p>2.5.2 Proportion of local breeds classified as being at risk, not-at-risk</p>	<p>The Kenya Industrial Property Institute established the Traditional Knowledge and Genetic Resources Unit. The functions are to develop a traditional knowledge database for Kenya, develop a simplified classification system of Kenya's traditional knowledge products and processes based on the hierarchical structure of the International Patent Classification, develop office guidelines on avoiding inappropriate intellectual property claims by placing the information in the public domain, ascertain the potential TK holders have as individuals or communities, and create awareness in local communities on the importance of traditional knowledge and genetic resources²⁴⁵.</p> <p>The Presidential Task Force on Parastatal Reforms (2013) proposed that three Intellectual Property Rights agencies namely: the Kenya Industrial Property Institute (KIPI) , The Kenya Copyright Board (KECOBO) and the Anti-Counterfeit Authority (ACA) be merged into one Government Owned Entity (GOE). The Task Force proposed that the GOE be named Intellectual Property Office of Kenya</p>

²⁴³ <https://www.kipi.go.ke/index.php/ipok-bill-2020>

²⁴⁴ Kenya Works With Communities On Genetic Resources And Traditional Knowledge Protection - Busia County Biodiversity Policy – Article by Justus Wanzala for the Intellectual Property Watch. 2017. <https://www.ip-watch.org/2017/02/15/kenya-works-communities-genetic-resources-traditional-knowledge-protection/>

²⁴⁵ <https://www.kipi.go.ke/index.php/traditional-knowledge>

	or at unknown level of risk of extinction	(IPOK) and has drafted Intellectual Property Office Bill, 2020 for establishing IPOK. ²⁴⁶ Under the Constitution 2010, Parliament shall enact legislation to— (c) ensure that communities receive compensation or royalties for the use of their cultures and cultural heritage; and (d) recognize and protect the ownership of indigenous seeds and plant varieties, their genetic and diverse characteristics and their use by the communities of Kenya.
Goal 5. Achieve gender equality and empower all women and girls	5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life 5.5.1 Proportion of seats held by women in national parliaments and local governments 5.5.2 Proportion of women in managerial positions	The Government has developed various Policies and Plans to reduce gender inequalities in all spheres. These include the National Land Policy, Kenya Health and Gender Equality policy 2015-2030, Education and Training sector Gender Policy 2015 and Kenya National Action Plan (2016) for the implementation of UNSCR 1325 on women peace and security. The Constitution specifically provides for equitable access to land, security of land rights and elimination of gender discrimination in law, customs and practices related to land and property among the principles of land policy. The Women Economic Empowerment Strategy 2019 has also been developed to provide a roadmap for the realization of sustainable socio-economic empowerment for women through better business services, access to finance, improvement of markets and technology and increasing productivity and competitiveness among women. The Government is also implementing Access to Government Procurement Opportunities Program.
Goal 10. Reduce inequality within and among countries	10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average 10.1.1 Growth rates of household expenditure or income per capita among the bottom 40 per cent of the population and the total population	The government has established institutions championing and safeguarding youth and vulnerable groups' rights like the National Youth Council, Anti-FGM board, National Council for Persons With Disabilities, Women Enterprise Fund, Youth Enterprise Development Fund, National Government Affirmative Action Fund, National Government- Constituency Development Fund, UWEZO Fund, National Youth Services Capacity Building Initiatives and the Kenya Youth Employment and Opportunities Project (KYEOP) which is a successor of the pilot Kenya Youth Empowerment Project (KYEOP), and Hunger and Safety Net Programme among others.
	10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status 10.2.1 Proportion of people living below 50 per cent of median income, by age, sex and persons with disabilities	In addressing the plight of the less disadvantaged in society, combat poverty, and promote equity; these Programmes aim at increasing access to capital for enterprise development, developing employability skills and increasing representation and participation of the youth, women, PWDs and the vulnerable groups in governance. The Affirmative Funds: Uwezo Fund, Women Enterprise Fund and Youth Enterprise Development Fund, have availed over 25 billion to nearly 3 million youth, women and PWDs.

²⁴⁶ <https://www.kipi.go.ke/index.php/ipok-bill-2020>

5.19 TARGET 19

(a) Kenya's Contribution to the achievement of the Global target.

The integration of Science, Technology and Innovation (ST&I) in national productive processes was considered central to the success of the government's policy priorities and Programmes outlined in Kenya Vision 2030. The capabilities of STI were, therefore, considered critical in ensuring sustainable development with natural resource management and disasters. Further, STI capabilities are to promote sustainable development, especially through social integration, conservation and sustainable management of biodiversity; sharing opportunities and benefits of a knowledge-based society and economy and strengthening local and indigenous knowledge and culture.²⁴⁷

The Natural Product Initiative was prioritized as one of the flagship projects of the Vision 2030 which aims to create an interface between indigenous knowledge and Science, Technology, Innovation and business expertise; spurring home-grown innovation culture and promote quality production and growth while developing Kenyan unique products that meet national and international standards. Under the MTP II, the National Council for Science, Technology and Innovation (NACOSTI) supported the creation of enabling policy, legal, regulatory and institutional framework to ensure formal recognition and anchoring of natural products in the mainstream economy. Key success factors include harnessing of indigenous knowledge and related genetic resources; creation of a comprehensive inventory of ethno-botanical resources and building capacity for product discovery, improvement, development and commercialization capability with Government support and participation of private sector and individuals.

For policy reform under MTP III 2018-2022, proposals include development of the Natural Products Policy; National Intellectual Property Policy; National Innovation Policy; Indigenous knowledge and Technology Policy. The following bills will be reviewed and enacted: The Biosciences Bill; Kenya Institute of Nanotechnology Legal Framework; and Natural Products Bill.

On information sharing and management, there has been a concerted effort through various entities such as the project funded by the JRS Biodiversity Foundation on the development of Kenya's Biodiversity Atlas²⁴⁸, an open access platform for hosting and supporting biodiversity data²⁴⁹. Other efforts were made through the Global Biodiversity Information Facility (GBIF) Biodiversity Information for Development (BID) Programme with the aim of increasing the amount of biodiversity data available about a country so as to respond to national priorities; and the Intergovernmental Authority on Development's (IGAD) Biodiversity Management Programme (BMP)²⁵⁰, whose main objective was to establish biodiversity databases, build technical capacity and digitise biodiversity collections so as to generate a map of biodiversity and other key information products for the IGAD Region²⁵¹. Kenya published 389,349 new occurrence records during 2019 out of a total of 305,637,165 occurrence records added globally to GBIF. The National Museums of Kenya, Kenya Wildlife Service and other institutions have published datasets with GBIF and a total of 31 articles since 2008²⁵². There are specific data mobilization projects such as for butterflies²⁵³. Another project was

²⁴⁷ GOK 2018. The Presidency – Marking Ten Years of Progress of Vision 2030 - 2008-2018. <http://vision2030.go.ke/inc/uploads/2018/09/Kenya-Vision-2030-Sector-Progress-Project-Updates-June-2018.pdf>

²⁴⁸ Biodiversity Atlas of Kenya Portal. <http://biodiversityatlaskenya.org/>

²⁴⁹ <https://jrdbiodiversity.org/grants/african-conservation-centre-2018/>

²⁵⁰ <https://iqad.int/executive-secretary/1806-igad-closes-its-biodiversity-management-Programme>

²⁵¹ Monda, Lawrence. "Biodiversity Data Management: Regional challenges." *Biodiversity Information Science and Standards*, 2019. Accessed 28 May 2020. <https://go.gale.com/ps/anonymou?id=GALE%7CA613229834&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=25350897&p=AONE&sw=w>

²⁵² GBIF Kenya Country Activity Report. 28-5-2020. https://www.gbif.org/sites/default/files/gbif_analytics/country/KE/GBIF_CountryReport_KE.pdf

²⁵³ Kioko E, Musyoki A, Luanga A, Sese J, Nyangena L (2018): Occurrence of Skipper butterflies (Lepidoptera:Hesperiidae) in Invertebrate Zoology Collection at National Museums of Kenya. v1.5. National Museums of Kenya. Dataset/Occurrence. <http://ipt.museums.or.ke/ipt/resource?r=hesperidaenmk&v=1.5>

(b) Other activities at the Global level

Kenya is participating in various GBIF projects:

- GBIF Africa Nodes data mobilization, ecological niche modelling and data paper training and mentorship Capacity Enhancement Support Programme, 2015–2016 This project is centred on providing practical training on ecological niche modelling and the preparation of data papers to participants from up to 10 nodes in Africa using real datasets for threatened or invasive species to be published to the GBIF network. <https://www.gbif.org/project/82204>
- Kenya's other carnivores: harnessing biodiversity data for conservation BID: Biodiversity Information for Development, 2016–2017 This project mobilizes existing biodiversity data for 31 species of Kenya's small carnivores to develop a national strategy for their conservation. <https://www.gbif.org/project/82779>
- Mobilizing data on freshwater snails in Kenya BID: Biodiversity Information for Development, 2016–2017 This project is mining and will publish records of freshwater snails from existing voucher collections of the National Museums of Kenya and other research institutions. <https://www.gbif.org/project/82725>
- Mobilizing biodiversity information from the Kenya Wildlife Service BID: Biodiversity Information for Development, 2016–2018 This project organizes biodiversity data collected in Kenya's protected areas since the 1950's. <https://www.gbif.org/project/82706>
- Prioritizing conservation management in an East African forest landscape BID: Biodiversity Information for Development, 2017–2019 A Rocha Kenya, the National Museum of Kenya (NMK), Kenya Wildlife Service (KWS), Animal Demography Unit of University of Cape Town (ADU), and the Arabuko- Sokoke Forest Guides Association (ASFGA) will access, assess, digitize, engage and improve the data for birds, mammals, invertebrates, reptiles and higher plants in order to inform the management of important, unique and threatened forest ecosystem. <https://www.gbif.org/project/7EOzw96rgAoSKKUgYaoaCe>

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 27: Implementation of SDGs relevant to Aichi Target 19

SDG	Relevant targets and indicators	Key Actions
Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development	17.6 Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge-sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism 17.6.1 Number of science and/or technology cooperation agreements and Programmes between countries, by type of cooperation 17.6.2 Fixed Internet broadband subscriptions per 100 inhabitants, by speed	
	17.7 Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed 17.7.1 Total amount of approved funding for developing countries to	Under MTP I, The STI sector made the following achievements: <ul style="list-style-type: none"> ○ The establishment of the National Biosafety Authority in 2009, ○ The National Science, Technology and Innovation Fund, ○ an Award Scheme for recognition of outstanding scientists in Kenya.

	promote the development, transfer, dissemination and diffusion of environmentally sound technologies	Under MTP II, the following achievements were made: <ul style="list-style-type: none"> o Draft STI and Information Bill was finalized, o The Research fund was established under the National Council for Science and Technology.
	<p>17.18 By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts</p> <p>17.18.1 Proportion of sustainable development indicators produced at the national level with full disaggregation when relevant to the target, in accordance with the Fundamental Principles of Official Statistics</p> <p>17.18.2 Number of countries that have national statistical legislation that complies with the Fundamental Principles of Official Statistics</p>	<p>In order to ensure quality and adequate data on SDGs, the policy priority of the Kenya Government is to strengthen the National Statistical System to support planning and monitoring and evaluation of government policies and Programmes. The Kenya National Bureau of Statistics (KNBS) is therefore, expected to generate official statistics that are comprehensive, reliable, timely and disaggregated up to the sub national level. Towards this end, the Bureau has established offices in each of the 47 counties to coordinate statistical capacity building Programmes at the sub national level and ensure that international standards are applied in the production and dissemination of county statistics</p> <p>The rolling out of the National Integrated Monitoring and Evaluation System (NIMES) and fast-tracking implementation of electronic Project Monitoring Information System (e-promis) to provide a non-stop information portal where information is easily and readily available is ongoing. Additionally, the County Monitoring and Evaluation System has been rolled out.</p>

5.20 TARGET 20

(a) Kenya's Contribution to the achievement of the Global target.

The National Treasury and Planning through the State Department for Planning in partnership with development partners and stakeholders, produces a Comprehensive Public Expenditure Review (CPEP) report on a three-year period that is well researched to replace the annual public expenditure review. The second Comprehensive Public Expenditure Review (CPEP) 2017²⁵⁴ presented a comprehensive analysis of public expenditure during the first three years of devolution thereby linking expenditure to achievements while taking cognizance of cost of achieving the results. The CPEP also assesses the extent to which expenditure addresses national and county level priorities in order to strengthen the link between policies, planning and budgeting. Consequently, it informs current and future expenditure and budget decisions and

²⁵⁴ Republic of Kenya. THE NATIONAL TREASURY AND PLANNING STATE DEPARTMENT FOR PLANNING MONITORING AND EVALUATION DEPARTMENT. 2017. Comprehensive Public Expenditure review. From Evidence to Policy. <https://planning.go.ke/wp-content/uploads/2018/12/CPEP-2017.pdf>

is also a key input in the MTEF budget cycle. The CPER included an in-depth sectoral analysis for health, agriculture, infrastructure and energy sectors.

Kenya's first Climate Public and Budget Review processes has provided some critical lessons, experiences, findings on the budgeting and expenditure frameworks, and where more opportunities for climate mainstreaming exist. In defining climate finance for Kenya's landscape, the CPEBR has evolved three key climate finance concepts, which are summarized as Climate Relevant Expenditure (CRE) and include: i) Climate Change Adaptation (CCA) ii) Climate Change Mitigation (CCM) and iii) Climate Change Enabling Environment (CCEE) - Between 2011 and 2014, the country spent approximately 52.768 Billion (USD 527.680 Million) as Climate Relevant Expenditure in only three MTEF Sectors: Agriculture, Rural and Urban Development (ARUD); Energy, Infrastructure and ICT (EII); and, Environment Protection, Water and Natural Resources (EPW). This is equivalent to about 8% of the total external funds (Ksh 650 Billion) invested in the entire budget during the same period.

The CPEBR process has also helped generate a new Segment 8, within the IFMIS SCOA which will be enhanced as a sustainable mechanism to track climate relevant expenditure. The National Treasury will continue improving the IFMIS system, to ensure climate change is effectively mainstreamed. The County Governments are working on developing their County Climate Change Fund model legislation to offer counties an opportunity to finance their own Climate change budget.

A Biodiversity Public Expenditure and Budget Review is recommended to monitor and achieve this target.

Kenya has a structured coordination and dialogue platform with her partners for discussing national development priorities which includes development partners, private sector, civil society organizations and the philanthropists. Through the multi-stakeholder dialogue forums, all stakeholders are encouraged align their support to the Country's Medium-Term Plans, with the current one having integrated the SDGs. Kenya now has a vibrant philanthropic organizations platform, the Kenya Philanthropy Forum, which has brought together over 40 philanthropic organizations with the objective of bringing coherence and championing alignment to the national development priorities and providing support towards the implementation of the Sustainable Development Goals. Civil Society Organizations are also being encouraged to align the resources they receive to the national development agenda.

(b) Other activities at the Global level

N/A

(c) Contribution to the implementation of the Agenda 2030 for SD and achievement of the SDGs.

Table 28: Implementation of SDGs relevant to Aichi Target 20

SDGs	Relevant Targets and Indicators	Key actions
Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development	17.3 Mobilize additional financial resources for developing countries from multiple sources 17.3.1 Foreign direct investments (FDI), official development assistance and South-South Cooperation as a proportion of total domestic budget 17.3.2 Volume of remittances (in United States dollars) as a proportion of total GDP	Having been classified as Lower Middle-Income Country in 2014, loans to Kenya are becoming increasingly expensive. In the recent past, there has been concessionality reducing with the grant element percentage reducing, implying more expensive ODA loans. This has led the Government to consider exploring other sources of financing apart from ODA. In this regard, more public private forms of financing are being encouraged and considered. Total government revenue as a proportion of GDP, by source increased from 18.9 per cent in 2016 to 21.2 per cent in 2018. Proportion of domestic budget funded by domestic taxes decreased from 55.9 per cent in 2016 to 53.5 per cent in 2018. Volume of remittances (in United States dollars) as a proportion of total GDP increased from 2.52 in 2016 to 3.09 in 2018. Debt service as a proportion of exports of goods and services rose from 7.8 per cent to 20 per cent in 2018. Kenya's share of exports increased from Kshs. 578 billion in

		2016 to Kshs. 612 billion in 2018. Debt service on external debt, total (% exports and primary income) increased from 7.8% in 2016 to 18% in 2018.

6 SECTION V: DESCRIPTION OF THE NATIONAL CONTRIBUTION TO THE ACHIEVEMENT OF THE TARGETS OF THE GLOBAL STRATEGY FOR PLANT CONSERVATION (COMPLETION OF THIS SECTION IS OPTIONAL)

V. Description of the national contribution to the achievement of the targets of the Global Strategy for Plant Conservation

Kenya has not established national targets but is implementing actions that contribute to the achievement of global targets.

Yes. Please provide details on the specific targets below:

- i. The country has undertaken commitments as reflected in the National Forest Programme 2016-2030 particularly under Strategy 8.3 on Natural Forest Management and Conservation Cluster. For purpose of conservation of biodiversity and provision of ecosystem services, no extractive utilization is permitted in all natural forests, also underpinned by the constitution 2010 (Article 69). Importantly, protection of sensitive habitats and threatened plants against loss including private lands is anchored in the National Environment and Management Authority Act, 1999, review in 2015
- ii. The East African Herbarium of the National Museums of Kenya is designated as the national repository for all plant-based collection preservation, which are key in establishing the floristic diversity and populations trends. The plant collection database informs species conservation status as well as environmental education to schools and colleges as well as the general public. Furthermore, the Kenya Forest Research Institute (KEFRI) also has various Programmes aiming at plant diversity conservation, restoration and habitat restoration (<http://eaherbarium.museums.or.ke/>) (<https://www.kefri.org/BEM.php>)

No, there are no related national targets.

The IUCN /SSC Eastern Africa Plant Red List Authority (EAPRLA) is active in the region, including in Kenya. The EA herbarium actively participates in both the EAPRLA and) the Kenyan Chapter of the Society for Economic Botany. (<http://oldsite.econbot.org/chapters/Kenya.html>) Programmes.

The Botanic Gardens Conservation International (BGCI), the global botanic garden network, has established an office in Nairobi, Kenya. EAPRLA occasionally organises training workshops in plant conservation and conducts red-listing sessions; BGCI has delivers training courses to botanic gardens with the aim to improve networking between botanic gardens in Kenya. SEB organises annual workshops to create awareness of economic uses of plants and conservation approaches.

Please describe the major measures taken by your country for the implementation of the Global Strategy for Plant Conservation. (Parties can report on actions taken to implement these targets if they are not covered in sections II, III or IV.)

The National Museums of Kenya, through the East African herbarium and Nairobi Botanic Gardens, has over the years continued to document and update the national flora diversity and assessment of plant species for conservation of the threatened taxa.

It has also developed education and plant conservation awareness for the schools and universities as well as local communities to impart the knowledge on the importance and threats facing plants. For example, every year over 6000 students from primary and tertiary institutions visit the Nairobi BG for environmental awareness. In the period, germplasm of over 800 plant species was collected and seeds banked for posterity in national and global gene banks (Millennium seed bank in the UK). Also working closely with other national botanic gardens and Kenya Forest Service as well as BGCI supports ex situ conservation of the threatened flora in situ and provides technical skills towards establishment of satellite gardens managed by other institutions and community members. Some of the recently established botanic gardens include JKUAT (medicinal and rare or endangered plants), Masai Mara University, Mt Kenya University and Marimanti BG (for dryland plant species), among others.

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Progress towards target at national level but at an insufficient rate.

Kenya, like the rest of the East African region, has one of the most comprehensive flora on the continent, which was completed in 2012 after 60 years of intensive revisions based on herbarium collection data (https://en.wikipedia.org/wiki/Flora_of_Tropical_East_Africa; <https://phytokeys.pensoft.net/article/20531/>).

The flora diversity and databases provide good basis for species conservation by providing actual species distribution and ecological requirement. For example, the species conservation assessments have been enhanced and red-listed species currently over 400 and 270 uploaded to the IUCN website used to strengthen protection of various forests.

However, there are still major gaps in plant species collection as the earlier field explorations were based on accessibility and forests of economic or ecological interest. Specimen databases are also incomplete, and only 20 to 30 % complete. Species mapping and therefore conservation status through assessments becomes a challenge.

There have been efforts to expand protected areas through gazettelement of forest areas as well as creation of community-conserved areas such as the community wildlife conservancies directly responding to Targets 4, 5 and 7. Despite the efforts to put more areas of conservation importance under protected status, the area coverage of protected areas is still inadequate and not adequately connected. We still have threatened species and ecosystems outside protected areas and face increasing challenges of survival of the species in the near future due to constant anthropogenic pressures. The legislative framework in place currently (Forest Conservation & Management Act 2016 and Wildlife Conservation & Management Act 2013) has placed greater protection of protected areas against de-gazettelement. This has ensured that there is no hiving of land from the gazetted areas for private or other use.

GSPC Target 1: An online flora of all known plants

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description.

Kenya through the NMK's East African herbarium has been involved in discovery and description of the plant diversity for over 100 years. Species descriptions and taxonomic review have been used to compile the Flora of Tropical East Africa (completed in 2012), which is among the first attempt to complete species description in the tropics. (https://en.wikipedia.org/wiki/Flora_of_Tropical_East_Africa).

The FTEA describes over 7000 species occurring in Kenya and provides a major platform for further species discovery, their distribution and habitats as well as conservation indicators. For example, flora species diversity in the country in 2015 and 2016 (established not only key Important Plant Areas, but also field collection gaps.

(https://www.researchgate.net/publication/312046077_Kenya's_Natural_Capital_A_Biodiversity_Atlas)

Attempts are in place to upload the FTEA publications online as well as the ongoing review of the Flora of Kenya. Also, more than 25% (325000) of the 1.2. Million plant collections at EA has been digitized, with all the type specimens (3685 from EA herbarium) available in JSTOR platform supported through African Plants Initiative (<https://about.jstor.org/whats-in-jstor/primary-sources/global-plants/>)

Other earlier or ongoing database initiatives includes i) The Visual Plants on -Line database c. 2002-2007 (www.visualplants.de), ii) The Intergovernmental Authority on Development funded the Digitization of the East African Herbarium collections of plants of the IGAD member states (2017 – 2018), and so far some

14000 images and associated data digitized and can be accessed (www.museums.or.ke/east-african-herbarium/).

Currently, the NMK's EA herbarium is in collaboration with China to continue plant species exploration and description, and publication of the flora in both printed publications and online platform through the Flora of Kenya Programme. The FoK has collected large numbers of field and herbarium images that will ultimately be on-line, but this is a work in progress. (http://africa.chinadaily.com.cn/weekly/2017-06/09/content_29682826.htm)

GSPC Target 2: An assessment of the conservation status of all known plant species, as far as possible, to guide conservation action

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description.

There are >1,300 plants of the more than 7000 vascular plant species occurring in Kenya with Red List assessments published on the IUCN Red List, 280 of which are threatened with extinction. Plant red listing efforts in the country are led by the IUCN / SSC Eastern Africa Plant Red List Authority (EAPRLA). The EAPRLA organises species conservation assessment workshops once or twice every year since 2006. Efforts to ensure that these are published on the IUCN Red List are ongoing, with the aim of having all assessments carried out by EAPRLA published online by the end of 2020.

A joint workshop between EAPRLA and the IUCN / SSC Global Tree Specialist Group was carried out in 2018 as part of the Global Tree Assessment, to ensure conservation assessments were in place for all endemic Kenyan tree species. Tree red List assessments are currently being used for conservation planning, using the Assess2Plan approach.

There is a new initiative, with support from the South African National Biodiversity Institute (SANBI), to produce a National Red List for Kenya, including plants, but funding has not yet been raised.

The IUCN data of the red listed species has become the standard for supporting biodiversity impact assessments within or outside protected areas. Major development projects in Kenya where EIA's actively utilized IUCN data includes oil exploration in Turkana basin and Lamu county titanium mining at Kwale county among others. These ensures restoration of the threatened species in case of the developmental impact

GSPC Target 3: Information, research and associated outputs, and methods necessary to implement the Strategy developed and shared (NMK/EA)

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description.

As demonstrated in Target 1 and 2 above, the country's plant flora is relatively well described and over 25 % of the EA herbarium specimens databased, with most of the achievements realized in the last 20 to 30 years. However, the flora is based on old collections due paucity of resources, inadequate taxonomic skills and infrastructure challenges. Major gaps still exist in terms of species exploration and description where species population trends are hardly known

The above notwithstanding, over 25 species described in the last five years-2015-2020 and digitize all the herbarium specimens to support taxonomy, education and conservation. (see(State of Environment report, NEMA 2018) At the same time, conservation Programmes have supported *in situ* (forests) and *ex situ* conservation (botanic gardens and seed banks) of the threatened flora through collection and long-term banking of orthodox seeds as well as propagation to re-introduce propagules to suitable or depleted habitats. Some of the species restored include *Gigasiphon macrosiphon* and *Euphorbia tanaensis*. Also, many succulents (e.g. aloes and orchids) have been conserved.

Importantly, technology innovations have been established by establishing plant species propagation protocols and creating awareness for restoration, domestication and sustainable utilization. Case studies include aloes.

GSPC Target 4: At least 15 per cent of each ecological region or vegetation type secured through effective management and/or restoration (KFS/ SECTION IV)

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description.

Kenya's key forest or vegetation types include mangroves, coastal forests, *Acacia-Commiphora* woodlands, *Combretum* wooded grasslands and evergreen grasslands, Afromontane forests and lowland rain forests. At least protected forests are distributed in all these vegetation-ecological zones and that wetlands/riparian ecosystems protected against exploitation. The Protected areas cover >17% of the land area which offer maximum protection to ecologically important areas. Furthermore, increasingly more area has been placed under some form of protection such as the "Community-Conserved Areas" such as the community wildlife conservancies. Good cases include formation of conservancies in Laikipia and Samburu counties. However, forests in lowland rainforests such as Kakamega may have less than 15% of the potential vegetation type.

GSPC Target 5: At least 75 per cent of the most important areas for plant diversity of each ecological region protected with effective management in place for conserving plants and their genetic diversity (KFS/ SECTION IV)

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description.

Although official Important Plant Areas for Kenya are still not very clear, recent analysis of the Kenya's Natural Capital established various plant diversity hotspots including coastal forests, afromontane regions, mid-altitude/inselbergs and hilltops as major plant areas. Approximately, 45 % of these areas are within protected areas. Majority of Kenya's pprotected forests are located in areas of high plant diversity that have proper management systems in place. According to the legislative instruments (Forest Conservation and Management Act 2016, Wildlife Conservation and Management Ac 2013) all protected areas must have a management plan to guide activities. The protected areas cover some of the key centres of plant diversity such as the Mt. Kenya Forest Reserve/Mt. Kenya National Park, Kakamega forest reserve/Kakamega national park, Arabuko Sokoke forest, the Kaya forests, Mt. Marsabit forest reserve, Boni forest reserve and several others.

Areas outside protected areas are facing degradation pressure, but some protection is ensured through awareness of community conservation groups as well as county government environment Programmes as envisaged in constitution 2010, article 69.

GSPC Target 6: At least 75 per cent of production lands in each sector managed sustainably, consistent with the conservation of plant diversity

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description. (KFS/ CBD Aichi target 7 SECTION IV)

The gazetted forest reserves cover >2.59 million hectares out of which 135,000ha are used for production of timber as exotic plantations which constitutes ≈5.2%. The country thus dedicates the natural forests for conservation. In addition, the KFS has been working closely with the County Governments that are now responsible for providing forest extension services to ensure that farm forestry is promoted to ensure that

farmers maintain tree/plant cover on their farms as well as creating awareness on the requirement (10% tree cover) of the Farm Forestry rules of 2009.

GSPC Target 7: At least 75 per cent of known threatened plant species conserved *in situ* (NMK/BGCI/KFS/KEFRI)

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description.

A National Key Biodiversity Area committee has been established recently in Kenya and largely will review existing approaches to standardise them in accepting other biodiversity initially not recognised in the existing 67 Important Bird Areas (https://issuu.com/nature_kenya/docs/2017_iba_report_final).

Furthermore, all threatened plant species are conserved through the policy of no extractive utilization of natural forests. In addition, there have been active protection of species such as the East African Sandalwood through patrols and also encouraging community members to conserve and propagate on their farms. Unfortunately, a good number of threatened species occur outside protected areas (estimated up to 60 %) and continue to face increasing anthropogenic related pressures in the face of climate change

(https://www.researchgate.net/publication/312046077_Kenya's_Natural_Capital_A_Biodiversity_Atlas). Some of the threatened species (estimated 55 %) have some populations in protected areas, but a number of their distribution outside protected areas. Efforts have been made to strengthen protection of protected high biodiversity distribution zones such as coastal forests and eastern Afromontane of Cherangani hills, Kakamega and Nandi hills forest. These has been achieved through collaboration of national government agencies in collaboration with civil society and local communities. (<http://blog.arocho.or.ke/communities-conservation/dakatcha-woodland-our-forest-our-future/>, <https://naturekenya.org/2017/04/28/dakatcha-woodland-iba-in-focus/>, https://www.ke.undp.org/content/kenya/en/home/operations/projects/environment_and_energy/Montane-forest.html).

GSPC Target 8: At least 75 per cent of threatened plant species in *ex situ* collections, preferably in the country of origin, and at least 20 per cent available for recovery and restoration Programmes

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description.

Botanic gardens in Kenya hold living plant collections of native and threatened Kenyan plant species. Over the period, several botanic gardens were established including Marimanti drylands (Tharaka Nithi County),

Jomo Kenyatta University of Science and Technology (37 ha for medicinal plants and endangered species, <http://www.jkuat.ac.ke/botanical-garden/>), Masai Mara University, Mt Kenya University, National Museums of Kenya's restoration of Kitale BG (20 ha), rehabilitation of Muliro Gardens in Kakamega, Mazeras BG restored by County Government in Kilifi. This is besides the other existing botanic gardens

Current efforts to add Kenyan assessments to the IUCN Red List of Species will enable a better measure of the number and percentage of threatened Kenyan species that are held in *ex situ* collections. About 460 plant species are threatened in Kenya, where 270 are in the IUCN Red List and 65 (23%) reported as represented in *ex situ* collections globally, according to BGCI's PlantSearch database.

In addition, Brackenhurst Botanic Garden is a member of the Ecological Restoration Alliance of Botanic Gardens. This garden is situated just outside of Nairobi and has established >20ha of restored indigenous forest, incorporating threatened species into restoration plots and plantings on the compound.

Various restoration and rehabilitation effort in the country targeted threatened species. Some of these include Mau forest complex, Gongoni forest and Diani by KFS and Base Titanium site near Diani, Nairobi City Park, Karura forest (<http://www.friendsofkarura.org/karuraforestbiodiversity/>)

Taita Hills forests by NMK, Nature Kenya, KEFRI

(http://www.easternarc.or.tz/groups/webcontent/documents/pdf/CEPF_Ghent_Taita_Hills_final_report.pdf) among others.

GSPC Target 9: 70 per cent of the genetic diversity of crops including their wild relatives and other socio-economically valuable plant species conserved, while respecting, preserving and maintaining associated indigenous and local knowledge

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description.

This has been covered extensively by KALRO-GERRI in SECTION IV /CBD AICHI TARGET 13.

GSPC Target 10: Effective management plans in place to prevent new biological invasions and to manage important areas for plant diversity that are invaded (KFS/ KWS/NMK-SECTION IV, CBD AICHI TARGET 9)

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description.

Every protected area has a management plan (5-year period) as required by law that provides guidance to management activities including invasive species management (Also refer to CBD's Aichi Target 9). Major alien invasive species include *Cuscuta campestris* (field dodder), *Eichhornia crassipes* (water hyacinth), *Prosopis juliflora*, among others, as well as encroachers. Also, importation of any plant material to the country requires a permit from the Kenya Plant health inspectorate Service (KEPHIS), and if for cultivation Environmental Impact Assessments are undertaken for certification (e.g. introduction of *Brachiaria* grass varieties from Brazil <https://www.farmlinkkenya.com/brachiariawondermulato-grass-production-guide/>).

Specific departments in KWS and KFS have been established to map, monitor and where necessary control invasive species (e.g. a number of national parks such as L. Nakuru and Tsavo National Park). Importantly the list of national Alien Invasive Species has been developed and monitoring policy developed

GSPC Target 11: No species of wild flora endangered by international trade (NMK/KWS/KFS)

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description.

The Wildlife Conservation and Management Act, 2013 provides that all wildlife in the country is generally protected and any access and use is subject to a permit issuance. Trade in specimens of plants is therefore regulated through Permits. Species that are endangered and are provided international protection through international instruments such as CITES are therefore traded under CITES Permits. Non-CITES listed species are traded using National (Non-CITES) Permits (<http://www.kws.go.ke/content/cites-implementation-department>).

As such, at all border points, the government has a team comprised of all regulatory agencies to manage movement of products. In this team are Kenya Forest Service, Kenya Wildlife Service, Kenya Plant Health Inspectorate Service, Custom Department, Police and others.

To enhance accurate identification of plant species especially those regularly traded the two CITES Authorities for the country-KFS, NMK, and KWS through local and international partnerships and collaborations continue to deploy DNA technology as a modern tool for species identification thus enhancing species trade controls

(https://sites.nationalacademies.org/cs/groups/pgasite/documents/webpage/pga_188570.pdf;
https://sites.nationalacademies.org/cs/groups/pgasite/documents/webpage/pga_188570.pdf).

Use of DNA Barcode help in identification of some plant species which are traded in powder form and otherwise concealed as plants which are not listed in CITES. This has been very useful in dealing with trade in the East African Sandalwood (*Osyris lanceolata*) and Rosewood (*Dalbergia sp*) among others.

Undertaking Non-Detriment Finding studies on the internationally traded plant species occurring in the country is considered a critical step in determining the acceptable levels of harvesting (including harvesting quota setting) to inform decision on granting trade approvals and permits for plant specimens. Also, the method is used to evaluate conservation status of a traded species and where thresholds are overstretched a species is presented for protection under CITES during the COP meeting. An example is *Osyris lanceolata* which was successfully listed under appendix II during CoP 16 and adopted in CoP 17 (<https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-65.pdf>).

Currently data gathering ongoing to assess possibility of enlisting the frankincense *Commiphora* and *Boswellia* species under CITES due to observed over-exploitation for trade against continued population declines (<https://cites.org/eng/com/pc/25/index.php>).

Another case involved listing of all *Dalbergia* species as the main species *D. melanoxylon* was highly traded but concealed as other *Dalbergia* species. As a Party to the CITES Convention, Kenya regularly provides national reporting on trade in CITES listed species. A national database is maintained on all trade permits issued on both CITES listed and NON-CITES listed plant species.

GSPC Target 12: All wild harvested plant-based products sourced sustainably

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description:

Offering training on sustainable harvesting of plants especially to herbal medical practitioners as well as domestication of such plants.

GSPC Target 13: Indigenous and local knowledge innovations and practices associated with plant resources, maintained or increased, as appropriate, to support customary use, sustainable livelihoods, local food security and health care

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description.

Refer to section on CBD's Aichi target 13.

The use of Indigenous knowledge has been recognized not only in species discovery and species conservation, but also as a resource in leveraging sustainable utilization of these vulnerable resources to promote climate smart indigenous crops in support of people's nutrition or food security and primary health care. Through EA herbarium (Economic Botany) and KENRIK, the NMK continue to document traditional uses of plants and promote sustainable utilization and technology transfer. KENRIK has advanced documentation of useful vegetables and mapping of useful food sources of plants at the coastal counties

These is achieved through documentation of IK and plant in use, demonstration of identification and conservation technologies including establishing herbal gardens involving schools and community

associations. Also to promote nature based -enterprise using plants, the NMK has established a national flagship project on natural products (<http://www.vision2030.go.ke/projects/?pj=224>) and continue to partner with The Trust for Indigenous Culture and Health (TICAH) to create awareness of use and conservation of medicinal plants (<http://ticahealth.org/>) TICAH supported establishment of a medicinal mini garden at the NMK.

Legal frameworks established over the period and with potential to promote IK and sustainable natural resource utilization includes the following laws and policies:

- i. **Association of Traditional Healers** registered under the Social Services department. However, the **Kenyan Health Act, 2017**, fails to integrate traditional medicine (<https://www.theelephant.info/features/2018/12/28/doctors-without-orders-why-kenya-should-give-traditional-medicine-and-healers-a-chance/>)
- ii. **The Protection of Traditional Knowledge and Cultural Expressions Act no 33 of 2016**, which seeks to enable communities to control the use of culturally significant and economically valuable knowledge and expressions. http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/ProtectionofTraditionalKnowledgeandCulturalExpressionsAct_No33of2016.pdf
- iii. Effort to curb loss of traditional Knowledge as the driving force behind many ethnobotanical and culture-related projects carried out both at the research and higher learning institutions
- iv. The promotion of herbal garden establishment in every devolved unit coordinated through the Council of Governors office in Kenya.

Past and ongoing work on documentation and promotion of indigenous foods and medicinal plants at Kenya Resource Centre for Indigenous Knowledge KENRIK, National Museums of Kenya e.g. Project on Indigenous Foods by KENRIK: Indigenous Leafy Vegetables Programme ; The Reload Project : Documentation of Indigenous meat Preservation amongst the Borana Marsabit County; & National Research Fund (NRF) Supported Cancer Project Cancer Palliative Care by Traditional Health Practitioners (THPS)

Vision 2030: THIRD MTP (2018 -2022)

- Economic pillar: Programmes and Projects: Traditional High Value Crops Programme in ASALs
Traditional High Value Crops Programme: This Programme aims at improving farmers' access to quality seeds and planting materials of drought tolerant traditional high value crops in the ASALs. This will be done through upscaling seed bulking and distribution in identified institutions and farmer groups. The Sector targets to provide 672 MT of high value crop seeds.
- Social Pillar: Natural; Products Industry Initiative (NPI) Indigenous Knowledge and Associated Natural Product Industry (NPI) Initiative: The Programme seeks to add value to our indigenous knowledge and associated technologies through scientific validation and business expertise to generate locally derived products. Products under this initiative include nutritional, personal care, household care, pharmaceuticals, organic fertilizers and ethno-veterinary.

GSPC Target 14: The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness Programmes

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description.

GSPC Target 15: The number of trained people working with appropriate facilities in plant conservation increased, according to national needs, to achieve the targets of this strategy

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description.

Kenyan institutions including the Kenya Forestry Research Institute (KEFRI), the National Museums of Kenya (NMK), Kenya Forest Service (KFS), TICHA, African Forest, Brackenhurst Botanic Garden, and Kivukoni Indigenous Tree Nursery have delivered training courses in partnership with Botanic Gardens Conservation International (BGCI) including on seed collection, botanic garden management and forest restoration.

Over 70 percent of the 31 public and 9 private universities in Kenya universities as well as many technical colleges they offer biological related courses including plant sciences and environment. All the biology students estimated to be more than 5000 annually undergoes a mandatory attachment in research institutions. The government has also introduced internships for new graduates in various research institutions to advance botanical knowledge.

**GSPC Target 16: Institutions, networks and partnerships for plant conservation established or strengthened at national, regional and international levels to achieve the targets of this Strategy
NBG/BGCI**

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description.

Botanic Gardens Conservation International (BGCI), the global botanic garden network, has an office in Nairobi, Kenya. BGCI has conducted training courses for botanic gardens in Kenya with the aim to build capacity and improving networking among the country's botanic gardens. Representatives from botanic gardens across East Africa have been invited to workshops in Kenya, and representatives from botanic gardens in Kenya have helped deliver training during workshops in Uganda and Tanzania. Although a formal country or regional-level network is not in place, connections between botanic gardens in the region have improved.

Nature Kenya's various biodiversity committees consists of Plant Committee, Seasonal wetland biodiversity in Nairobi (Nairobi national Park) and Succulenta are involved in training young botanists through plant walks and species monitoring (<http://naturekenya.org/about/plants-committee/>). The IUCN /SSC Eastern Africa Plant Red List Authority (EAPRLA) is actively carrying out conservation assessments for plants in the region, including in Kenya. BGCI is working with the South African National Biodiversity Institute (SANBI) and Jardins Botaniques de France et des Pays Francophones (JBF) to revive the African Botanic Garden Network to facilitate connections with botanic gardens across Africa.

7 SECTION VI. ADDITIONAL INFORMATION ON THE CONTRIBUTION OF INDIGENOUS PEOPLES AND LOCAL COMMUNITIES (COMPLETION OF THIS SECTION IS OPTIONAL)

- i. Indigenous Peoples and local communities (IPLCs) have been having different activities in their different levels to reach out among themselves in the awareness of Biodiversity and a number of communities have increased in working collaboration. Trainings on awareness in conserving and protecting biodiversity in both the forest areas and within their own community and individual lands.
- ii. There has been exchange visits in different counties which has motivated this work to upscale and more communities getting involved. Communities from Transmara, Iolgorian and Ololulunga visited Chebareria and Naramam of West Pokot County. Later all the counties mention plus Marsabit visited Transmara of Narok. The groups from Narok, West Pokot, Samburu visited Marsabit to see the dry land biodiversity. Out of this awareness there is an increased-on awareness and right now many of those groups who are majority women groups do exchange seeds of different kinds from medicinal, fruit and other traditional plants that are ceremonial. These activities have also attracted the communities in Uganda and Tanzania
- iii. In the Kenya region, indigenous peoples and local communities have been working collectively together with other key players like the focal points of both the Nagoya protocol and the CBD this started as early as 20-05 and up to date the communities have been following the processes learning and sharing through the ABS African initiative which has focused a lot on the Nagoya protocol. several trainings have been organized in different places in Africa with the focal points and also with IPLCs alone training further on traditional knowledge, communication and intellectual property rights. this has advanced by the same going to the international level where Kenya in all these processes have been attending representatives from different community based and NGOs working of the convention. the latest was one held in Rome the 2nd working group on post 2020 global biodiversity framework. luckily indigenous information network has been working and attending all the process without fail since the 90s. There has been also in Kenya, exchange and trainings on the same in different counties Laikipia, Kakamega, and Baringo coordinated by KWS funded by GIZ and UNEP
- iv. There is need for the country to be supported to continue working with different key players not only in Kenya but cross boarder as there is need to focus on cross border biodiversity which is being used without and clear records on the use and the benefits for example Mt Elgon areas, Namanga, Maasai Mara in Marsabit and other areas.
- v. There is also need for the Government to work closely with NGOs and community-based organizations working on Biodiversity and Forestry and try to have the linkages, (Different ministries and departments need to work together) a lot of good work is happening out there but there are no linkages
- vi. KWS has been running different activities under the Nagoya Protocol working with NEMA, KIPI and Universities such as UoN and Jomo Kenyatta as well as some counties (Laikipia, Kakamega, Baringo and Kajiado).
- vii. Indigenous Peoples and Local Communities in Kenya continue playing a crucial role in ensuring that they are conserve and collectively share together on the different knowledge they have gathered in both planting protecting indigenous plants and biodiversity found in their lands. Despite the challenges of both climate change and to large extend the deforestation, restoration activities are going on among the communities. This is being discussed at all levels, local national, regional and international
- viii. Knowledge is being shared among the communities at all levels, IIN has been undertaking trainings on different conservation strategies and traditional knowledge with a focus on Biodiversity conservation and at the same time helping communities establish knowledge centres that will help in learning and sharing different information materials to both the communities and other stakeholders. IIN encourages then communities exchange and information sharing on the media radio and social media.

8 SECTION VIII. UPDATED BIODIVERSITY COUNTRY PROFILES

Biodiversity facts:

Status and trends of biodiversity, including benefits from biodiversity and ecosystem services and functions:

Kenya is a mega bio-diverse country with over 35,000 species of flora and fauna. This diversity is served by the variable ecosystems ranging from marine, mountains, tropical, dry lands, forests and arid lands. In addition to some inland lake and wetland habitats covering about 2.5% of the total area. In the rainy season, the land area under wetlands doubles in size, as seasonal wetland fill with water. Kenyan forests are endowed with a rich array of plant and animal life. Some of the species endemic to the forest habitats are found nowhere else in the world. Although the biodiversity of Kenya remains highly protected, there are many unprotected areas that are causing its status to quickly decline due to a number of threats that have led to numerous conservation challenges

Kenya Biodiversity is mainly in forests and wildlife parks and reserves. According to reports, about 10-12 percent of Kenya's land area is designated protected area and the Kenya Wildlife Services (KWS) manages about 8% of this area. 20% of the land area is under agriculture and also simultaneously supports most of the human population. The remaining 70% of the land area is mostly rangelands, 11% of which are wildlife and marine conservancies. Forests are the backbone of Kenya's economy through agriculture and tourism. They also support livelihoods through the provision of food, medicine, wood for construction and fuel, and services such as water catchment areas. They perform important watershed functions, in addition to providing sites for high plant and animal biodiversity. The Kenyan coastal forests, though small, are rich in plant diversity and endemism. The hills are reported to be the richest area for plant species in the country. In the western part of the country, the Kakamega and Nandi forests are rich in biodiversity.

Freshwater and saline ecosystems cover about 8% of Kenya's surface area. Kenyan coastal coral reefs are high in biodiversity and tourism features (especially diving). In Kenya, inland waters occur everywhere and are a particular part of all landscapes. Lake Victoria produces 90% of Kenya's total catch and sustains nearly half of the country's population. Plant and animal species associated with inland freshwater wetlands are unique and highly specialized. In fact, some wetlands, especially in the extensive semi-arid parts of Kenya, provide the last refuge for rare and threatened species.

Main pressures on and drivers of change to biodiversity (direct and indirect):

The major threats to biological diversity in Kenya can be defined as: high population pressure; poverty and resource use conflicts land use practices; inadequate laws, policies and institutional framework; inadequate awareness and involvement of the community. Rapid human population growth, land and forest degradation as well as fragmentation threaten biodiversity and may cause in extreme cases, species extinction. Fragmentation alters habitats from a previous state of greater continuity, stability and harmony. The resultant patches or populations are eventually isolated from one another by highly modified or degraded landscape, thus disrupting populations. Many plant and animal species populations have suffered due to this, other threats are invasive species (e.g. Nile perch and water hyacinth in Lake Victoria), land degradation and pollution, occasioned by poor land use practices. In addition, the tourism industry is encroaching on the fragile marine and coastal areas with the development of new hotels and access infrastructure.

Lack of a comprehensive and clear land policy has led to land adjudication into fragile ecosystems with rich biodiversity (e.g. forest reserves, wetland areas) where no buffer zones exist for mitigating the effects of nearby development. Moreover, the narrow genetic base of the country's biological resources that is found only in a few plant and animal species have put entire ecosystems and their biological diversity in danger of being overexploited, thus exposing entire ecosystems to degradation.

Climate change is increasingly contributing to biodiversity degradation on Kenya's coast composed of fragile forest and grassland ecosystems which more frequently experience mild to severe drought. Actions are not yet underway to mitigate the effects of climate change; consequently, both the biodiversity and communities remain vulnerable.

Responsibility for biodiversity is spread across many institutions, ranging from national and county governments to private landowners, local communities and NGOs. Several institutional and policy barriers impede the conservation of biodiversity. Foremost is the lack of a coherent integrated conservation policy that unifies dispersed and often conflicting legislation and policies in different

sectors. Other institutional barriers and impediments include lack of technical expertise, planning and funding. There are many other causes of biodiversity loss that vary widely among species. For example, cultural attitudes about nature and species differ and have a strong bearing on the status of species and biodiversity.

MEASURES TO ENHANCE IMPLEMENTATION OF THE CONVENTION

Implementation of the NBSAP:

Kenya continues to implement various interventions to tackle biodiversity loss. They range from environmental policies and legislation, community involvement, national biodiversity assessment and documentation, sustainable management and conservation of biodiversity including fair and equitable benefit-sharing. As well as technical and scientific research support, information dissemination, and capacity-building and integrated national planning for development. The efforts and strategies employed to preserve the threatened areas, human livelihoods and the threatened species and to reverse the loss of biodiversity, indirectly address challenges that result from human activities responsible for biodiversity loss and environmental change.

The government is committed to identifying conservation priorities, addressing environmental threats and bolstering national and county level administration. For instance, it has bolstered private sector and voluntary conservation initiatives, melding environmental conservation into national development plans and the promotion of human wellbeing. The Campaign for Nature, in the cited 2020 super year for nature and biodiversity is helping to spearhead an ambitious drive to protect 30% of Kenya's land and seascapes.

Reviewed and updated Kenya's NBSAP with clear biodiversity targets ; ensured and maintained a high quality environment for sustainable livelihoods for all Kenyans to guarantee inter- and intra-generational sustainable use of natural resources and services; to maintain ecological and ecosystem processes; to preserve and benefit from genetic resources and biological diversity in the nation's ecosystems and to preserve their cultural value. However, there is a need to effectively implement and provide financial support for its implementation together with the post 2020 framework for Biodiversity including Sustainable development Goals,

Overall actions taken to contribute to the implementation of the Strategic Plan for Biodiversity 2011-2020:

There are good efforts being taken by the Kenyan Government, through the Kenya Marine and Fisheries Research Institute (KMFRI), to conduct research on marine and coastal ecosystems to provide the necessary data for implementing conservation programs for this rich biodiversity. The KMFRI has mapped out the commercial fishing grounds in the national sector. At the moment, pilot studies and demonstrations are being conducted on better methods to culture oysters and the Brine shrimp (*Artemia*) at the Kenyan coast to enhance economic gains, rather than re-stock the coastal waters with such species.

However, in spite of the collaboration that exists among the KMFRI, University of Brussels, Coast Development Authority and some local NGOs, little progress has been made in this venture. The KMFRI has however made great strides towards understanding the causes of the massive fish kills that occur in Lake Victoria and establishing the status of rare and endangered fish species; they have also been cultured and released into Lake Victoria with the aim to restore the lake's biodiversity. Also, recent findings of the KMFRI reveal that the fish stocks of Lake Baringo show both a suitable and profitable fishery, through a combination of closed and open fishing seasons which is a result of the lake being located in an arid zone. However, in Lake Naivasha and Lake Victoria, there is increasing pressure on fish resources, due to overfishing and increasing pollution loading, hence the continued desire to promote aquaculture in the country.

The key players in regard to in situ conservation of indigenous forest resources are the National Museums of Kenya (NMK) and the Kenya Wildlife Service (KWS), although the Kenya Forest Service (KFS) is the main agency concerned with in situ conservation and management of indigenous forests. NMK responsible for preservation of crop wild relatives at the East African herbarium in Nairobi. However KALRO conserves crop cultivars in most of the satellite branches across the country. Due to lack of regular and adequate funding, this activity is still far from being complete as a number of species are yet to be addressed. Further, the Kenya Forestry Seed Centre (KFSC) was

established with the goal to provide certified, high-quality tree seed in sufficient quantities to meet the rising demand. Seed collection is carried out by a network of 8 collection centres distributed in all ecological zones of Kenya; the Centre's trained tree climbers are supervised by experienced foresters. Each seed lot is comprehensively documented with data which are maintained in a computerized database that has been locally designed.

Since the 1990s, Lake Victoria has been invaded by an exotic, prolific and noxious weed – the water hyacinth (*Eichhornia crassipes*) – whose management has posed a great challenge to both the scientific community and regional governments. In the meantime, this weed has caused serious ecological changes in the lake and impediments to livelihoods and development initiatives in the region. During the implementation of the first Lake Victoria Environment Management Programme (LVEMP I), much attention was placed on the management of the weed using integrated techniques that involved manual, mechanical and biological control. A biological control method proved to be the most successful and cheapest approach to deal with the weed. There is however a major challenge in regard to ecological succession and the resurgence of the weed following the end of LVEMP I, and because LVEMP II has not yet begun. Kenya has declared water hyacinth a national disaster and outlawed its transport and use in any way.

Further, the country has been aggressively promoting and strengthening national Programmes dealing with population control so as to achieve sustainable population growth rates and minimize adverse effects on biodiversity. Evidence points to the fact that Kenya's population growth has indeed declined over the last decade.

Support mechanisms for national implementation (legislation, funding, capacity-building, coordination, mainstreaming, etc.):

A number of policies and institutions exist in to support NBSAP implementation and beyond. One example is the Forestry Master Plan (1995-2020) which contains various implementation strategies that target the conservation of indigenous forests and their biodiversity; particular attention is given to habitats of high biodiversity and endemism and priority areas for conservation, including wetlands (especially seasonal wetlands), forests, highland grasslands and natural areas near large urban areas. The Forest Act (revised in 2005) addresses reservation, protection, management, enforcement and utilization of forests and forest resources on Government land. Other pieces of applicable legislation include the climate change Act, wildlife act, Energy Act Water Act, Fisheries Act, Fisheries development and management Act, as well as the Intellectual Properties Rights Act that recognizes local knowledge and the rights of communities to genetic resources and to benefits derived from tourism in their areas.

Although ESD and sector specific strategies have been developed for mainstreaming biodiversity conservation into the education sector, there is a lack of biodiversity mainstreaming in other sectors. The country has inadequate environmental and biodiversity-related laws, policies and instructional frameworks as well as overall political instability. Although at present national environment management matters cut across various agencies, the National Environment Management Authority (NEMA) is charged with the coordination and establishment of an appropriate legal and institutional framework for the management and conservation of biological diversity. However, conservation of plant genetic resources (PGRs) in Kenya is mostly uncoordinated and largely donor-funded with a timeframe that is not long enough to sustain the process.

A notable Kenyan example is the establishment of conservancies. The conservancies protect important biodiversity hotspots, their ecology and habitats, by applying science principles and smart partnerships. These partners include local communities, businesses, multilateral institutions and not-for-profit organizations. Furthermore, many development programs are now required to undertake environmental Impact Assessment, SEA including environmental Audit before they commence so as to provide environmental safeguards.

Environmental education, both formal and informal, is vital to changing people's attitude to appreciate environmental concerns. Formal environmental education is important in increasing awareness, improving extension services, sensitizing people on environmental issues and building institutional capacities. Non-formal environmental education benefits people outside the formal

education system. It empowers the public to develop a strong sense of responsibility on environmental issues. Environmental programs taking place on the ground are led by the government, civil society organizations as well as indigenous communities. These activities include raising awareness, providing capacities and skills, and empowering people and communities to create more sustainable futures.

Overall, being a party to the CBD, has improved the financial, human, scientific, technical and technological capacities of Kenya to implement the Convention, but more still needs to be done in the area of technology transfer and material transfer agreements.

Mechanisms for monitoring and reviewing implementation

Environmental monitoring has not progressed well making it difficult to adequately provide accurate information on the status of biodiversity in the country.

RECOMMENDATIONS:

RECOMMENDATIONS:

1. **OPTIMISE IMPLEMENTATION:** Based on the CBD Strategic Plan 2011-2020, there has been progress in the adoption and implementation of the Aichi targets in the various sectors especially through the implementation of the Environment, Water and Sanitation Sector Plans. Nevertheless, there is need to plan, track, measure progress and evaluate impact from a CBD perspective.
2. **ALIGN AND MAINSTREAM:** The Vision 2030 and SDG implementation processes have mainstreamed various aspects of the CBD Strategic Plan 2011-2020. There is however a need to align and anchor the NBSAP with these implementation frameworks and in turn, mainstreaming at county level, undertake monitoring and evaluation, and ensure resource mobilization for effective implement. At national and county levels, there is need to link CBD reporting to the national frameworks and processes especially linked to the SDG reporting.
3. **TAKE ADVANTEAGE OF ENABLING CONTEXT:** The 2011-2020 decade in Kenya has focused on reviewing the policy and legal framework to align with the New constitution 2010. This has provided a good opportunity to address the three objectives of the CBD within the legal and policy framework in Kenya. The decade 2021-2030 provides an opportunity to fast track implementation based on this new foundation.
4. **PARTNER, COORDINATE AND COMMUNICATE:** There is a wide range of actors and stakeholders in Kenya addressing various aspects of the CBD Strategic Plan. However there has been limited coordination, communication and information sharing. There is an opportunity to create a biodiversity forum to enable improved and effective implementation and enhance efficient use of resources. This will ease monitoring and reporting.
5. **UPDATE NBSAP 2021-2030:** This report provides a good baseline for reviewing the NBSAP in line with the Post 2020 framework. It also provides a good basis for refining the NBSAP 2020-2030 and get it aligned to the Vision 2030 planning process, the SDG implementation and many other policy frameworks in Kenya which have a 2030 timeline.
6. **ENHANCE RESOURCE MOBILIZATION FOR BIODIVERSITY:** A Biodiversity Budget and Expenditure Review is recommended to define the resources available, identify gaps and opportunities and enhance resource mobilization.
7. **DEVELOP A BIODIVERSITY POLICY:** The stakeholders in preparing this report noted that the absence of a Biodiversity Policy may have limited the effective implementation of the various biodiversity related legislations. Hence, to build on gains made in implementing the Strategic Plan 2020 and embark on the Post 2020 Global Biodiversity Framework, the timing may just be right to develop a Biodiversity Policy for Kenya.



REPUBLIC OF KENYA