



**THE GLOBAL  
MECHANISM**  
United Nations Convention  
to Combat Desertification

## Republic of Kenya

### Land Degradation Neutrality Target Setting Final Report



*Theme: 'Towards concerted national efforts to halt and reverse land degradation, restore degraded ecosystems and sustainably manage land resources'*



This document has been prepared with the support of the Land Degradation Neutrality Target Setting Programme (LDN TSP), a partnership initiative implemented by the Secretariat and the Global Mechanism of the UNCCD, with support of the following partners: France, Germany, Luxembourg, Republic of Korea, Spain, Trinidad and Tobago, Turkey, Venezuela, the European Space Agency, Food and Agriculture Organization of the United Nations, Global Environment Facility, ISRIC – World Soil Information, International Union for Conservation of Nature, Joint Research Centre of the European Commission, Soil Leadership Academy, United Nations Development Programme, United Nations Environment Programme, World Resources Institute.

The views and content expressed in this document are solely those of the authors of the document and do not necessarily represent the views of the LDN TSP or any of its partners.

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## FOREWORD

The preparation of Kenya's Country Report on Land Degradation Neutrality Target Setting Programme has been carried out in response to the endorsement of Sustainable Development Goals (SDGs) and especially goal 15 on *Life on Land*. This goal seeks to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and biodiversity loss. Target 15.3 of this goal focuses on combating desertification and restoring degraded land 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. The introduction of the concept of Land Degradation Neutrality (LDN) by parties to the United Nations Convention to Combat Desertification (UNCCD) during its Twelfth session of the Conference of Parties (COP), held in Ankara, Turkey in October 2015 further strengthened this agenda and parties converging in Ankara agreed to move towards neutrality.


In Kenya, land degradation manifests itself in many ways, including: deforestation leading to loss of vegetation and ecosystem services; increasing intensity and frequency of drought and floods; increasing scarcity of water; overgrazings of grasslands; gully erosion and invasive plant species particularly in Arid and Semi-Arid Lands (ASAL). These components do not act separately, but are intrinsically linked to each other and may act as mutual accelerators of the degradation process. As degradation progresses, it becomes increasingly difficult and costly to rehabilitate and restore affected lands to original state.

Land Degradation Neutrality (LDN) aims to sustain the productivity of land resources, support ecosystem functions and services, and thus meet the needs of current and future generations. The LDN concept aims to achieve a balance between anticipated new land degradation and future efforts to improve degraded land (e.g. through land restoration, and Sustainable Land Management). It represents, therefore, a paradigm shift in land management policies and practices as it seeks to counter balances the expected loss of productive land with the recovery of degraded areas. Consequently, it strategically places policy-makers, private sector, research institutions, Non-State actors and local communities to act together in order to achieve Land Degradation Neutrality. This includes monitoring the respective indicators of Land use cover change, Land productivity and Soil organic carbon within the context of Land use planning.

This report has been prepared in accordance with the guidelines and technical support from the United Nations Convention to Combat Desertification (UNCCD) Secretariat. As a country, we are determined to reverse the adverse effects of desertification, Land degradation and drought by ensuring that Land Degradation Neutrality transformative programmes and projects integrate gender perspectives, during the formulation, implementation and monitoring stages.

The environment sector plays a critical role in ensuring sustainability of natural resources in Kenya's economic development and consequently the ongoing and anticipated LDN Transformative Programmes and Projects are envisaged to contribute to the achievement of Vision 2030. Lastly, the Implementation of Land Degradation Neutrality Transformative programmes and projects will require enhanced access to financial resources and technical assistance from government and all partners including entities like the Global Environment Facility (GEF) and Land Degradation Neutrality Fund. To facilitate this access and oversee the implementation of the LDN targets cross sectors and with other partners, a coordinating mechanism/ platform will be established comprised of all key stakeholders. This platform will seek to develop a comprehensive tool for monitoring and evaluation, data assembly and fulfil reporting obligations both locally and internationally as required by the convention.

Our resolve is to ensure that, the quality of land resources, necessary to support ecosystem functions and services and enhance food security, is sustained within specified temporal and spatial scales and ecosystems.



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

## **Acknowledgement**

The Land Degradation Neutrality Target Setting report has been developed to respond to challenges of land degradation, droughts and desertification in Kenya. The support and goodwill from the Cabinet Secretary and the Chief Administrative Secretary, Ministry of Environment and Forestry was pivotal towards this accomplishment.

The preparation of the LDN targets report greatly benefited from insightful contributions of a wide range of institutions and individuals whose efforts we greatly appreciate. We wish to sincerely thank all those who participated in the preparation of the Land Degradation Neutrality (LDN) Targets that significantly informed the completion of this report. We further wish to appreciate the administrative, technical and financial support received from United Nations Convention to Combat Desertification (UNCCD) through the Global Mechanism (GM) and United Nations Development Program (UNDP), and Global Policy Centre on Resilient Ecosystems and Desertification (GC-RED). The support was instrumental towards the success of this process and generally the LDN programme in Kenya. Equally the support received from International Union for Conservation of Nature (IUCN) and Global Environment Facility (GEF) towards this process is immensely acknowledged.

Lastly, is to thank the LDN working Group that comprised of technical officers from different institutions coordinated by the department of Multilateral Environmental Agreements of Ministry of Environment and Forestry for their commitment in the development of this report and for their expertise contribution that greatly enriched this document. Your commitment was unmatched and your effort is sincerely appreciated. To you all God Bless



**Dr. Chris Kiptoo**

**Principal Secretary**

**Ministry of Environment and Forestry**

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## **Acronyms**

AFR100	Africa Forest Landscape Restoration Initiative
ASAL	Arid and Semi-Arid Lands
CIDP	County Integrated Development Plan
COP	Conference of Parties
EMCA	Environmental Management Coordination Act
ESA CCI-LC	European Space Agency Climate Change Initiative Land Cover
FLR	Forest Landscape Restoration
GC-RED	Global Policy Centre on Resilient Ecosystems and Desertification
GM	Global Mechanism
IPCC	Intergovernmental Panel on Climate Change
KAPSLM	Kenya Agricultural Productivity and Sustainable Land Management
LDN TSP	Land Degradation Neutrality Target Setting Programme
LPD	Land Productivity Dynamics
LULUCF	Land Use, Land Use Change and Forestry
MTP	Medium Term Plan
MoEF	Ministry of Environment and Forestry
NAP	National Action Programme
NCCAP	National Climate Change Action Plan
NDVI	Normalized Difference Vegetation Index
NEAP	National Environmental Action Plan
NEMA	National Environmental Management Authority
REDD	Reducing Emissions from Deforestation and Forest Degradation
SDG	Sustainable Development Goals
SLM	Sustainable Land Management
SOC	Soil Organic Carbon
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme

## Summary

The twelfth session of the Conference of Parties (COP) of the United Nations Convention to Combat Desertification (UNCCD), held in Ankara, Turkey in October 2015, endorsed SDG target 15.3 and the concept of land degradation neutrality (LDN) as a strong vehicle for driving the implementation of the Convention. It invited all UNCCD country Parties to formulate voluntary targets to achieve LDN and requested UNCCD bodies to provide “guidance for formulating national LDN targets and initiatives” and to facilitate “the use of the UNCCD indicator framework as a contribution to the monitoring, evaluation and communication of progress towards the national LDN targets”. Kenya being a signatory to the UNCCD<sup>1</sup> and realising the importance of sustainable development, embarked on the process of formulating national LDN Targets to address land use management challenges. As land degradation continues, it becomes increasingly difficult and costly to rehabilitate and restore affected land scapes in Kenya. The Government of Kenya has expressed commitment to the LDN response hierarchy through a government high level note, endorsed by the Minister for Environment and Forestry, August 2017.

As aspirational targets, LDN aims to sustain the productivity of land resources, support ecosystem functions and services, and thus meet the environmental needs of current and future generations. In terms of neutrality, the LDN concept aims to achieve a balance between anticipated new land degradation and future efforts to improve degraded land e.g. through land restoration and Sustainable Land Management (SLM) (GM UNCCD, 2016).

Sustainable Development Goals in Kenya have been adopted and each sector has been tasked to incorporate these goals in their development plans as a guiding policy (UN SDG Knowledge Platform, 2017). County Governments are also encouraged to institutionalize the SDG agenda in their development plans so as to address environment and development issues. In 2015, Kenya was already in the 8th year of implementing its long term Economic blueprint, the Kenya Vision 2030 (UN SDG Knowledge Platform, 2017). The vision is implemented in 5-year rolling Medium Term Plans (MTP). By the time the SDGs were adopted, the second MTP (2013-2017) was in its third year of implementation. The preparation of the third MTP (2018- 2022) and the second generation of County Integrated Development Plans (CIDPs) is complete and the SDGs and the Africa Agenda 2063 (UN SDG Knowledge Platform, 2017) is

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<sup>1</sup> Kenya ratified the United Nations Convention to Combat Desertification (CCD) on 24 June 1997. One of the main commitments of the parties to the Convention is to develop a National Action Plan (NAP), which serves as guiding framework for the implementation of the convention (<https://knowledge.unccd.int/countries/kenya>).



mainstreamed. This provides an enabling environment for the integration of the LDN concept into the development agenda in Kenya cross the levels of government (UN SDG Knowledge Platform, 2017).

In Kenya, land degradation manifests itself in many ways, including: unsustainable loss of vegetation and landscape functions; increasing incidences of aridity; increasing scarcity of water sources; shrubs in areas which were predominantly rich in pastures; gullies, thin and stony soils and invasion of intrusive species that lead to food and water insecurity. These components do not act separately, but are intrinsically linked to each other and may act as mutual supporters and accelerators of the degradation process (Mulinge *et al.*, 2016). As degradation continues, it becomes increasingly difficult and costly to rehabilitate and restore affected lands to original state. The LDN programme identified three indicators for assessing the land degradation baseline which include: Land Use Land Cover; Land Productivity; Carbon stocks above and below ground (metric: Soil Organic Carbon) (Orr, B.J., *et. al*, 2017). Key drivers of land degradation in Kenya include: Deforestation; Overgrazing; Poor agricultural activities (overuse of fertilizers, up-down hill ploughing); Forest fires; Poor spatial planning; Mining and Sand harvesting. Based on the land cover change map (Fig. 1), forest land use is most affected, as it is mainly converted to cropland and shrubland. This is predominant in Nyanza, Western and parts of rift valley. Declining land productivity is severe in southern eastern and coastal parts of Kenya. Poor soil organic carbon is predominant in arid and semi arid lands of Kenya. These challenges observed from the baseline indicators have threatened food security in Kenya and adversely affected livelihoods.

In Kenya national policies exist that safeguard the integrity of the environment<sup>2</sup>. The policies are formulated by various government ministries and departments such as environment, agriculture, water, energy etc. LDN is entrenched in policies related to land management and restoration. The goal of these policies is to promote sustainable natural resources development while improving livelihoods of the population. In order to achieve the targets, the LDN response hierarchy (Avoid > Reduce > Reverse) will need to be mainstreamed and redefined in relevant national policies, strategies and commitments.

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<sup>2</sup> NATIONAL ENVIRONMENT POLICY, 2013: The Government will develop and implement a national strategy for rehabilitation and restoration of degraded forest ecosystems and water catchment areas with active community involvement/participation.

Through the LDN target(s), Kenya aims to achieve a balance between anticipated land degradation (losses) and planned positive actions (gains), in order to achieve, at least, a position of no net loss of healthy and productive land by 2030.

In Kenya, LDN targets have been set at national scale with an ambition to reach LDN for the entire country taking into account all LDN indicators (Land use land cover, land productivity and soil organic carbon). The LDN targets have also been set at subnational level. Watershed (Hydro-basins and sub-basins) boundaries have been used to delineate and prioritize hotspots of land degradation. Subnational LDN targets have been set for achieving a neutral (no net loss) or improved (net gain) state allowing Kenya to focus on areas that have been identified as degradation “hot spots” and/or are considered to be a high-value priority in achieving LDN. Based on the three indicators the main priority hotspots are Ewaso Nyiro (Lak Dera 2) and Tana River basins (Fig. 5). These two water shed hotspots were identified based on land degradation severity levels observed in the three indicators. The two hotspot zones registered highest vulnerability i.e.: poor vegetation coverage to control soil erosion; low land productivity and inadequate soil organic carbon relative to other parts of the country. Areas severely prone to degradation as observed from the three indicator maps (Fig. 1, 2, 3) helped identify the priority hotspots.

Specific targets to avoid, minimize and reverse land degradation have also been defined with reference to specific land cover classes (ESA CCI Land cover maps used in LDN are classified based on UN Land Cover Classification System developed by FAO to provide a consistent framework for the classification and mapping of land cover). Degradation drivers and processes are usually linked to certain land cover classes and can be addressed by setting targets that are explicit in this regard. Targets in this category have taken many different forms with varying degrees of completeness and ambition.

## 1. Leveraging LDN

The LDN programme is decidedly supported by government and other key stakeholders as it endeavours to address critical land management issues thereby providing opportunity for sustainable land management practices. The Government is committed to promoting interventions on sustainable development in line with various global and regional frameworks<sup>3</sup>. At the highest level, the Minister for Environment endorsed LDN Targets in August 2017, showing commitment and stewardship to the process.

The LDN concept has been addressed through various environmental initiatives spearheaded by government, development partners, NGOs and research institutions. Though implemented in a fragmented manner, a land degradation assessment has been conducted in several parts of the country and hotspots were identified. This provides an entry point for land degradation neutrality in Kenya which aims to stop, reduce and avoid further degradation. Sustainable land management practices have been initiated in different parts of the country to control land degradation, but the trend is still worsening especially in ASALs (GoK, 2016).

LDN provides an opportunity to comprehensively assess land degradation in the country and engage key stakeholders who can drive the process of land degradation rehabilitation/reclamation forward. Existing policies on environment, agriculture and land reclamation support LDN efforts to end further degradation. Synergies will be harnessed among ongoing government initiatives for example the National Strategy for Achieving and Maintaining over 10% Tree Cover, Forest and Landscape Restoration Initiative supported by Kenya Forest Service which has identified areas for rehabilitation towards Kenya's Bonn Challenge commitment of restoring 5.1 M Ha of degraded forests and landscapes. LDN comes at an opportune time when SDGs are being incorporated into development plans of the country. The Ministry of Devolution and Planning is coordinating the domestication of SDGs in the country (GoK, 2017). The SDGs are being integrated in National and County Government Development Plans to drive the process of socio-economic development. During the official launch of the SDGs in Kenya (Sept. 2016), the County Development Planners exuded confidence that the Counties have an opportunity to improve the lives of the people. The 17 SDGs provide a great platform to evaluate progress and work on the existing gaps to ensure that no one is left behind. However, priorities will vary from one County to the other depending on their development priorities and challenges. Advocacy and sensitization of

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<sup>3</sup> SDGs, Agenda 2063, Vision 2030

communities has been sighted as key in achieving the global goals and therefore the need for grass root partners involvement to ensure ownership and sustainability.

Land Degradation Neutrality is actually the cornerstone of achieving all Sustainable Development Goals in Kenya. This is because land is the main resource upon which most economic resources abide in Kenya. Through restoration of degraded land, agriculture productivity will increase, food and nutrition security will be enhanced and other economic activities will thrive. At the County government level, SDGs have been aligned with the County Integrated Development Plans. This has already begun with training of County government officers in charge of planning and budgeting. The plan also has classified the SDGs into short, medium and long-term in order of prioritizing pressing areas anchored on people, environment, and development.

Kenya has embarked on a Green Economy initiative, spearheaded by the Ministry of the Environment and Forestry, which has aligned its activities well with SDGs. Green Economy refers to a shift towards a development path that promotes resource efficiency and sustainable management of natural resources, social inclusion, resilience, and sustainable infrastructure development (GoK, 2016 (b)). LDN is therefore a catalyst to Green Economy as it promotes restoration of degraded lands and other sustainable land management practices. Kenya's key policies and programs supportive of a green economy include investments in renewable energy, promotion of resource-efficient and cleaner production, enhanced resilience to economic and climatic shocks, pollution control and waste management, environmental planning and governance, and restoration of forest ecosystems.

The LDN concept is aligned to the Kenya Constitution 2010<sup>4</sup> and economic blueprint Vision 2030 that requires the country to work towards achieving a forest cover of at least 10 percent of the land area and to ensure sustainable resource use, growth and employment creation. However, due to population pressure in high potential areas, realizing these targets requires mobilizing all stakeholders including communities and private sector to invest in commercial forestry, expansion of forestry development to arid and semi-arid areas, investment in industry for enhanced processing efficiency and value addition, strengthening of forest governance policies and institutions, and greater consideration of

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<sup>4</sup> Constitution of Kenya: Cap 5(69a): The State shall ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits.

forestry in development programmes such as in agriculture, energy, tourism, and water programmes. Of importance is expansion of forestry into ASALs in a bid to restore degraded lands.

In the National Forest Policy 2015, the Government commits to support the rehabilitation of degraded dryland forests and encourage tree planting in the arid and semi-arid lands; it hopes to reserve and/or acquire land for forestry. This policy is very consistent with what LDN target setting process aim to achieve. The Vision 2030 has identified agriculture as one of the key sectors to deliver the 10 percent annual economic growth rate envisaged under the economic pillar. The challenge that has not been fully addressed is that land remains under-exploited for agricultural production both in the high and medium potential areas as well as in ASALs.

According to the National Environmental Policy of 2013, the Government has purposed to implement national soil conservation mechanisms and enhance protection of wetlands, riverbanks, hilltops and slopes from unsustainable practices to prevent soil erosion and environmental degradation. This gives LDN an entry point to build on ongoing initiatives geared towards soil rehabilitation.

Kenya National Climate Change Action Plan 2018-2022 (NCCAP) addresses the options for a low-carbon climate resilient development pathway as Kenya adapts to climate impacts and mitigates growing emissions. The NCCAP provides full details of a range of adaptation and mitigation actions in the context of a low carbon climate resilient development pathway. The action plan highlights priority action of restoration of forests and degraded land including implementation of climate smart agriculture and agroforestry which are sustainable land management practices that are anchored well within the LDN concept.

Actions to improve climate resilience in the environment sector will uphold Kenya's goals to preserve the country's rich ecosystems and align well with land degradation neutrality targets. Forest-based actions are known to hold the highest potential for acting on climate change because of the combined adaptation, mitigation and sustainable development co-benefits. Actions contained in the National Climate Change Action Plan, that can be implemented under LDN include:

- Increasing tree cover to 10 percent of total land area: helps slow the rapid loss of rainwater runoff thereby helping to prevent flooding and landslides, reduced erosion and sediment discharge into rivers and improved water availability.
- Reforesting and rehabilitating the main water towers and water catchment areas: A priority for Kenya due to the livelihood and biodiversity improvements.
- Restoration of forests on degraded lands has a mitigation potential of over 30 MtCO<sub>2e</sub> a year in 2030, the largest potential identified in the low carbon analysis (NCCAP, 2018-2022).
- Other climate change actions include reforestation and reducing emissions from deforestation and forest degradation (REDD), with mitigation potentials of 6.1 and 1.6 MtCO<sub>2e</sub> (NCCAP, 2018-2022).

Kenya, like other countries that are party to the UNCCD, has continued to prepare and implement National Action Programmes (NAPs). The NAP is a plan supported by international co-operation arrangements and aims at reclaiming degraded areas, reducing further degradation, and conserving areas that are not degraded. It contributes to creating synergies among ongoing activities as well as the efficient use of resources. The current Kenya NAP 2015 is aligned at the global scale to the introduction and application of the Performance Review and Assessment of Implementation System (PRAIS). The NAP creates an enabling framework for LDN implementation, and captures information on best practices used in Kenya to address Land Degradation, Droughts and Desertification (LDDD) and livelihoods in ASALs. These practices includes; bee keeping, gum tree farming, moringa tree farming and Aloe vera farming, use of technology in forecasting impact of climate change among others (NEMA, 2015).

Under the AFR100 Initiative (a Pan-African country led effort to bring 100 million hectares of deforested and degraded landscapes under restoration by 2030 and the Bonn Challenge), Kenya has committed to the restoration of 5.1 million hectares (Ha) of land. This goes towards the restoration target of 100 Million Ha of deforested and degraded land by 2030. The Government of Kenya through the Ministry of Environment and Forestry, made a commitment to restoring 5.1 million hectares of forests in the country by 2030. The move has also been triggered by the ongoing Forest Landscape Restoration (FLR) project which informs work on a number of international commitments including the New York Declaration

and the African Forest Landscape. Further, the implementation of the national Strategy on 10% tree cover by 2022.

Table 1: Kenya LDN Leveraging Opportunities

Leverage		Actions	Responsibilities
<b>Why does LDN matter?</b>			
1.	Creating multiple benefits	-Linking LDN to SDGs (especially SDG 15; 1; 6; 11; 12; 13) and onward integration into National and County Development Plans  -Investment in Green economy through renewable energy initiatives.	Ministry of Planning and Devolution; Ministry of Environment and Forestry Ministry of Agriculture, Livestock and Fisheries County Governments
2.	Fostering policy coherence	Awareness creation on inter-linkages between LDN Concepts and National Development Policies like Vision 2030; Forests Policy; Environment policy	Ministry of Environment and Forestry  State Department of Planning County Governments Kenya Forest Service
3.	Advancing climate action	Identify areas of priority related to LDN in the National Climate Change Action Plan (NCCAP) 2018-2022	Ministry of Environment and Forestry The National Treasury County Governments NEMA
4.	Tapping financing opportunities	Provide justifiable evidence of climate change risk through land degradation assessment to tap into global and national climate change funds.  Identify Land Degradation Hotspots that support mitigation and adaptation activities for financing option	Ministry of Environment and Forestry The National Treasury County Governments  NEMA
<b>WHAT to leverage?</b>			
5.	National development Plans, programmes, projects priorities and objectives	Link LDN to the Vision 2030 flagship projects related to ecosystem rehabilitation  Link LDN Concept to National/County Development Plans	Ministry of Environment and Forestry The National Treasury County Governments  NEMA
	Country commitments	Align LDN TSP to ongoing AFR100 Restoration initiative of 5.1 M Ha of land	Ministry of Environment and

6.	and engagements	Integrate LDN concept into national climate change Adaptation Plan  Through land degradation trend analysis identify potential of 30% cut in GHG emissions 10% tree cover strategy Support commitments in Aichi Targets on forest management and climate smart agriculture	Forestry  Ministry of Agriculture, Livestock and Fisheries The National Treasury  County Governments  NEMA
<b>WHO to engage to create leverage?</b>			
7.	Senior government	Establish National working group comprising of key Policy makers in Government	Ministry of Environment and Forestry
8.	National coordination mechanisms	Build on existing or establish a coordination mechanisms for Multilateral environmental agreements on UNCCD through Ministry of Environment and Forestry - Department of MEAs	Ministry of Environment and Forestry
9.	International development partners	Collaborate with ongoing initiatives related to LDN to exchange best practices ideas e.g. KAPSLM project funded by World Bank	Ministry of Environment and Forestry Ministry of Agriculture, Livestock and Fisheries
10.	National non-governmental stakeholders	Collaborate with NGOs and Private Sector to support advocacy, awareness creation and financing of LDN	Ministry of Environment and Forestry

## 2. Assessing LDN

### LDN Trends and Drivers

Land degradation remains a major threat to Kenya's ability to meet the growing demand for food and other environmental services. Desertification is intensifying and spreading in Kenya, threatening millions of inhabitants and severely reducing productivity of the land. The drought situation has accelerated soil degradation and reduced per-capita food production. According to the United Nations Environment Programme (UNEP-GEF Land Degradation Factsheet, 2018), land degradation and desertification, are largely due to deforestation and unsustainable land use. If the long-term solution to land degradation is not realized, the world risks increasing food shortages, rising poverty and increased migration; all



of which threaten the stability of economies and societies and our sustainable development ambitions at large.

Mechanisms that initiate land degradation in Kenya include: physical processes such as destruction of soil structure leading to soil compaction, erosion and desertification; chemical processes such as acidification, leaching, salinization and fertility depletion; and biological processes such as reduction in total biomass. Causes of land degradation are the agents that determine the rate of degradation and include biophysical (land use and land management, including deforestation and tillage methods), socio-economic (e.g., land tenure, marketing, institutional support, income and human health), and political (e.g. incentives, political stability). Climate change is also emerging as a major underlying cause of land degradation, mainly due to its impact on biodiversity. Organic matter is one of the significant constituent of soils organic matter and is highly sensitive to changes in climate and their decomposition rate increases with increased temperature.

The vision of Land Degradation Neutrality is to sustain the natural capital of the land and associated land-based ecosystem services. The LDN baseline is the initial numerical value of the recommended three indicators used as proxies of the land-based natural capital:

- **Land cover;**
- **Land productivity (metric: net primary productivity);**
- **Carbon stocks above and below ground (metric: soil organic carbon (SOC) stock).**

These indicators correspond to the UNCCD progress indicators and have been recommended as sub-indicators for the SDG indicator 15.3.1, “Proportion of land that is degraded over total land area”, adopted to measure progress toward the SDG target 15.3.

All three indicators are complementary to each other but not necessarily additive. If one of the indicators shows a negative change, degradation is considered to occur, even if the others are positive. Degradation is generally considered to occur when:

- land productivity shows a significant negative trend; or
- SOC shows a significant negative trend; or
- negative land cover change occurs; or
- A negative change occurs in another nationally relevant indicator (GM, UNCCD, 2016).

## **Data Interpretation**

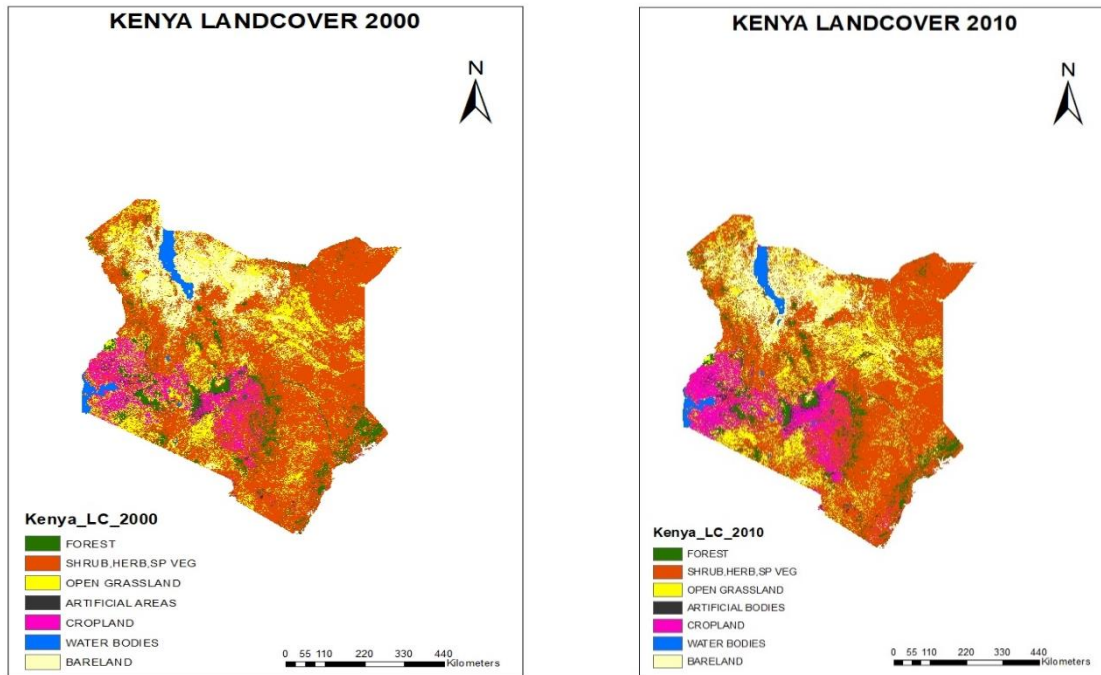
### **Land Cover Maps (2000 - 2010) and Land Cover Change Map**

The European Space Agency Climate Change Initiative-Land Cover (ESA CCI-LC<sup>5</sup>) product which uses the Land Cover Meta Language ( LCML) classification was considered to be adequate in representation of land cover categories in Kenya (Antonio, 2016). The classes have been aggregated to five classes to ease interpretation and facilitate effective monitoring of land cover parameters. The land cover maps 2000 and 2010 ( Figure 1 ) illustrates Kenya's ASALs mainly dominated by shrubs, grasslands and sparsely vegetated areas. However, these areas have in recent times experienced conversion and modification of land cover driven by growing demands of human population. Kenya's ASALs are mainly inhabited by pastoralists and agro pastoralists. These regions are mainly suitable for nomadic livestock production and this explains why there is no rapid change in the land cover class 2 (Shrubs, grasslands and sparsely vegetated). The main change witnessed in the land cover change map is driven by deforestation from forest to cropland or shrubs. This is prevalent in the humid and sub-humid parts of Kenya whose livelihood system is mainly agriculture (crop farming) and the region has a higher population relative to the ASALs.

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<sup>5</sup> The CCI-LC team successfully produced and released its 3 epoch series of global land cover maps at 300m spatial resolution, where each epoch covers a 5 year period (<https://www.esa-landcover-cci.org>).

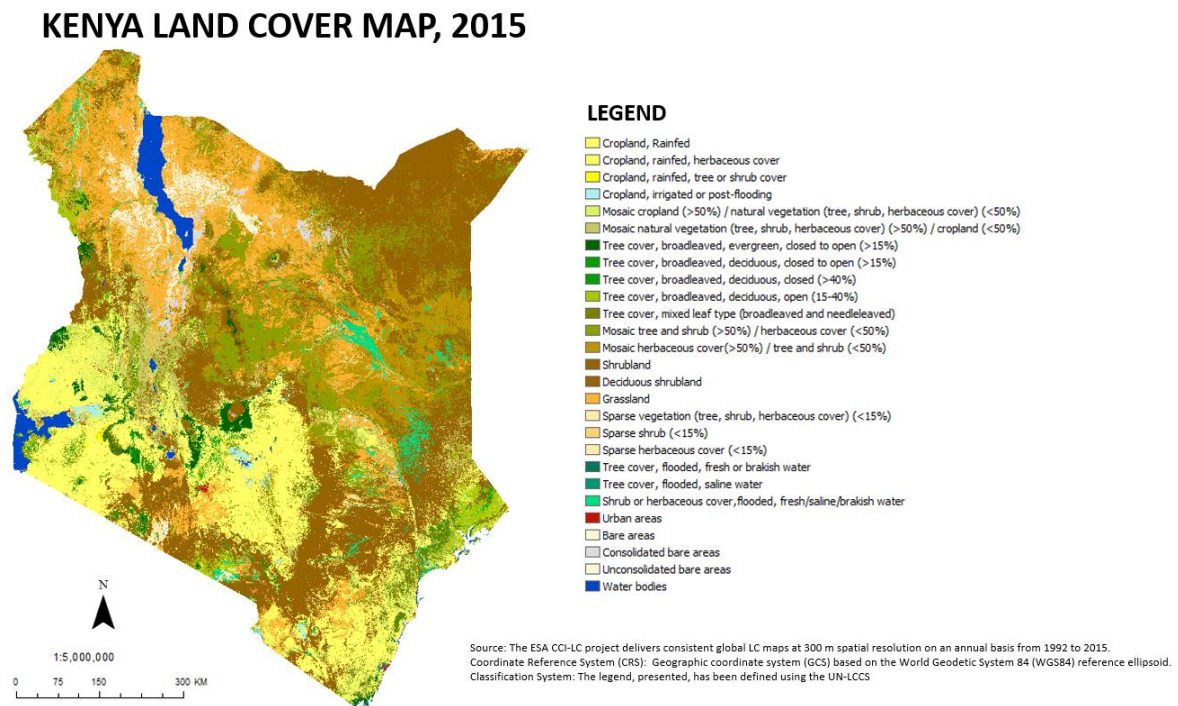
Figure 1: Land Cover Maps, 2000 and 2010



Source DRSRS 2020

The Land Cover Map of 2015 (Figure 2) shows a more densified classification of the land cover categories. Areas susceptible to land degradation can be considered to be those with sparse or bare vegetation cover. Closed forest seems to be dwindling as cropland seems to be increasing. This can be explained by the growing need for food. Irrigated cropland especially in ASALs appears to be picking up, these were areas predominantly occupied by shrub land.

Figure 2: Land Cover Map 2015, Kenya

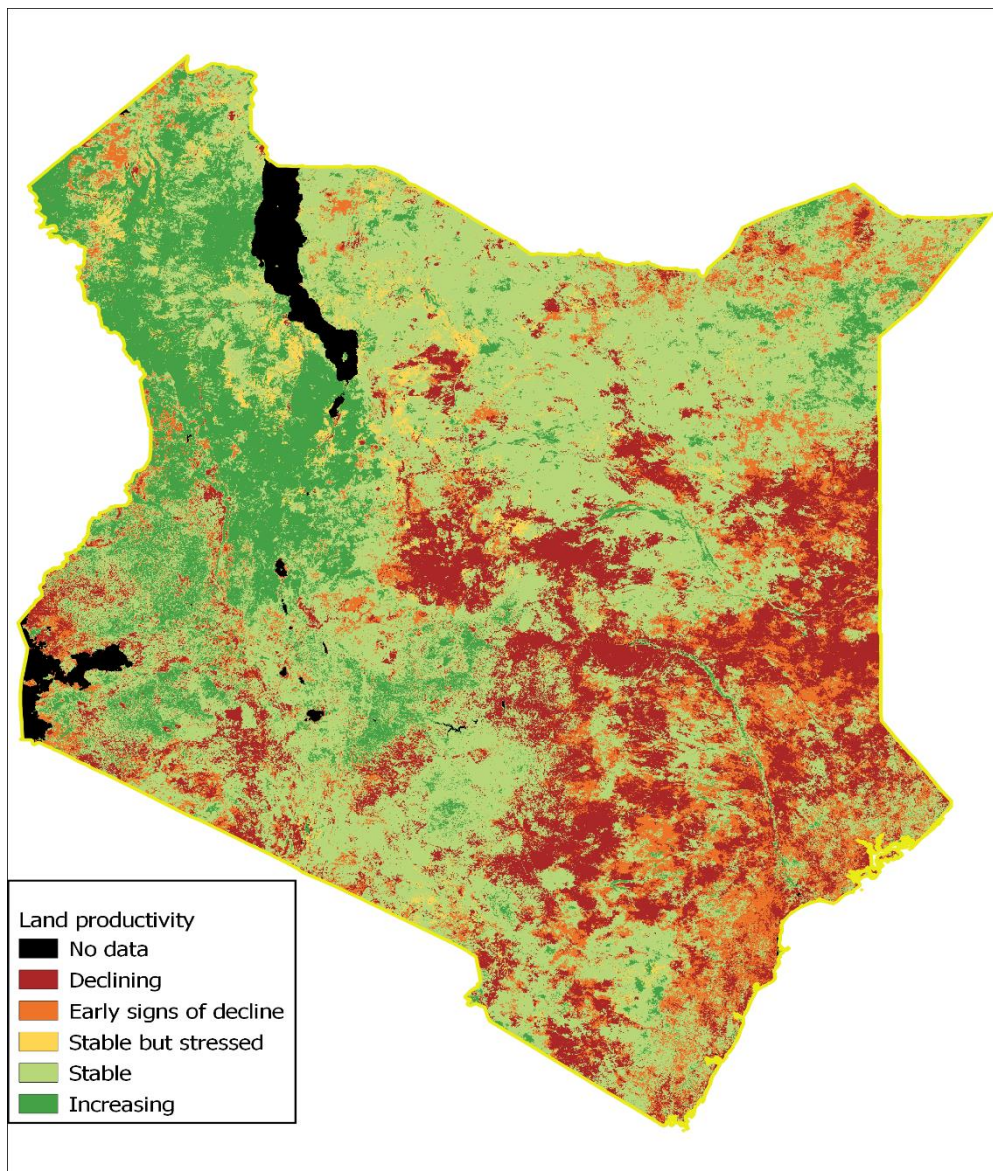


### Land Productivity Dynamics

The Net Primary Productivity measured in tonnes of dry matter per hectare per year is illustrated in Figure 3. It is derived from a 15 year time series of 1999-2013 SPOT VGT NDVI<sup>6</sup> satellite data observation. Declining productivity is prominent in Eastern parts of Kenya moving towards the coastal area which falls in the ASAL regions and from the land cover maps the area is dominated by shrubs. These regions also experience rapid land conversion as the population is pushed to marginal ecosystems. Areas of cropland also appear to show early signs of decline in productivity, this is driven by modification in land cover.

<sup>6</sup> Satellite launched in March 1998, tailored to monitor land surface parameters with a frequency of once a day on a global basis and spatial resolution of 1km. Provides accurate measurements of basic characteristics of vegetation canopies ([www.spot-vegetation.com](http://www.spot-vegetation.com))

Figure 3: Land Productivity Map, 1999-2013, derived from SPOT VGT NDVI time series

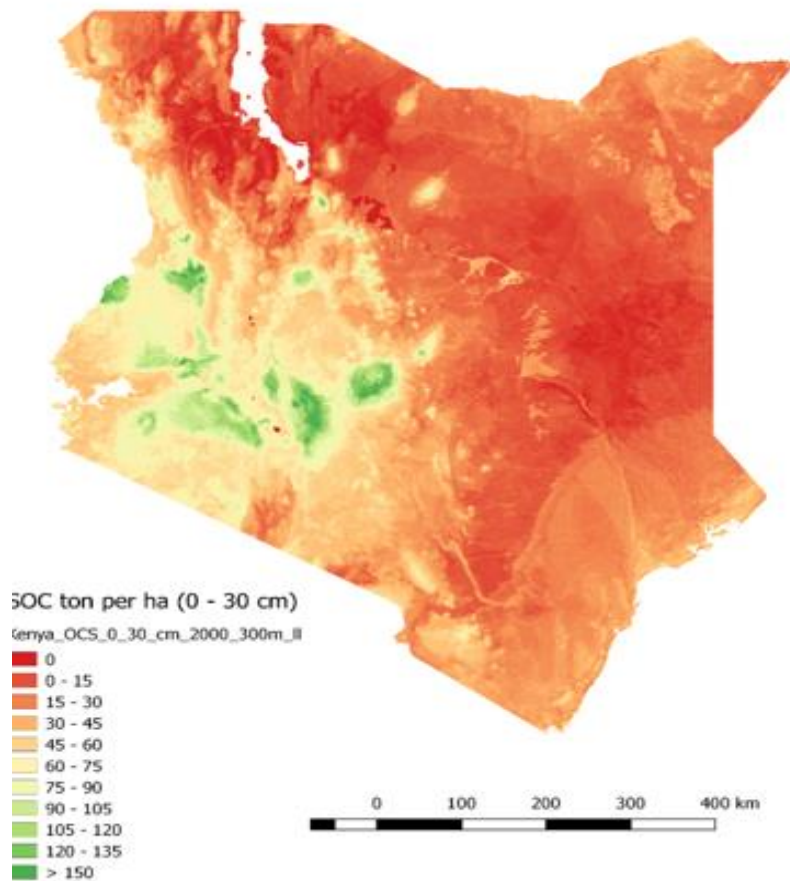


### Soil Organic Carbon

This indicator shows overall soil quality associated with nutrient cycling and water holding capacity. As illustrated in Figure 4, 80% of Kenyan soils have low organic carbon. In this zone, the soils are shallow, highly variable and of light to medium texture. This is true with reference to the Ecological Zones of Kenya whereby the region represented is in ASALs. The soils are also of low fertility and are subject to compaction, capping and erosion. A few areas have volcanic soils and alluvial deposits which are suitable for crop production. Heavy clays are also found in these areas, but cultivation is difficult due to their poor workability as well as salinity problems.

Figure 4: Soil Organic Carbon, 2016, derived from Geological class Grids 100m

### SOIL ORGANIC CARBON

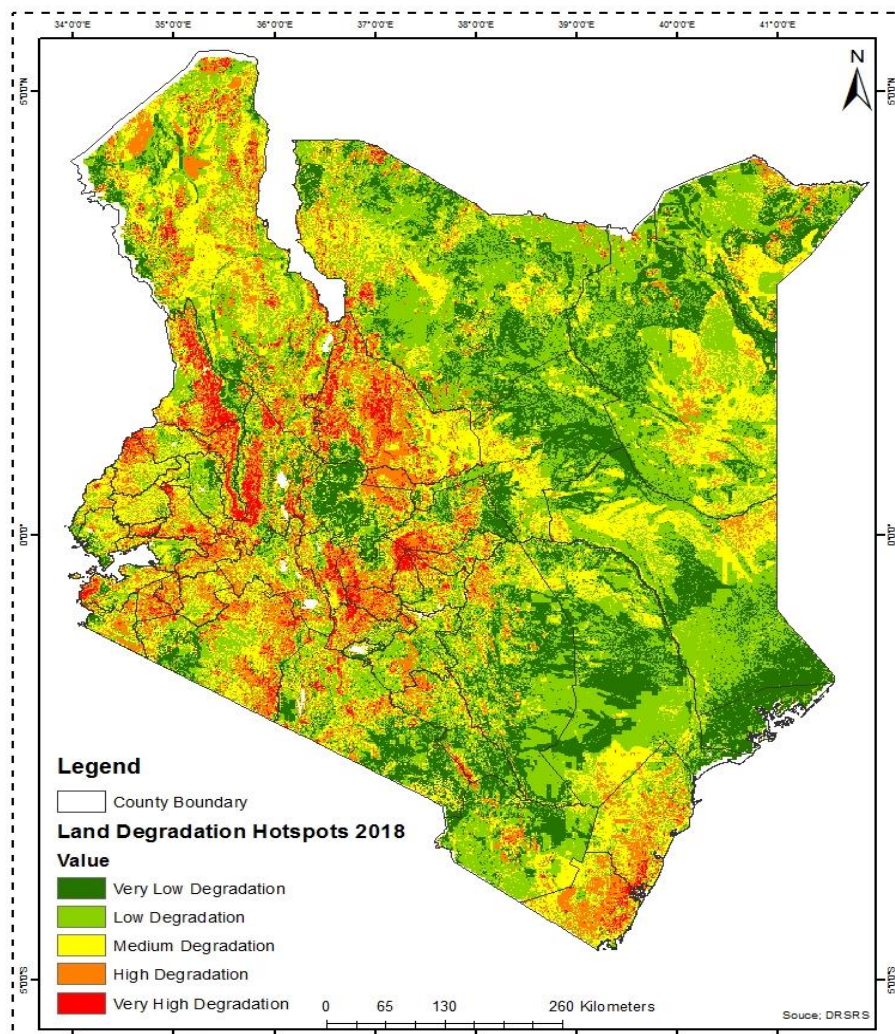


*DISCLAIMER: Depiction of boundaries is not authoritative*

### Land Degradation Hotspots

Land degradation varies based on the landscape variability and different eco-climatic zones in Kenya. It was therefore important to delineate severity levels of degradation using hydro basin boundary data. Based on the three parameters (Land Cover, Land Productivity and Soil Organic Carbon); two hydrobasins stood out as most degraded: Ewaso Ngiro (Lak Dera) and Tana River. Sub national targets were also set based on land degradation delineation at basin level with different targets. Figure 5 illustrates priority land degradation hotspots at watershed levels.

Figure 5: Land degradation hotspot at watershed level



### Levels of land degradation in Kenya

Table 2: Main direct and indirect drivers of land degradation (GM UNCCD, 2016)

Direct drivers of land degradation	Indirect drivers of land degradation
<ul style="list-style-type: none"> <li>• Improper management of the soil</li> <li>• Improper management of annual, perennial, shrub and tree crops</li> <li>• Deforestation and removal of natural vegetation</li> <li>• Over-exploitation of vegetation for domestic use</li> <li>• Overgrazing</li> <li>• Industrial activities, waste deposition and mining</li> <li>• Urbanization and infrastructure development</li> </ul>	<ul style="list-style-type: none"> <li>• Population pressure</li> <li>• Land tenure</li> <li>• Poverty/wealth</li> <li>• Labour availability</li> <li>• Inputs (including access to credit/financing) and infrastructure</li> </ul>

<ul style="list-style-type: none"> <li>• Discharges</li> <li>• Release of airborne pollutants</li> <li>• Disturbance of the water cycle</li> <li>• Over-abstraction of water</li> <li>• Natural causes</li> </ul>	<ul style="list-style-type: none"> <li>• Education, access to knowledge and support services</li> <li>• War and conflict</li> <li>• Governance, institutional settings and policies (including taxes, subsidies, incentives)</li> </ul>
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## **LDN legal and Institutional Environment**

Environment management and planning in Kenya can be traced to the Rio Earth Summit of 1992, which raised global understanding of the link between environment and development. Following the Summit, Kenya initiated the process to develop the National Environment Action Plan (NEAP) which was completed in 1994 and it recommended the need for a national policy and law on environment. The policy making process culminated into the Sessional Paper No. 6 of 1999 entitled Environment and Development. The legislative process brought forth the Environmental Management and Coordination Act (EMCA) No. 8 of 1999 as Kenya's first framework environmental law. Both the Sessional Paper and the Act added to a large number of existing sectoral laws and policies on various facets of the environment such as water, forest and minerals. This has created a diffuse system of environmental laws and policies, some of whose provisions are not in harmony making them ill-suited to aid the pursuit of sustainable development objectives as set out in the Vision 2030.

The Constitution of Kenya 2010 hailed as a 'Green' Constitution dedicates the entire Chapter V to land and environment. It also embodies a host of social and economic rights which are of environmental character such as the right to water, food and shelter, among others all of which have linkage to sustainable utilization of land.

The objective of the National Environmental Policy includes:

- Provision of a framework for an integrated approach to sustainable management of Kenya's environment and natural resources.
- Strengthen the legal and institutional framework for good governance, effective coordination and management of the environment and natural resources.



The Government of Kenya signed the UNCCD in October 1994 and ratified it in June 1997. The main objective of the UNCCD is “to combat desertification and mitigate the effects of drought in countries experiencing serious drought and /or desertification particularly in Africa”. To achieve this objective, countries develop their National Action Plans (NAPs). Kenya like other countries that are party to the UNCCD has continued to prepare and implement National Action Programmes (NAPs).

Kenya developed its first National Action Programme in 2002 which has now been realigned to address decisions of 8<sup>th</sup> and 9<sup>th</sup> Conference of Parties (COP 8 and COP 9) to UNCCD. Among the decisions was to align the National Action Programmes to the UNCCD’s Ten (10) year Strategy and Framework (2008-2018). The current NAP (2015-2025) has interrogated National Policies such as the Vision 2030 and its prioritized actions; existing Legislations and the Constitution of Kenya 2010 to realign it to the UNCCD Strategy and Framework. Further, the NAP catechized Desertification, Land Degradation and Drought problems through situation analysis using Strengths, Weaknesses, Opportunities and Threats (SWOT).

The National Action Plan provides a coherent framework for activities in the field of conservation and sustainable utilization of biodiversity. It contributes to creating synergies among ongoing activities as well as the efficient use of resources. The activities of the NAP are mainstreamed in other National development agenda. Within the framework of NAP several activities have been implemented that are geared towards combating desertification in Kenya. The NAP provides a good implementation framework for LDN, since it acts as a catalyst for land restoration efforts enshrined in LDN.

### **Environmental Management and Coordination Act, 1999 (EMCA)**

The Environmental Management and Coordination Act (EMCA), 1999, is the framework law on environmental management and conservation. EMCA establishes among others the following institutions; National Environment Management Authority, Public Complaints Committee, National Environment Tribunal, National Environment Action Plan Committees, and County Environment Committees. The National Environment Management Authority (NEMA) was established as the principal instrument of government charged with the implementation of all policies relating to the environment, and to exercise general supervision and coordination over all matters relating to the environment. In consultation with the lead agencies, NEMA is authorized to develop regulations, prescribe measures and standards and,

issue guidelines for the management and conservation of natural resources and the environment. The Act provides for environmental protection through;

- Environmental impact assessment
- Environmental audit and monitoring
- Environmental restoration orders, conservation orders, and easements.

National Environment Management Authority (NEMA) is the national regulatory agency coordinating the decentralized entities. There are various committees on standards enforcement and action plans to support NEMA’s performance in matters of environment quality standards and planning. The multi-sectoral National Environment Council (NEC) is the apex national environment policy making organ while the Directorate of Environment in the Ministry plays an oversight role in policy formulation as well as monitoring the implementation in relation to other sectorial policies.

**SWOT analysis on the linkage between the legal and institutional environment and LDN**

Table 3: SWOT Analysis on Kenya Legal Environment and LDN

STRENGTHS	WEAKNESSES
<p><b>Legal</b></p> <p>Chapter 5 of the constitution on land and environment provides for linkages to LDN.</p> <p>Environmental Policies/Acts supportive of LDN are in line with the Constitution</p> <p>EMCA 1999 (Amended 2015) provides a framework law on environmental management and conservation in Kenya.</p> <p>NEMA established under EMCA is charged with issuing guidelines for the management and conservation of natural resources</p> <p>Forest Act 2005: Provides for sustainable management of forests for socio economic development of Kenya</p> <p><b>Institution</b></p>	<p><b>Legal</b></p> <p>The policy making/review process in Kenya is slow due to the level of stakeholder engagement required</p> <p>Conflicting or overlapping sectoral policies; Various environmental policies addressing the same challenge are yet to be harmonized comprehensively</p> <p><b>Institutional</b></p> <p>Lack of prioritization of environmental matters especially land degradation in County development plans and other devolution efforts</p> <p>Lack of proper coordination between entities responsible for environmental management (overlapping and</p>

<p>Department of MEA under Ministry of Environment and Forestry is represented in environmental committees that influence policy review and implementation</p>	<p>conflicting efforts)</p>
<p><b>OPPORTUNITIES</b></p>	<p><b>THREATS</b></p>
<p><b>Legal</b> Amended EMCA Act 2015 mainstreams environmental activities at County level through the County Environmental Action plans</p> <p><b>Institutional</b> Ongoing initiatives related to forest restoration (Afr100), 10% tree cover by 2022 initiative ; Green Economy; Climate Change resilience and Adaptations provide a platform for leveraging LDN</p> <p>47 County Governments have already embarked on integrating the Sustainable Development Goals into their Development Plans. This creates a platform for leveraging LDN</p>	<p><b>Legal</b> -Politics: Decisions that do not favor conservation efforts on Forest ecosystem -Retrogressive traditional cultures in agro pastoral areas: Overstocking, Nomadism; Cattle Rustling -Land Ownership Conflict (Land Reform and Security)</p> <p><b>Institutional</b> Overlapping mandates related to conservation across sectors</p>

### **3. Setting LDN Targets**

Establishment of LDN Target(s) is foremost a political process that utilizes the best available knowledge, including the LDN baseline, to set ambitious and aspirational yet realistic targets. It means defining broad, yet clear, time-bound and measurable objectives on what a country wants to achieve in terms of halting and reversing land degradation and restoring degraded lands through a wide range of possible measures. In Kenya, LDN Targets are essential in achievement of sustainable development. LDN provides an opportunity for realization of Vision 2030, third Medium Term Plan (MTP III) and Sustainable Development Goal (SDG) 15. The Government of Kenya is committed to land management activities geared towards achievement of these goals.

Through the LDN target(s), Kenya aims to achieve a balance between anticipated land degradation (losses) and planned positive actions (gains), in order to achieve, at least, a position of no net loss of healthy and productive land by 2030. In Kenya, the impacts of land degradation are severe: they include a reduction in crop and pasture productivity and fuelwood and non-timber forest products, which are closely linked to poverty and food insecurity. The damage to soil, loss of habitat, water shortages, and siltation reduce biodiversity and ecosystem services and have economic consequences. In order to address these land degradation challenges, Kenya has taken a step to set ambitious targets beyond Neutrality which is the minimum objective.

The LDN targets have been set at national scale (Tables 5 and 6) with ambition to reach LDN for the entire country by 2030 taking into account all LDN indicators (Land use land cover, land productivity and soil organic carbon). The Targets have also been set at subnational level. Watershed (Hydro-basins and sub-basins) boundaries have been used to delineate and prioritize hotspots of land degradation (Figure 5). Subnational LDN targets have been set for achieving a neutral (no net loss) or improved (net gain) state allowing Kenya to focus on areas that have been identified as degradation “hot spots” and/or are considered to be a high-value priority in achieving LDN. Based on the three LDN indicators, the main priority hotspots are Ewaso Nyiro (Lak Dera 2) and Tana River basins.

Summary of corrective measures to achieve LDN (Table 5) to avoid, minimize and reverse land degradation have also been defined with reference to specific land cover classes.

Degradation drivers and processes are usually linked to certain land cover classes and can be addressed by setting targets that are explicit in this regard. Targets in this category have taken many different forms with varying degrees of completeness and ambition.

## **Kenya's LDN targets and associated measures**

Table 4: National voluntary LDN Targets, Kenya

### **LDN at the national scale**

- LDN is achieved by 2030 as compared to 2015 and an additional 9% of the national territory has improved (net gain)

### **LDN at the sub-national scale**

- LDN is achieved in Ewaso Ngiro North (Lak Dera 2) of Kenya by 2030 as compared to 2015 (no net loss)
- LDN is achieved in the Tana River catchment zone of Kenya by 2030 as compared to 2015 and an additional 16.7% of the zone has improved (net gain)
- LDN is achieved in Athi River catchment zone (Galana, Pangani, Kenya South east Coast) of Kenya by 2030 as compared to 2015 (no net loss)
- LDN is achieved in Rift Valley catchment zone (Lake Turkana, Naivasha, Natron) of Kenya by 2030 as compared to 2015 and an additional of 9% of the zone has improved (net gain)
- LDN is achieved in the Lake Victoria region (Nile basin) of Kenya by 2030 as compared to 2015 and an additional 9 % of the zone has improved (net gain)

### **Specific targets to avoid, minimize and reverse land degradation**

- Increase forest cover through Afforestation/Agroforestry in existing forests; areas of shrubs/grassland; wetlands; croplands by 5.1 M Ha
- Increase by 16% net land productivity in forest, shrub land/grassland and cropland showing declining productivity; achieved through SLM practices
- Increase soil organic carbon by 319626 total tonnes in cropland land use achieved through SLM practices
- Halt the conversion of forests to other land cover classes by 2030
- Rehabilitation of all abandoned Mining and quarrying areas through enforcement of by- laws

Table 5: Summary of corrective measures to achieve LDN

Negative Trend	Area in ha	Corrective measure			Estimated investment required (M USD)
			Area in ha	Timeframe	
Conversion of Forest to Cropland	18100	Afforestation/Agro forestry	18100	2030	3
Conversion of Forest to Shrubs, grasslands and sparsely vegetated areas	4400	Afforestation	4400	2030	0.44
Low Forest Cover /tree cover	4099300	Afforestation	5100000	2030	409.93
Declining net land productivity in all land cover categories (delete)	2369200	Rehabilitate through SLM	2369200	2030	100
Forest showing declining and early signs of decline in productivity	615100	Appropriate SLM practices	615100	2030	61.51
Shrubs, grasslands and sparsely vegetated areas showing declining and early signs of decline in productivity	4815200	Appropriate SLM practices	4185200	2030	481.52
Croplands showing declining and early signs of decline in productivity due to poor farming practices such as monocropping	4251800	Agroforestry Appropriate SLM practices Crop Rotation/Mixed Cropping	4251800	2030	425.18
Bush Encroachment_Shrubs, grasslands and sparsely vegetated areas showing increasing productivity	4210600	Appropriate SLM practices	4210600	2030	421.06
Low Soil Organic Carbon in Cropland (Poor Soil Fertility)	55.9 (ton/ha)	Appropriate SLM practices	59.5 (ton/ha)	2030	100

## 4. Achieving LDN

Governmental commitment to apply the LDN response hierarchy in order to reach the national LDN targets have been expressed by the “*Governmental High Level Note*”, which was endorsed by the then Minister for Environment and Natural Resources in August 2017. The LDN concept and targets are in the process of being mainstreamed into national land use planning. This entails harmonization with other relevant land degradation initiatives, programmes and projects and exchange of best practices.

The entry points for mainstreaming LDN into existing national land use policies, programmes and administrative systems includes:

- ***Stakeholder involvement***

LDN Kenya has established a robust working group comprising of relevant government ministries/departments, universities, research institutions, civil organizations and private sector. Members of the working group advice on relevant policies and activities supportive of LDN and proceed to integrate LDN recommendation in ongoing policy related initiatives.

- **A coordinating mechanism/platform**

To oversee the implementation of the LDN targets cross sectors and other entities a coordinating mechanism/ platform will be established to further develop a comprehensive tool for data assembly. The tool will be for use by key stakeholders working on LDN related programmes and projects for ease of collecting data for reporting on LDN progress both locally and to the UNCCD. The working group will form the advisory team to the coordinating team.

- **Capacity building through training**

For LDN to be mainstreamed into existing national land use policies, programmes and administration systems there is need to support and promote the development of expertise in government agencies, the private sector and civil society organizations in LDN strategies through targeted short and long term courses and awareness creation.

- **Partnership**

Partnerships in LDN, is key in order to achieve sustained commitment to move forward together and reach a higher common objective. Non-state actors have the advantage of being more independent of political pressures and partenering with governmnet they are well

positioned to play an important role in LDN agenda setting, policy development processes and implementation of initiatives.

### **LDN Transformative projects and programme opportunities identified**

There are several transformative projects and programmes that have been identified which contribute to achieving land degradation neutrality, ecological restoration and food security.

Major ones include:

1. Kenya is implementing a Global Environmental Facility (GEF) 5<sup>th</sup> cycle project on Scaling Up Sustainable Land Management and Agro-Biodiversity Conservation to Reduce Environmental Degradation in Small-Scale Agriculture in Western Kenya. This project is executed by UNEP and implemented by Kenya Agricultural Livestock Research Organization (KALRO) whose key objective is to address land degradation in agricultural landscapes in western Kenya.
2. The Upper Tana Nairobi Water Fund (UTNWF) is a GEF Cycle 6 Integrated Approach Pilot (IAP) project: The objective of the pilot project is to improve quality and quantity of water in Ndakaini Dam which supplies 85% of water required in Nairobi city through integrated approach to soil and water conservation in the entire dam catchment and promote enhancement of livelihoods to adjacent communities. The success of this pilot will inform the possibilities of upscaling.
3. Enhancing Integrated Natural Resource Management in the Tana Delta, is a project that aims to arrest and reverse current trends in biodiversity and land degradation and to increase ecosystem services in the Tana Delta. The project is executed by UNEP and implemented by Nature Kenya
4. Strengthening dry lands forest management for sustainable food systems and biodiversity conservation in the Southern rangelands of Kenya. This project is implemented by IUCN to support a functioning and resilient dryland forest landscape that supports a sustainable economic/food production through integrated natural management. The areas covered are from the Kenyan border with Tanzania to Mt. Suswa and the headwaters of the Southern Ewaso Ng'iro and Maasai Mara in Kajiado and Narok Counties.
5. Food Systems Land Use and Restoration (Folur) Impact Programme. This is a GEF project implemented in Mt Elgon Ecosystem. It aims to address degraded ecosystem and other environmental challenges through sustainable land management



## 5. Conclusion

Land Degradation is a major threat to sustainable development in Kenya. With the growing population and demand for expansion of land for agriculture and settlement, land based natural capital are being over exploited. Unsustainable land use conversion is a major challenge mainly on forest cover and other fragile ecosystems at the the risk of encroachment to meet the growing demand of the population. The LDN TSP provides a good opportunity to address these challenges, by developing strategic interventions geared towards *no net loss* and *net gain* of land based natural capital.

The LDN Targets were identified by the Working Group, through a consultative process and endorsed by the Minister for Environment and Forestry (Annex 6). These targets are aimed at addressing the main causes of land degradation, while achieving no net loss or net gain in land degradation neutrality at National, Subnational and community levels.

Involvement of stakeholders is key in the entire process as it creates ownership across board hence the establishment of the working group. Membership to the working group is drawn from government ministries/departments/agencies; research institutions; civil society organizations and private sector. The main role of the working group is to guide the LDN TSP process, review development milestones and advice on best practices in driving the LDN agenda in Kenya. The working group was instrumental in establishing the LDN targets and validating them based on their expertise. This working group will form the advisory team to the proposed coordination mechanism/ platform to oversee the implementation of the LDN targets.

Baseline data was very critical in assessing trends in land degradation. Earth observation data was provided by the Global Mechanism of the UNCCD for the three reference indicators (land use land cover, land productivity and soil organic carbon). These datasets provided good scenarios of the land degradation in Kenya. The working group validated and utilize these datasets to assess trends and causes of land degradation in Kenya. Most importantly, the baseline datasets enabled identification of hotspots, as areas severely affected by land degradation. Watershed data was critical in delineating hotspots, as most degraded hydrobasins were selected. The hotspots identified will guide intervention efforts during implementation of transformative projects.

Synergies were established between LDN TSP and key policy instruments in the country. Laws and policies exist that create an enabling environment for LDN implementation. The Constitution

of Kenya and EMCA No. 8 of 1999 are legal tools that support land management efforts. Other policy documents in environment, agriculture and water sector support the LDN agenda.

Kenya aims to reclaim degraded areas, reduce further degradation, and conserve areas that are not degraded. One key requirement in implementation of LDN project in Kenya will be to create adequate awareness and sensitization at grassroot level with representation of County Government. During the proces of developing the LDN targets this level of engagement was not comprehensive due to limited time and budget constriants. However, the Council of Governors officials represented the county governments in the process.

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## 7. Annex

### Annex 1: Working Group Meetings

Meeting	Dates	Objective
Planning Meeting with NFP	14th Sept 2016	LDN Work plan review
Planning Meeting with NFP	28th Sept 2016	LDN National Working Group Network Formation
Planning Meeting with NFP	15th Nov 2016	LDN Work plan and Budget review
Planning Meeting with NFP	5th January 2017	National Working Group nomination and Inception workshop planning
Inception Workshop	22nd – 23rd Feb 2017	Introduce stakeholders to the LDN programme and discuss leverage opportunities
Planning Meeting with NFP	16th March 2017	Review LDN Progress with NFP
LDN Validation Workshop	9th -10th May 2017	Review LDN targets and identify policy measure for achievement of LDN
LDN Validation Meeting	7th June 2017	LDN National Targets in Kenya
LDN Targets Endorsement Workshop	24th August 2017	LDN Targets Endorsement and Transformative projects





Annex 2: LDN Planning Table

**Trends in Net Land Productivity Dynamics (NetLPD) according to Land Use/Cover Category from 2000 to 2010 –source of data?**

Land Use/Cover Category	Area (2000)	Area (2010)	Net area change (2000-2010)	Net land productivity dynamics (NetLPD)** (sq. km)						Soil organic carbon (2000)*
	sq. km*	sq. km	sq. km	Declining	Early signs of decline	Stable but stressed	Stable not stressed	Increasing	No Data**	ton/ha
Forest	41218	40993	-225	1429	4722	7154	23999	3631	58	46.8
Shrubs, grasslands and sparsely vegetated areas	319251	319295	44	10849	37303	38342	187399	42106	3251	91.4
Croplands	182438	182619	181	10844	31674	32129	67328	39746	718	55.9
Wetlands and water bodies	14626	14626	0	286	243	702	1514	530	11350	14.5
Artificial areas	726	726	0	97	112	83	270	138	26	61.9
Bare land and other areas	27338	27338	0	186	182	673	21162	617	4518	14.5
<b>SOC average (ton/ha)</b>										<b>37.9</b>
<b>Percent of total land area</b>				<b>4.00%</b>	<b>12.70%</b>	<b>13.50%</b>	<b>51.50%</b>	<b>14.80%</b>	<b>3.40%</b>	
<b>Total (sq. km)</b>	<b>585597</b>	<b>585597</b>	<b>0</b>	<b>23692</b>	<b>74236</b>	<b>79084</b>	<b>301672</b>	<b>86768</b>	<b>19920</b>	

Changing Land Use/Cover Category	Net land productivity dynamics (NetLPD) trend 2000-2010 (sq. km)					
	Declining	Early signs of decline	Stable but stressed	Stable not stressed	Increasing	Total <sup>^</sup>
Forest to Cropland	3	5	56	85	31	180
Forest to Shrubs, grasslands and sparsely vegetated areas	2	2	17	19	4	44

Changing Land Use/Cover Category	Net area change (2000-2010)	Soil organic carbon 0 - 30 cm (2000-2010)				
	sq. km	2000 ton/ha	2010 ton/ha	2000 total (ton)	2010 total (ton)****	2000-2010 loss (ton)
Forest to Cropland	181	77.2	59.5	1396143	1076517	-319626
Forest to Shrubs, grasslands and sparsely vegetated areas	44	91.4	91.4	404640	404640	0
<b>Total</b>	<b>225</b>			<b>1800783</b>	<b>1481157</b>	<b>-319626</b>
<b>Percent loss total SOC stock (country)</b>						<b>0.55%</b>

(\* ) sq. km. stands for square kilometer or km<sup>2</sup>. To convert sq. km to hectares ha)x100.

(\*\*) Values for Net LPD and SOC are only for areas where Land Use/Cover is unchanged from 2000-2010.

(\*\*\*) 'No Data' includes snow, ice, desert areas, water bodies and missing pixels

(\*\*\*\*) Change in SOC due to changing Land Use/Cover derived from IPCC Good Practice Guidance for LULUCF (2006).

(<sup>^</sup>) Where LPD totals differ from the Net area change (2000-2010) in Table 3, the differences are due to LPD No Data values being excluded from Table 2

### Annex 3: List of LDN Working Group Members



#### MINISTRY OF ENVIRONMENT AND NATURAL RESOURCES

LAND DEGRADATION NEUTRALITY (LDN) TARGET SETTING PROCESS (TSP) ENDORSEMENT/TRANSFORMATIVE PROJECTS WORKSHOP, 24<sup>TH</sup> AUGUST, 2017 AT SILVER SPRINGS HOTEL, NAIROBI

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DATE: 31<sup>st</sup> August 2017

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Dear

**KENYA LAND DEGRADATION NEUTRALITY TARGETS ENDORSEMENT**

Kenya is grateful for the support received from Global Mechanism (GM) and United Nations Development Program (UNDP) to facilitate the global LDN Target Setting Program (LDN TSP). To achieve this process, the Ministry of Environment and Natural Resources established the National LDN working group drawn from Ministries, Departments, State agencies, civil society and private sector. The process was participatory and incorporated all relevant stakeholders. Baseline Assessments established trends and drivers of land degradation. Three indicators (land use land cover, land productivity and soil organic Carbon) were used to assess past and current status of land degradation in Kenya. Earth observation satellite data was used to perform the analysis. Consultative forums

were held to sensitize stakeholders and refine LDN targets. The final output of this process was endorsement of LDN targets for Kenya. These targets have been set up at national and subnational levels and are time bound, quantitative and site specific.


The LDN Targets will form the basis for the intervention strategies through LDN transformative projects. These targets will be monitored and evaluated using Land Cover, Land Productivity and soil carbon as indicators. The country is in the process of formulating transformative programs to implement Land Degradation Neutrality (LDN).

Land Degradation Neutrality (LDN) Target Setting Program is in line with the country's development policies and implementation of priorities related to National Action Program under United Nations Convention to Combat Desertification (UNCCD), Sustainable Development Goals (SDGs) and Vision 2030 which is the national long-term development policy that aims to transform Kenya into a newly industrializing, middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment.

The Government of Kenya is committed to mainstreaming LDN Targets at national and county levels and promotes implementation of land restoration efforts to achieve sustainable development.

Kenya through the Ministry of Environment and Natural Resources is pleased to endorse the LDN Targets as a key driver towards sustainable development.

Please accept, your Excellency the assurances of my highest consideration.

Yours 



**PROF. JUDI W. WAKHUNGU, EGH  
CABINET SECRETARY**