ANGLOPHONE AFRICA REGIONAL ACTION DOCUMENT ON LAND DEGRADATION NEUTRALITY, POLLINATORS AND FOOD SECURITY

Outcome of the BES-Net Regional Trialogue for Anglophone Africa:

Bright Spots for Land Degradation Neutrality, Pollinators and Food Security

Nairobi, Kenya
28-30 May 2019

BESNet
Biodiversity and Ecosystem Services Network

Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

SwedBio
A programme at Stockholm Resilience Centre

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The United Nations Development Programme works in about 170 countries and territories, helping to achieve the eradication of poverty and the reduction of inequalities and exclusion. We help countries to develop policies, leadership skills, partnering abilities, institutional capabilities and build resilience in order to sustain development results. The Nairobi-based Global Policy Centre on Resilient Ecosystems and Desertification (GC-RED) is one of UNDP's Global Policy Centres. GC-RED is responsible for advancing global thinking and knowledge sharing on inclusive and sustainable development in drylands and other fragile ecosystems.

The Biodiversity and Ecosystem Services Network (BES-Net) is a capacity sharing "network of networks" that promotes dialogue between science, policy and practice for more effective management of biodiversity and ecosystems, contributing to long term human well-being and sustainable development. The Network uses a three-pillar approach: face-to-face capacity building activities (the BES-Net Trialogues), National Ecosystem Assessments and an online platform for networking– with all components mutually reinforcing. BES-Net is hosted by UNDP GC-RED.

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Statements from the Organizers

"This meeting and other similar meetings, more than ever, need to bring out the nexus between land degradation, biodiversity loss and loss of pollinators. Unless we build those three up, we will not be able to reverse food insecurity which we are experiencing in most countries."

Richard Mwendandu
Director, Multilateral Environment Agreements
Ministry of Environment and Forestry, Kenya

"SwedBio and UNDP collaborate to tackle poverty and inequality, strengthen the outreach on biodiversity and ecosystem services and support thematic integration of biodiversity management into regional and national policy initiatives for poverty eradication and sustainable development. The issues of pollinators, land degradation and food security in Anglophone Africa are serious and complex. However, we have measures to combat the problems ahead of us. The solutions are at hand: we need to identify them and work together between policy, practice and science communities to put them at the forefront of regional and national agendas."

Henrik Brundin
Director
SwedBio at Stockholm Resilience Centre

"Our natural systems including fertile soil, water and pollinators, are basic ingredients of food production. Yet, unsustainable agricultural practices have led to land degradation and loss of these basic ingredients for farming. Nonetheless, in the word of our Administrator, Achim Steiner, we can still keep our hope as we have local, indigenous and scientific knowledge which proves that the production does not have to mean destruction. We would like to express our gratitude to the participants of the Anglophone Africa Regional Trialogue for their active participation and commitments to bridge the policy-science-practice divide and foster mutual learning towards the common objective of pollinator-friendly sustainable land management in the region."

Elie Kodsi
Senior Technical Advisor
UNDP GC-RED

Yuko Kurauchi
BES-Net Coordinator / Policy Specialist
UNDP GC-RED

Feedback from the Participants

"The trialogue session was so impressive and enlightened my understanding from different perspectives on the trends of the population of pollinators and importance of pollination at global scale. The roles of pollination in nutrition security, ecosystem health and in realizing Land Degradation Neutrality (LDN) is quite crucial for human wellbeing and hence need to get more attention from scientists, policy makers and practitioners."

Debissa Lemessa
Forest and Range Land Plant Biodiversity Directorate
Ethiopian Biodiversity Institute

"The Anglophone Africa Regional Trialogue meeting expanded my understanding in succinctly and effectively communicating issues affecting everyday human livelihoods. This will enable interpreting scientific findings in lay persons language, on restoring degraded land and soil, with the aim to achieve a land-degradation-neutrality and combat desertification while addressing local, national and global agenda for sustainable livelihood."

Wanja Kinuthia
Senior Research Scientist,
Invertebrates Zoology Sectionalist
National Museums of Kenya

"The Anglophone Africa Trialogue has brought answers to prayers; as I had always wondered the kind of forum that will combine pollination and other aspects of environmental concern. Trialogue made this marriage happen. The International Stingless Bee Centre (ISBC) was set up as a sanctuary of bees which do not sting with the aim of creating awareness to the general public on the importance of bees to Pollination, biodiversity conservation, food security, health care through medicinal hive products of honey, pollen and propolis. These native bees needed to be conserved in other to help keep our natural environment to mitigate climate change and at the same time as a centre for recreation where one could touch bees without being stung. At the ISBC, we provide environmental education to the future generation, carry out research, create awareness to the general public. ISBC can work with land managers to help improve our environment for food security and mitigate climate change. "

Peter K. Kwapong
Founder and Director, International Stingless Bee Centre, Ghana

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I. INTRODUCTION

This Action Document presents the key discussion points and the agreed priority areas of actions generated as a result of the BES-Net's Anglophone Africa Regional Trialogue, which was held in Nairobi, Kenya on 28-30 May 2019. The event was aimed at strengthening the interface between policy, science/traditional knowledge and practice, and enhance national capacity to integrate findings and policy-relevant options from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services' (IPBES) thematic assessments into policies, scientific research works and on-the-ground programmes and projects.

Land lies at the centre of political, social, and economic development in Anglophone Africa as land-based activities are fundamental to human livelihoods and well-being. In line with the Sustainable Development Goal (SDG) Target 15.3, countries in the region have been committed to combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world. In order to inform land use and management decision-making effectively at regional, national and local levels, it is of critical importance to articulate how biodiversity and associated ecosystem services (e.g., pollination, pest control, soil carbon) contribute to food security, climate change resilience and sustainable development.

The Trialogue brought together around 60 participants from the six IPBES member countries of Ethiopia, Ghana, Kenya, Malawi, Nigeria and Zambia as well as resource staff within and outside the region (Annex 1). It was hosted by the Ministry of Environment and Forestry in Kenya and held in collaboration with IPBES, the United Nations Convention to Combat Desertification (UNCCD) and the Coalition of the Willing on Pollinators, and with the financial support of BMU and SwedBio at the Stockholm Resilience Centre.

Under the theme of "bright spots for land degradation neutrality, pollinators and food security", the participants jointly reviewed the key messages of the two inter-linked IPBES Thematic Assessment Reports on 1) Land Degradation and Restoration (LDR) and 2) Pollinators, Pollination and Food Production, and assessed their relevance in the ongoing efforts to achieve Land Degradation Neutrality (LDN) and other land-related SDG targets (See Annex 2 for further details on the Trialogue agenda).

ON DAY 1, two keynote speeches were delivered by the representatives from IPBES and UNCCD to showcase the synergy and linkage of IPBES's scientific effort of LDR assessment and the LDN target setting and implementation process supported by UNCCD. The participants also had a hands-on 'walkshop' opportunity to deepen their understanding of the roles, benefits and dynamics of pollinators through the visits to two field sites growing avocado and coffee at medium and large commercial scales, respectively. The 'walkshop' enabled local farmers and businesses to be the protagonists, sharing knowledge and enabled participants to interact directly with them on the ground, to learn about their views on and interactions with different pollinator species and the benefits and challenges for agriculture.

ON DAY 2, the participants collaboratively worked on identifying the main drivers for pollinators loss and land degradation in their own countries. A TV show-style panel discussion was organized with the representatives from the African Union and the respective countries as part of the Trialogue methodology to encourage open, lively and participatory discussions on the LDN targets and their implementations in each country. Furthermore, an innovation corner session was organized to showcase existing local examples of "bright spot" practices which successfully link LDN, pollination and food security agendas.

ON DAY 3, action-oriented group work was held to agree on (sub-)national and regional activities to be implemented, building on the dialogues and interactions on the previous days. A dedicated session was also held for the policy community representatives to identify the specific windows of opportunity for policy uptake that harness BES in ways that simultaneously contribute to the achievement of the SDGs on food security and LDN, the post-2020 global biodiversity framework and Africa 2063.

Throughout the morning/afternoon break and lunch periods of the event, the participants were treated to a delicious array of pollinator- themed dishes and beverages, and they learned the stories of each pollination-dependent ingredient (Annex 3).

Through the three days of intensive programme, the Trialogue fully achieved its objectives to:

- Assess the latest knowledge on the contributions that ecosystem services, particularly pollination, make towards agricultural production and food security;
- Assess the trends and drivers of the decline

BES-Net Trialogue

The Trialogue is a face-to-face dialogue and capacity building methodology promoted by BES-Net that strengthen the culture of dialogue between the three different communities of policy, science and practice for sustainable use of biodiversity and ecosystem services (BES).

BES-Net Trialogues bring together academic scientists, policymakers and practitioners with indigenous and local knowledge with similar BES interests into a welcoming and constructive space for dialogue. Three-way interactions help the participants explore and acknowledge divergent knowledge viewpoints, improve inter-cultural understanding and jointly explore the areas of inter-institutional coordination. This leads to the co-development of a common agenda for action.

in the current status of ecosystem services, particularly pollination, and their impacts on achieving LDN targets and food security;

- Review and acknowledge/celebrate "bright spots" where actions are contributing to LDN targets, improved pollination services and food security; and
- Identify and agree on practical sustainable land management (SLM) measures that improve the resilience of ecosystems and their services and contribute to LDN, pollination and food security.

This Action Document builds on the Background Document, which was prepared in the run up to the Anglophone Africa Trialogue through an extensive literature review and a set of semi-structured interviews with key stakeholders in the region. Tailoring and aligning the IPBES Thematic Assessment findings and key messages to the specific regional/national contexts, the Background Document compiled the available evidence available on the status of pollinators, land degradation and key drivers affecting pollinators and policy gaps and opportunities. It contributed significantly to enhance the quality of interaction and discussion among the participants during the Trialogue.

The Action Document was developed in a collaborative manner with the proactive engagement of all Trialogue participants. The combined strategic regional and national action plans on land degradation neutrality, pollinators and food security, outlined in Tables 1-6, were drafted by participants and reviewed with colleagues on their return back to their countries and organisations. They are expected to serve as a roadmap for national and regional collaboration towards future awareness raising, knowledge generation, policy reform and on-the-ground practice.

II. KEY MESSAGES

Why land degradation matters

Land, literally the ground beneath our feet, is a finite resource composed of soil, water, minerals, plants, and animals. It is an essential part of our life support system and the key building block of our societies and economies (Figure 1). Land is the basis for biodiversity and estimates for values of ecosystem services range from US$ 2,188/ha/year for woodlands to as high as US$ 20,851/ha/year for tropical forests. Land is also important for achieving many SDGs as it underpins the resources and sectors that depend on them (Figure 2).

Currently, degradation of the Earth's land surface through human activities is negatively impacting the well-being of at least 3.2 billion people, pushing the planet towards a sixth mass species extinction, and costing more than 10% of the annual global gross product in loss of biodiversity and ecosystem services. Land degradation includes, but goes well beyond, issues of desertification in drylands. Ecosystems

FIGURE 1: Dimensions of land-human relationship
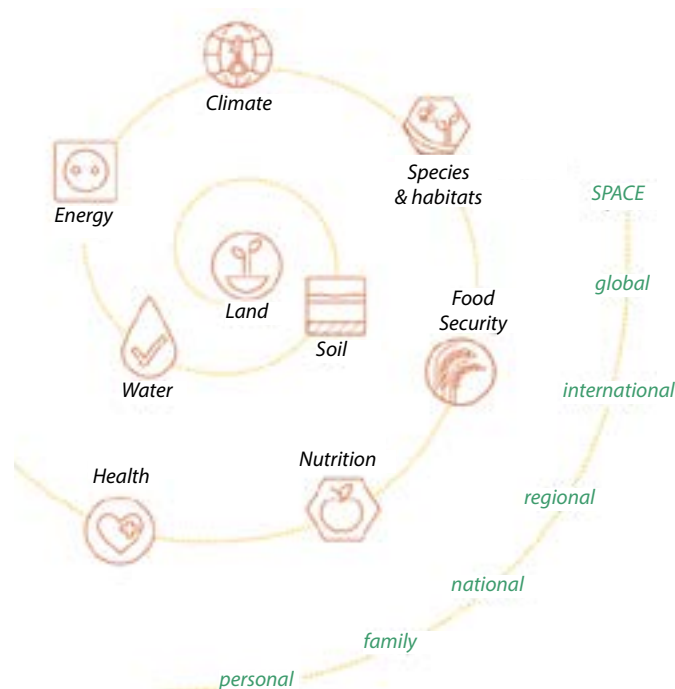
Source: UNCCD (2017). Global Land Outlook (1st ed.). Bonn, Germany: UNCCD.

FIGURE 2: Relevance of land degradation to targets of each SDG
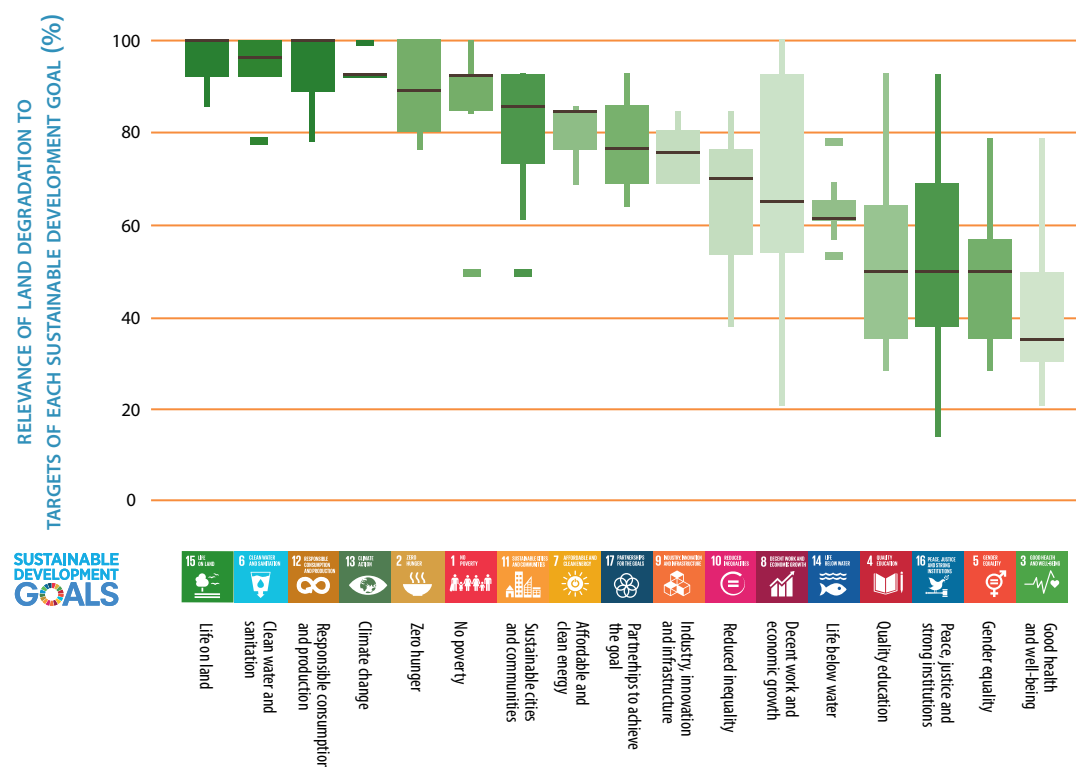
Source: IPBES (2018): Summary for Policymakers of the Assessment Report on Land Degradation and Restoration of the Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services. Bonn, Germany: IPBES secretariat.

affected by land degradation mainly include forests, rangelands and wetlands. Wetlands are particularly degraded, with 87% lost globally in the last 300 years, and 54% since 1900.

In developing countries, the extent of transformation is lower, but the rate of transformation remains high. In the future, most degradation and especially transformation is forecasted to occur in sub-Saharan Africa, Asia, Central and South America, which have the largest remaining amount of land suitable for agriculture. One of the key land-based ecosystem services affected by land degradation is food security. Agriculture is dependent on a range of ecosystem services including the support for services such as nutrient cycling and soil formation as well as regulating services such as water purification, atmospheric regulation, and pollination, all of which are negatively affected by land degradation.

Why pollinators/pollination matter

Globally, nearly 90% of wild flowering plant species depend, at least in part, on the transfer of pollen by animals. Plants are critical for the continued functioning of ecosystems as they provide food, form habitats (including for pollinators) and provide other resources for a wide range of other species.

75% percent of the world's food crops are reported to be dependent at least in part on pollination and pollinator dependent crops contribute to 35% of global crop production volume. This means that one in every three mouthfuls of food are pollinator-dependent. Importantly, the area of pollinator-dependent crops has increased disproportionately compared to other crops and the trend is more pronounced in the developing, as compared to the developed, world.

Pollinator-dependent food products are also important contributors to healthy human diets and nutrition. Most of the fruits and vegetables, which are essential sources of micronutrients, depend significantly on pollinators. Pollinators provide multiple benefits beyond food production and their value has an important cultural and social component. Many livelihoods and cultural practices depend on pollinators, their products and multiple benefits such as medicine, fibres, materials for musical instruments and as a source of inspirations for arts and literature, to name but a few.

What are the challenges of land degradation and pollinators?

Land degradation is a pervasive, systemic phenomenon and it occurs in all parts of the terrestrial world and can take many forms (e.g. soil erosion, biodiversity degradation, deforestation, etc.). Land degradation is not only affecting forests and ecosystems but also affects people by diminishing the contributions made by these ecosystems towards food production, food security, water security, climate regulation and many more activities essential to human life.

Rapid expansion and unsustainable management of croplands and grazing lands in response to increasing demand for food and biofuels are the most extensive global direct drivers of land degradation. Paradoxically, whilst nutrient-rich food depends on pollinators, agricultural production could be a driver of pollinator decline, especially when done in an intensive, input heavy fashion. Destruction, fragmentation and degradation of native habitats, along with conventional intensive land management practices, often reduce or alter pollinators' food and nesting resources.

What is the problem in the region?

- Land degradation drivers are varied across the different regions but typically involve agricultural expansion, overgrazing, slash and burn, harvesting of firewood for energy, mining, built up infrastructure, pesticides application on agricultural fields and others.
- Currently, almost all countries in Africa have committed to setting LDN targets; and all of the six countries in the Trialogue (i.e. Ghana, Nigeria, Kenya, Ethiopia, Malawi and Zambia) have already developed their LDN strategies, recognizing the severity of the problem.
- While land degradation, as a concept and an issue, is not new in Sub-Saharan Africa, appreciation of the challenges posed by land degradation tends to be undermined by the fact that negative impacts may not be observed immediately and can be highly variable and localized in nature.
- Much of the focus on land degradation has focused on a limited suite of impacts, often leaving out strategies to maintain and ensure the benefits from ecosystem services such as pollination and the provision of nutritious foods.
- As a region which is expected to experience the largest share of global population increase, much of the drivers of land degradation and pollinator declines such as food demand increases, demand for land for settlement, urbanization, deforestation and habitat fragmentation and overall land degradation will be amplified.
- Unlike land degradation, pollination is not a well-known problem on the continent. There is no region-wide information about the status of pollinators in Sub-Saharan Africa, and very little research exists across the continent (there are more studies in East and parts of Southern Africa).
- Although no direct evidence exists everywhere, there are indications from country-specific cases that the region is experiencing some pollinator declines. For example, the increasing dependence on non-natural pollination (e.g. hand pollination) in Ghana, South Africa, Ethiopia and Kenya suggest that pollinators in these countries might be declining, at least in specific parts of the countries.
- A lot of the foods eaten on the continent, which are also high in nutrients, are not part of the formal accounting process and are therefore not featured in accounts about impacts of land degradation and pollination declines on food availability.
- Combating land degradation and restoring degraded land is an urgent priority to protect the biodiversity and ecosystem services vital to all life on Earth and to ensure human well-being.

III. STRATEGIC REGIONAL AND NATIONAL ACTIONS TO ADDRESS THE PROBLEM

During the Anglophone Africa Regional Trialogue, the participants undertook a series of working group exercises to identify and collectively agree on the strategic and context-relevant actions through which to tackle the inter-linked challenges of land degradation, pollinators and food security at regional and sub-national levels (Tables 1-6). The IPBES assessment action plan format was adopted to organize the respective strategic policy, science and practice actions and targets. Each action is expected to address the threats to pollinators in a way that enhances food security and contributes to the respective voluntary national LDN targets (Annex 4).

TABLE 1: National actions on land degradation neutrality, pollinators and food security in Ethiopia

Goal	Strategy	Action	Regional	National/Local	Focal Point	Collaborating Organisation(s)	Link to National LDN Targets	Timeframe
Transform the relationship between society and nature	Learn from others, gather data, Integrate knowledge and diverse values in management	Identification of relevant stakeholders with best practices

Gather best practices, examples and cases on integrated beekeeping, crop production/Agroforestry practices

Organizing awareness raising workshop | Share the best practices gained at national level to regional partners through ABN | Share the best practices gained at national level to regional states (sub national) partners through EBI | EBI | MELCA-Ethiopia;

ORDA;

ISD;

Land Administration and Use Bureau (e.g. Oromia);

Agriculture, Environment and Forest sectors, etc. | Targets 1, 2 and 5 | Jun-19 |
| | Link people and pollinators through cross-sectoral collaboration | Organizing training on taxonomic expertise on pollinators identification

Identification of experts or trainers and trainees from different sectors | Share the best practices gained at national level to regional partners through ABN | Share the best practices gained at national level to regional states (sub nationals) partners through EBI | EBI | MELCA-Ethiopia;

ORDA;

ISD;

Land Administration and Use Bureau (e.g. Oromia);

Agriculture, Environment and Forest sectors, etc. | Targets 2 and 5 | Jun-19 |
| | Educate & raise awareness | Develop outreach materials and disseminate to target stakeholders and practitioners | Share the best practices gained at national level to regional partners through ABN | Share the best practices gained at national level to regional states (sub nationals) partners through EBI | EBI | MELCA-Ethiopia;

ORDA;

ISD;

Land Administration and Use Bureau (e.g. Oromia);

Agriculture, Environment and Forest sectors, etc. | Targets 1, 2 and 5 | Jun-19 |

ETHIOPIA

TABLE 2: National actions on land degradation neutrality, pollinators and food security in Ghana

Goal	Strategy	Action	Regional	National/ Local	Focal Point	Collaborating Organisation(s)	Link to National LDN Targets	Timeframe
Transform the relationship between society and nature	**Learn from others, gather data, Integrate knowledge and diverse values in management**	Organize exchange visits	Yes	Yes	Jewel	EPA, MESTI, LANDS AND FORESTY, MOFA, GIZ, UNDP, GEF, UNEP, CSIR, CRIG, CSO Universities	All 6 targets	Aug-19
		Create national network/ platforms	Yes	Yes	Alfred & Peter			
		Establish Community of Practice (COP)	Yes	-	Sulemana & Wedad			
		Conduct Baseline survey for Secondary data						
			Yes	Yes	Edward			
	Link people and pollinators through cross-sectoral collaboration	Identify Stakeholders: farmers, AEAs, Beekeepers, Researchers/ academics, marketers, horticulturers, NGOs, CSOs, relevant MMDAs (i.e. MESTI, Lands and Natural Resources)	-	Yes	Peter	MOFA, CSO	All 6 targets	Jul-19
		Organize forum to bring stakeholders together to dialogue.	-	Yes	Jewel	MESTI		Aug-19
	Educate & raise awareness	Organize education and awareness raising (using print and electronic media, Community information centres)	-	Yes	Alfred & Peter	EPA, MOFA, MEDIA	All 6 targets	Jun-19
		Establish social media presence	Yes	Yes	Alfred & Peter	MMDA, Traditional Authorities		
		Prepare fact sheets and flyers	-	Yes	Edward, Wedad & Sulemana	MMDA		
		Organize events with MMDAs	-		Edward			
		Have community fora	-	Yes	Asher			

TABLE 2 (CONTINUED): National actions on land degradation neutrality, pollinators and food security in Ghana

Goal	Strategy	Action	Regional	National/ Local	Focal Point	Collaborating Organisation(s)	Link to National LDN Targets	Timeframe
Improve current conditions for the maintenance of pollinator populations and pollination services	Manage immediate risks for pollinators	Organize awareness and capacity building workshops	Yes	Yes	Jewel	GJA, MESTI, MOFA	Target 1: E.g. Restore 882.86km2 of converted forest into other land use/ cover types and rehabilitate/restore all abandoned legal and illegal mining sites by 2030. Also addresses Targets 2, 4 and 5	Jun-19
		Encourage prolonged fallow and tree planting	-	Yes	Asher	MMDA, NGO, CSO		
		Create fire belts	-	Yes	Asher/ Sulemana	MIN LOCAL Govt		
		Institute enrichment planting	-	Yes	Sulemana/ Wedad	EPA		
		Train agrochemical sellers	-	Yes	Peter			
		Establish fodder banks	-	Yes	Edward			
	Enhance resilience	Institute a sound water and land management system (ie. Mulching, composting, stone and/or earth bonding)	-	Yes	Alfred/ Asher/ Jewel/ Sulemana	Soil Research Institute, Agric colleges	Same as voluntary targets 1,4 and 5	Jun-19
		Diversify community livelihood options	-	Yes	Wedad/ Edward	Communities, and NGOs, MMDAs		
		Revive indigenous seeds	-	Yes	Alfred/Peter	PGRRI, MOFA		
	Capitalize on immediate opportunities	Capitalize on the existing sustainable land and water management project (SLMP)	-	Yes	Asher	MESTI, Min Lands and Natural Resources, FC,	All 6 targets	Jun-19
		Promote AU Beekeeping project	Yes	-	Peter	MOFA, FC, WRC		
		Identify organizations working on sustainable livelihoods with focus on beekeeping, conservation and reforestation eg. Forestry Commission	-	Yes	Sulemana, Wedad, Edward	MOFA, National Beekeepers Association, NGOs, Development Partners, FORIG		
Transform agricultural landscapes	Ecologically intensify[1] agriculture through active management of ecosystem services	Implement Payment for Ecosystem Services (PES)		YES	Asher	MOFA, EPA	All 6 targets	Jun-19

1. Ecological intensification may be formally defined as a knowledge-intensive process that requires optimal management of nature's ecological functions and biodiversity to improve agricultural system performance, efficiency and farmers' livelihoods, www.fao.org/agriculture/crops/thematic-sitemap/theme/biodiversity/ecological-intensification/en).

TABLE 3: National actions on land degradation neutrality, pollinators and food security in Kenya

Goal	Strategy	Action	Focal Point	Collaborating Organisation(s)	Link to National LDN Targets	Timeframe
Transform the relationship between society and nature	Educate & raise awareness	Educate farmers on the dangers of pesticides (Identify all stakeholders doing farmers awareness on pesticides. Include pesticide companies like Agro chemical and crop life)	ESimeoni to collaborate with AMaina, Kenya Biodiversity Network (KBN)	KBN, Africa Beekeepers Limited (ABL), MEVN&F, Kenya Agricultural and Livestock Research Organisation (KARLO), Kenya Forestry Research Institute (KEFRI), National Museums of Kenya (NMK)	Target-1: Review status of national policies to increase forest cover through afforestation/ agroforestry by 5.1 million ha	21 Days
		Come up with A CONCEPT communication strategy on matters of pollination, pollinators, BES and LDN.	RMwendandu, MMwari, PKariuki WanjaK.	Development Partners, Commercial bee keepers, Subsistence bee keepers, Stingless bee keepers, NMK, KALRO, KEFRI, County Governments		One Year
	Learn from others, gather data, Integrate knowledge and diverse values in management	Create a platform to share data;	Mgikungu, NMK & MMwari KARLO	Ministry of Environment and Forestry (MENV&F) - PNdonye/ RMwandandu & NMK (PKariuki), Agro Chemical, Crop life	Target-1	Short-term
		Identify coordinator				
		Come up with a strategy to review available data and information then identify gap	Mgikungu, NMK & MMwari KARLO	NMK, KALRO & other institutions		Medium to Long-term
		Compile best practices in LDN & pollinator management using scientfic knowldege and Indiegnous and local knowledge	WanjaK., MGichora & PKariuki			
	Promote pollinator management and LDN for food security	Map out pollinator distribution, diversity, abundance and their floral resources	MGikungu& MWarui	NMK, KALRO & other institutions	Target-1	Medium to Long-term
		Map out nesting sites for pollinators	Mgikungu, MGichora & MWarui			
		Document threats (habitat degradation/ fragmentation, land use change, exotic and invasive species etc.)	Rmwendandu, MGichora, PNdonye, PKariuki			
		Gather and compile data on crop pollinator interactions and their alternative floral resources	MMwari, MWarui & Wanja K			
		Examine the economic value of commercial crop pollination	ESimeoni, MGichora, WanjaK, MMwari	NMK, KALRO, KEFRI, ABL		
	Promote agroforestry using indigenous trees	Develop priority list of indigenous forage/nesting plants suitable plants with diverse use to promote in Agroforestry	MGichora, MMwari, JSamorai	KEFRI, KALRO, NMK, development partners, local farmers, MENV&F,	Target-1	Medium and Long term
		Identify knowledge gaps in LDN, indigenous, agroforestry and pollination	MGichora, MMwari	& County Governments		
		Initiate Contact with authorities relevant to pollinator management & LDN	MGikungu & PNdonye	NMK & other partners		
		Develop a database on folk taxonomy and link it to conventional taxonomy	MGikungu. & PKariuki	NMK, KEFRI, KALRO & other partners		
		Document important pollinator resources and their diverse uses	WanjaK. & MGichora. & MMwari.	MENV&F, Ministry of Agriculture and Irrigation (MoA&I), KALRO, NMK KEFRI		
		Distribute and diversity and improve abundance of floral resources	WanjaK., MGichora, MMwari	NMK, KEFRI, KALRO, ABL		
		Map out nesting sites	MMwari, WanjaK	KARLO, NMK		
		Document the threats-habitat degradation, habitat fragmentation, land use change, exotic/ invasive species	MGichora & PNdonye	MENV&F, MoA&I, KALRO, NMK KEFRI		
	Link people and pollinators through cross-sectoral collaboration	Initiate establishment of a network of networks in BES, and LDN	WanjaK. Esimeoni, JSamorai, Amaina, RMwendandu	Development Partners, commercial bee keepers, subsistence bee keepers, stingless bee keepers, NMK, KALRO,	Target-1	
		Document stingless bees for pollination and honey production and LDN	WanjaK, MWarui, Jsamorai, PAdolwa	KEFRI, County Governments		

Goal	Strategy	Action	Focal Point	Collaborating Organisation(s)	Link to National LDN Targets	Timeframe
Improve current conditions for the maintenance of pollinator populations and pollination services	Manage immediate risks for pollinators	Scrutinise the Risks, Action to pollinators	MMwari, MWarui, PNdonye	KARLO, NMK, private sector, institutions of higher learning/ academia, farmers,	Target-2: Propose ways to increase by 16% net land productivity in forest, shrub land/grassland and cropland showing declining productivity, which can be achieved through SLM practices.	Medium and Long term
				experienced beekeepers & apiculture trainers		
		Raise farmer awareness on the value of pollinators and pollination service	WanjaK, MGichora, MMWari			
		Promote pollination services (commercial and small holders) Earnest S	ESimeoni, MGichora, MMwari			
		Document pollinator populations, diversity and abundance	MGikungu, MWarui, MGichora,	KARLO, NMK, private sector, institutions of higher learning/ academia, farmers,		
		Establish a monitoring system for the pollinators diversity and their floral resources and nesting sites	WanjaK, JSamorai	& farmer groups, KEPHIS, SwedBio,		
	Enhance LDN, Pollinator & resilience	Document LDN and pollinator data of best practices.	Rmwendandu, MWarui & WanjaK	MoA&I	Target-2	Medium and Long term
		Quantify the value of pollinators on crop yield- raspberry, Avocado, Macadamia and Coffee	MMwari, Esimeoni & WanjaK	KALRO, NMK, ABL		
	Capitalize on immediate opportunities	Book an appointment with UNDP	Ayiemba W. & Mwendandu R.	UNDP, MENV&F	Target-2	21 Days
		Promote commercial honey production	ESimeon, Peter A. & MWarui	ABL, University of Nairobi, NMK		Short to Long term
		Promote avocado pollination experiment in Thika	MMwari, ESimeoni & WanjaK	KALRO NMK, ABL		One year
		Undertake economic Valuation of ecosystem services	MGichora, MMwari	KEFRI, KALRO, NMK		Short to Long term
		Develop concept: Establish demonstration multipurpose pollination gardens	PAdolwa. PKariuki & MGichora			
		Review the current practices of commercial pollination	WanjaK, MMwari, ESimeoni			
Transform agricultural landscapes	Identify NGOs/ communities that are promoting ecological intensification	Research on pollinator pests and diseases (honey bees)	MGichora, ESimeoni, WanjaK	KEFRI, NMK, KALRO & other partners	Target-5: Rehabilitation of all abandoned mining and quarrying areas through enforcement of by-laws.	
	Strengthen agriculturally diversified systems	Promote pollinator floral resources (using indigenous plants)	MENV&F, KARLO; MMwari, MGichora, PNdonye	NMK, KEFRI, private sector, institutions of higher learning/ academia, farmers,		
				& farmer groups, MoA&I		

KENYA

TABLE 4: National actions on land degradation neutrality, pollinators and food security in Malawi

MALAWI

Goal	Strategy	Action	Focal Point	Collaborating Organisation(s)	Link to National LDN Targets	Timeframe
Transform the relationship between society and nature	Learn from others, gather data, Integrate knowledge and diverse values in management	Join a pollinator network (e.g. IPBES Pollinator Partnership, Pollination Information Network, Pollinator Information Network for Sub-Saharan two winged insects)	Regional	EAD (Lilian)	Wildlife and Environmental Society of Malawi (WESM), CSOs and Govt Depts, Academic institutions	21 Days
		Develop a national pollinators network	National-Local	EAD (Lilian)	FD, Mauambeta	21 Days
		Institutional mapping of key pollinator players	Regional; National-Local	EAD (Lilian)	Bee Parks Trust, Goldwell Honey, African Parks, Ilovo, academic institutions, NGOs (e.g. WEMS, Mulanje Conservation Trust, Bats without Borders), local bee keeper association (Soils Food and Health Communities), DF	21 Days
		Data collection on work already done on pollinators	Regional; National-Local	Acre Fund (Sibusisiwe)	Mauambeta, Nyuma (DF), Dakishoni (SFHC), Bats without Borders (Rachael Cooper-Bohannon), EAD (Lilian)	Jun-19
		Conduct pollinator research - prioritise research need - develop proposal funding - conduct research	National-Local	LUANAR	WESM, South African Biodiversity Institute.Bats without Borders (Rachael Cooper-Bohannon), Farmers Union of Malawi (FUM), National Council for Science and Technology (NCST)	Dec-19
	Link people and pollinators through cross-sectoral collaboration	Identify pollination-dependent farmers (e.g. tea, coffee, honey) and develop a database	National-Local	Nyuma (FD)	Bats without Borders (Rachael Cooper-Bohannon), One Acre Fund, Mauamber, DNP, African Parks, FUM, NASFAM, WESM (Tiwonge Gawa), EAD (Lilian)	Sep-19
		Link to private sectors (e.g. tea association)	National-Local	Bats without Borders (Rachael Cooper-Bohannon)	WESM, One Acre Fund, CSOs and Govt Depts, Academic institutions	Sep-19
	Educate & raise awareness	Develop materials for pollinator-dependent farmers, general public, youth, policy and decision-makers	National-Local	EAD (Lilian) / Outreach session	Bats without Borders (Rachael Cooper-Bohannon), One Acre Fund (Sibusiswe), Mauambeta (ECS), WESM, Nyuma.	Aug-19
		Radio and Green Café (TV programme) to share information for free	National-Local	Sangwani (PRO for Ministry of Ntural Resources, Energy and Mining)	Bats without Borders (Rachael Cooper-Bohannon), One Acre Fund, Mauambeta (ECS), WESM (Education Officers from all nine branches), Nyuma	Sep-19 (Ongoing)
		Government specific: targeted messaged to gain political will to reduce pesticide and herbicide use	National-Local	EAD (Lilian)	Bats without Borders (Rachael Cooper-Bohannon), One Acre Fund, Mauambeta (ECS), WESM (Education Officers from all nine branches), Nyuma	Nov-19
Improve current conditions for the maintenance of pollinator populations and pollination services	Manage immediate risks for pollinators	Identify immediate risks to pollinators in Malawi	National-Local	One Acre Fund (Sibusisiwe)	WESM, Bats without Borders (Rachael Cooper-Bohannon)	Aug-19
		Conduct stakeholder meeting to get an in-depth understanding of risks to pollinators	National-Local	One Acre Fund (Sibusisiwe)	Bats without Borders (Rachael Cooper-Bohannon), One Acre Fund, Mauamber, DNP, African Parks, FUM, NASFAM, WESM (Tiwonge Gawa), EAD (Lilian)	Dec-19
		Train farmers on proper timing for pesticides application.	National-Local	One Acre Fund (Sibusisiwe)	Bats without Borders (Rachael Cooper-Bohannon), One Acre Fund, Mauamber, FUM, NASFAM, EAD	Feb-20
		Train small holder farmers on safeguarding pollinators	National-Local	One Acre Fund (Sibusisiwe)	Bats without Borders (Rachael Cooper-Bohannon), Mauamber, , FUM, NASFAM, WESM	Feb-20
	Enhance resilience/ Capitalise on immediate opportunities	Train farmers in environmentally friendly income generating activities	National-Local	One Acre Fund (Sibusisiwe)	Bats without Borders (Rachael Cooper-Bohannon), One Acre Fund, Mauamber, DNP, African Parks, FUM, NASFAM, WESM. Farms4 Biodiversity	Jan-20
		Conduct farmers demonstration plots for crop diversification and promotion of indigenous varieties	National-Local	Min. Agriculture/ One Acre Fund	Bats without Borders (Rachael Cooper-Bohannon, FUM, NASFAM, Farms4 Biodiversity	Dec-20
		Form and train farmers association in value addition for agricultural produce	National-Local	Min. Agriculture	One Acre Fund, Mauamber, , FUM, NASFAM, Farms4 Biodiversity	2019 (Ongoing)

Goal	Strategy	Action	Focal Point	Collaborating Organisation(s)	Link to National LDN Targets	Timeframe
Transform agricultural landscapes	Ecologically intensify agriculture through active management of ecosystem services	Orient farmers on Integrated Pest Management	National-Local	Min. Agriculture	Bats without Borders (Rachael Cooper-Bohannon), One Acre Fund, Mauamber, DNP, African Parks, FUM, NASFAM, WESM (Tiwonge Gawa), EAD (Lilian)	Dec-20
		Identify case studies and calculate potential benefits (e.g. stinkbugs being eaten by bats on macadamia orchards)	National-Local	Bats without Borders (Rachael Cooper-Bohannon)	, One Acre Fund, Mauamber, DNP, African Parks, FUM, Farms4 Biodiversity	Sep-19
	Strengthen agriculturally diversified systems	Orient farmers on benefits of crop and livestock diversification	National-Local	Min. Agriculture/ One Acre Fund	Bats without Borders (Rachael Cooper-Bohannon), Mauamber, FUM, NASFAM, Farms4 Biodiversity	Oct-19
	Invest in ecological infrastructure	Identify and map out ecological infrastructure	National-Local	EAD (Lilian)	Bats without Borders (Rachael Cooper-Bohannon), One Acre Fund, Mauamber, DNP, African Parks, FUM, NASFAM, WESM (Tiwonge Gawa)	Aug-19
		Restore degraded land to enhance ecosystem services	National-Local	Forestry Department (Nyuma)	Bats without Borders (Rachael Cooper-Bohannon), One Acre Fund, Mauamber , African Parks, FUM, NASFAM, EAD (Lilian)	Apr-20
		Encourage farmers to construct check dams and plant vertiva on contour ridges to conserve soil and water	National-Local	Agriculture / One Acre Fund	FUM, NASFAM, WESM, EAD (Lilian), Farms4 Biodiversity	October 2019 (Ongoing)
		Demonstrate the value and contribution of ecological structures to national development agenda	National-Local	Agriculture /One Acre Fund	Bats without Borders (Rachael Cooper-Bohannon), One Acre Fund, Mauamber, DNP, African Parks, FUM, NASFAM,	Dec-21

MALAWI

TABLE 5: National actions on land degradation neutrality, pollinators and food security in Nigeria

Goal	Strategy	Action	Regional/ National/ Local	Focal Point	Collaborating Organisation(s)	Link to National LDN Targets	Timeframe
1. Transform the relationship between society and nature	1.1. Learn from others, gather data, Integrate knowledge and diverse values in management	1.1.1. Develop a National data-base for pollinators (Generate Base-line Data)	National	Lead Champion- Dr. Kabir (BUK); CO-Actors: Mr Benneth Obitte (SMACON); Ms Damaris Uga (WEP), NAWIA;	Federal Ministry of Environment (FMENV), Federal Ministry of Agriculture and Rural Development (FMARD), National Bureau of Statistics (NBS), International Institute of Tropical Agriculture (IITA), Forestry Research Institute of Nigeria (FRIN), National Biosafety Management Agency (NBMA), Nigerian Conservation Foundation (NCF), National Biotechnology Development Agency (NABDA), National Institute for Pharmaceutical Research and Development (NIPRD), Small Mammal Conservation Organization (SMACON)	Target 1: Improve land productivity and soil organic carbon stocks (SOC) in 463,300 ha of cropland and grasslands by 2030 as compared to 2015	21 Days
		1.1.2. Commission a Study on Categorization and potential threats to Pollinators in Nigeria	National	Mrs Mabel Emmanuel	FMENV, FMARD, CENRAD	Target 2: Rehabilitate 1,722,660 ha of cropland showing declining land productivity and 10,565,040 ha of cropland showing early signs of declining land productivity by 2030	21 Days
		1.1.3. Exploratory meeting with GEF Focal Office for potential funding of a pilot project under GEF 7 replenishment	National	UNCCD, CBD AND IPBES	FMENV, UNDP, CENRAD		21 Days
		1.1.4. Engage FAO, UNDP, AU, EU and SwedBio on development of Framework for National pollinators programme in Nigeria	National	UNCCD, CBD AND IPBES	FMENV		21 Days
		1.1.5. South-south knowledge Exchange with other Countries (Kenya and Ghana)	National	IPBES FP	FMENV, FMA, NIPRD, SMACON		21 Days
		1.1.6. Joining the Promote Pollinators Coalition of the Willing (promotepollinators.com)	Global	CBD NFP			21 Days
	1.2. Link people and pollinators through cross-sectoral collaboration	1.2.1. Creating a National BES-Net Platform	National	CHM-CBD NFP	FMENV, NIRPD, FRIN, FMARD	All LDN Targets	21 Days
		1.2.2. Organize Outreach programmes	National/ Local	Mr Benneth Obitte	SMACON, Women Environmental Program (WEP), NAWIA, FMA, FME, FMENV, Women Environmental Program (NYSC), Wildlife Conservation Society (WCS), NCF		21 Days
		1.2.3. Consultation with National Apiculture Platform	National	FDF	Centre for Environment, Renewable Natural Resources Management, Research and Development (CENRAD)		21 Days
		1.2.4. Development of Education and Outreach Materials	National	Mr Benneth Obitte	CENRAD		21 Days
	1.3. Educate & raise awareness	1.3.1. Sensitization and awareness creation on discouraging the use of Agro-chemicals in farming and the need for biological methods in growing crops	National/ Local	DDA and FDF	CSOs, NGOs, FMARD	Targets 1 and 2	21 Days
		1.3.2. Sensitization and awareness creation for the Traditional Medicine Practitioners (TMPs) on unsustainable wild collection of medicinal plants.	National/ Local	NIPRD	NIPRD, FMENV, FRIN, FDF, Federal Ministry of Health (FMH), FMARD, Biodiversity Development and Conservation and Programme (BDCP)	Targets 1 and 2	
		1.3.3. Training on cultivation of indigenous medicinal plants for sustainability and restoration as well as quality assurance by the TMPs.	National/ Local	NIPRD	NIPRD, FMENV, FRIN, FDF, FMH, FMA	Targets 1 and 2	
		1.3.4. Champion tree planting by the TMPs at designated or allocated spots by the Local government authority and/or the village heads.	National/ Local	NIPRD	NIPRD, FMENV, FRIN, FDF, FMH, FMA	Targets 1 and 2	

Goal	Strategy	Action	Regional/ National/ Local	Focal Point	Collaborating Organisation(s)	Link to National LDN Targets	Timeframe
2.0. Improve current conditions for the maintenance of pollinator populations and pollination services	**2.1. Manage immediate risks for pollinators**	2.1.1. Develop a project concept note to promote the multiplication of pollinators in selected ecosystems	Local	NGOs	FMENV, Centre for Environment, Renewable Natural Resources Management, Research and Development (CENRAD)	Targets 1 and 2	21 Days
		2.1.2. Development and adoption of parasite- and pathogen-resistant stocks of pollinators	National	FDF	FRIN, NIPRD, NABDA, IITA	Targets 1 and 2	21 Days
		2.1.3. Identify and disseminate strategies for conservation and restoration of pollinator habitat	National	FDF	FMARD, FMENV, CSOs, NGOs, FRIN, IITA	All targets	21 Days
		2.1.4. Identify, document and disseminate indigenous nonchemical control methods for control of parasites and pathogens	National	FDF, NIPRD	Department of Pollution Control (DPC), FMENV, CSOs, NGOS, FMA, FRIN, NABDA, BDCP	All Targets	21 Days
	2.2. Enhance resilience	2.2.1. Planting of pollinator forage in selected farms as a pilot program	National	FDF	FRIN, FMARD	Targets 1 and 2	21 Days
		2.2.2. Identify, develop, and disseminate nature-based solutions to reduce the impact of invasive aliens on pollinators	National	FDF, NCF	NCF, FRIN, IITA Forest Centre, BDCP	Targets 1 and 2	21 Days
	2.3. Capitalize on immediate opportunities	2.3.1. Develop and promote methods on bird conservation in Agricultural landscape to improve pollinator services	National	FDF, NCF	NCF, IITA, FRIN, A.P. Leventis Ornithological Research Institute (APLORI)	All Targets	21 Days
3.0. Transform agricultural landscapes	**3.0. Ecologically intensify agriculture through active management of ecosystem services**	3.1.1. Identify and document economic benefits and costs associated with ecological intensification	National	FDF	BDCP	Targets 1 and 2	21 Days
		3.1.2. Development of options for how to close the yield gap in crop production	National	FDF	FMARD	All Targets	
	3.2. Strengthen agriculturally diversified systems	3.2.1. Establishment of pollinators demonstration plot	National	FDF	NAP, NIPRD, FRIN, NGOs, CSOs, BDCP	All Targets	21 Days
	3.3. Invest in ecological infrastructure	3.3.1. Develop model for nature-based infrastructure and agro-forestry models in Agricultural landscape	National	FDF, NCF	IITA, NCF	All Targets	21 Days

NIGERIA

TABLE 5: National actions on land degradation neutrality, pollinators and food security in Zambia

Goal	Strategy	Action	Regional/ National/ Local	Focal Point	Collaborating Organisation(s)	Link to National LDN Targets	Timeframe
Transform the relationship between society and nature	Learn from others, gather data, Integrate knowledge and diverse values in management	Create knowledge sharing centres	X	UNCCD and IPBES focal points	Line Ministries, CSO, NGOs, farmer organisations and groups.	Target 7	Jun-19
	Link people and pollinators through cross-sectoral collaboration	Enhance existing environmental education platforms for relevant stakeholders	X	IPBES, NUSFAZ, Namfumu	Line Ministries, CSO, NGOs, farmer organisations and groups	Target 1, 2, 3, 4, 5, 8, 10 and 12	
	Educate & raise awareness	Enhance and employ existing communication strategies and other platforms to educate and raise awareness	X	UNCCD and IPBES focal points	Line Ministries, CSO, NGOs, farmer organisations and groups.	All National Targets	June 2019 (Ongoing)
		Lobbying and facilitating capacity building for transformative change through awareness and skills development	X	UNCCD and IPBES focal points and Namfumu Conservation Trust	Line Ministries, CSO, NGOs, farmer organisations and groups		Aug-19
Improve current conditions for the maintenance of pollinator populations and pollination services	Manage immediate risks for pollinators	Lobby for the removal of harmful subsidies on inputs and agro products	X	NUSFAZ, Namfumu	Line Ministries, CSO, NGOs, farmer organisations and groups	Targets 4, 7 and 8	September 2019 (Ongoing)
		Facilitate the scaling up integrated and conservation agriculture	X	IPBES NFP	Line Ministries, CSO, NGOs, farmer organisations and groups	Targets 4, 6 and 8	Sep-19
		Enhancing the collaborative implementation of programs	X	IPBES NFP	Line Ministries, CSO, NGOs, farmer organisations and groups	All Targets	Aug-19
	Enhance resilience	Enhance crop diversification, intercropping and crop rotation	X	IPBES NFP	Line Ministries, CSO, NGOs, farmer organisations and groups	Targets 4, 6 and 8	August 2019 (Ongoing)
	Capitalize on immediate opportunities	Use existing projects that are running to disseminate information for improving conditions of pollinator populations and pollination services.	X	IPBES NFP, UNDP	Line Ministries, CSO, NGOs, farmer organisations and groups	All National Targets	July 2019 (Ongoing)
		Use existing projects that are running to disseminate information for enhancing sustainable land management	X	UNCCD NFP	Line Ministries, CSO, NGOs, farmer organisations and groups	All National Targets	
		Raise awareness using cluster meetings for sectors and inter – agency committee on environment	X		Line Ministries, CSO, NGOs, farmer organisations and groups	All National Targets	Aug-19
		Incorporate the issues of pollinators wellbeing in the NBSAP during Midterm, Review and NPE undergoing currently	X	IPBES NFP	Line Ministries, CSO, NGOs, farmer organisations and groups		Sep-19

Goal	Strategy	Action	Regional/ National/ Local	Focal Point	Collaborating Organisation(s)	Link to National LDN Targets	Timeframe
Transform agricultural landscapes	**Ecologically intensify agriculture through active management of ecosystem services**	Through the incorporation of indigenous knowledge, strengthen existing diversified farming systems by emphasising the roles, responsibilities and importance of pollinators in increased agricultural production.	X	BIOFIN Research Assistance	Line Ministries, CSO, NGOs, farmer organisations and groups	Targets 4, 6 and 8	Sep-19
	Strengthen agriculturally diversified systems	Dissemination and sharing of information, lobby for enhanced eco-friendly agrosystems that promote SLM	X	IPBES and UNCCD NFPs	Line Ministries, CSO, NGOs, farmer organisations and groups	Targets 4, 6 and 8	Sep-19
		Expansion of e-voucher systems in the administration of farmer input support program to enable farmers access to diversified and pollinator friendly inputs.	X	NUSFAZ	Line Ministries, CSO, NGOs, farmer organisations and groups	Targets 4, 6 and 8	Oct-19
	Invest in ecological infrastructure	Placing economic value on biodiversity and ecosystem services.	X	BIOFIN Research Assistance		All National Targets	

ZAMBIA

IV. DESCRIPTION OF LAND DEGRADATION-POLLINATION NEXUS AT NATIONAL LEVEL

ETHIOPIA

Land degradation

Ethiopia is the country most seriously affected by land degradation in Sub-Saharan Africa, and some estimates show that as much as 85% of Ethiopia's land is degraded to some various degree (Gebreselassie et al., 2015). This is mainly in the form of degradation of forests, croplands and wetland productivity, and is occurring across most of the country's regions. The drivers for this degradation include deforestation, conversion to cropland cultivation, overgrazing, soil erosion, pressure from livestock movement, urbanisation and mining, among others.

According to studies in Ethiopia, the annual costs of land degradation related to soil erosion and nutrients loss from agricultural and grazing lands is estimated at about US$106 million, which is about 3% of Ethiopia's agricultural Gross Domestic Product (GDP) (Yesuf et al., 2008; Kirui and Mirzabaev, 2015). These studies further estimated that other annual losses included US$23 million forest losses via deforestation and US$10 million loss of livestock capacity. The combined costs of these translated to an annual total loss of about US$139 million (about 4% of Ethiopia's GDP).

Pollination

A series of studies investigating various relationships between forests, coffee production and pollinators in a subsistence farming context in Ethiopia show that: pollination services increase coffee yields by as much as 91% (Samnegård et al., 2016); while the semi-wild honeybee survival was not related to shade tree structures, this mattered for other types of pollinators (Samnegård et al., 2014); that bee species richness and abundance is better around forests (Samnegård et al., 2015). On a more general level, i.e. beyond subsistence agriculture, a recent study in Ethiopia estimated the economic value of pollination at US$815.2 million in 2015/16 (Alebachew, 2019). This is hardly surprising as pollination services are also important for crops which are important for the export market (Table 1).

TABLE 1. Selected top export crops for Ethiopia and their level of dependence on pollinators

CROP	EXPORT VALUE (US$ 1,000)	POLLINATOR DEPENDENCE*
Coffee, green	1,018,149	Modest
Sesame seed	474,398	Modest
Beans, dry	134,498	Little
Broad beans, horse beans, dry	47,290	Modest
Tomatoes	18,542	Little
Soybeans	17,539	Modest

* http://www.fao.org/fileadmin/user_upload/pollination/docs/POLLINATION_VALUE_ARRAY.xls

Land degradation

Ghana had 35% of its land under threat of desertification since the 1960s and 1970s. This is particularly true in the Upper East, Upper West and Northern Regions. As a result, large tracts of cropland have become unproductive, despite being previously fertile. Land degradation is also affecting non-agricultural areas and is resulting in losses of grasslands, forests and woodlands. Similarly, natural water bodies are drying up due to prolonged droughts and sedimentation of watercourses resulting from soil erosion.

A recent study assessed the impacts of land degradation on six ecological zones in Ghana and found that all these ecological zones are at risk – but this is particularly concentrated in the Sudan and Guinea savannah ecological zones in the northern, upper east, and upper west regions of Ghana (Mensah et al., 2015). Diao and Sarpong (2007) estimated and projected the economic cost of agricultural land degradation between 2006 – 2015. They suggest that land degradation reduced agricultural income by US$4.2 billion during that period.

Pollination

The Ghanaian Cocoa Board (COCOBOD) recognises the decline of pollination services in the cocoa production and launched a national hand pollination programme targeted at increasing cocoa yield in the country after observing declines in pollination services. This is an important initiative as cocoa production is particularly important both for smallholder farmers (it involved nearly 800,000 households (FAO, 2018) – and the initiative aimed to employ 30,000 youth to pollinate cocoa trees) but cocoa is very important for the export market in the form of beans, paste and butter. According to FAO, pollination services are essential for cocoa production. Although this initiative does not address the problem of pollinators by protecting and sustainably managing them, it certainly recognises their importance – or the importance of the services they provide.

TABLE 2. Selected top export crops for Ghana and their level of dependence on pollinators

CROP	EXPORT VALUE (US$ 1,000)	POLLINATOR DEPENDENCE*
Cocoa, beans	1,675,462	Essential
Cocoa, paste**	309,315	Essential
Cocoa, butter**	139,984	Essential
Cashew nuts, with shell	79,139	Great
Mangoes, mangosteens, guavas	23,089	Great
Papayas	1,477	Little
Coconuts	1,354	Modest
Almonds shelled	191	Great
Beans, dry	153	Little

* http://www.fao.org/fileadmin/user_upload/pollination/docs/POLLINATION_VALUE_ARRAY.xls
** Not a crop but would not be possible without the crop

Land degradation

Land degradation in Kenya was estimated at 22% of the land area in the country between 1982 and 2006. This included 31% of croplands, 46% of forested land, 42% of shrublands, and 18% of grasslands (Nkonya et al., 2016). The problem of land degradation in Kenya is more pronounced in the Eastern parts and North Eastern parts of the country. Here, 12.3 % of the land suffers from severe degradation, 52 % from moderate degradation and 33 % is vulnerable to land degradation (Nkonya et al., 2016).

Soil nutrient mining, which represents the loss of soil fertility, is one of the major land degradation problems in Kenya, alongside wind and water erosion, rangeland degradation, deforestation and desertification. Between 2001 – 2009, the costs of land degradation in Kenya were estimated at US$ 10,645 million (See Table 3 for a breakdown by region).

Some of the main listed drivers of land degradation are: unsustainable fuelwood extraction, logging for charcoal and commercial timber, and land clearing for purposes of agriculture and for human settlement, industry and infrastructure development.

TABLE 3. **Costs of land degradation in Kenya from 2001 – 2009**

REGIONS	MILLION USD
Central	647.4
Coast	2321.5
Eastern	1713.7
Nairobi	18.5
North Eastern	1502.8
Nyanza	577.1
Rift Valley	3616.6
Western	247.7
Total	10645.2

Source: Nkonya et al 2016

Pollination

Pollination services in Kenya contribute both to the increases in quantities of the crop (through yield increases) as well as helping to improve the quality of produce. A study of the production of strawberries in Kenya aimed at testing the pollination efficiency of three stingless bee species and the honey bee, *Apis mellifera scutellata* (strawberries require different honey bee and stingless bee species for optimal pollination), on two strawberry varieties in order to recommend their use by commercial farmers to increase horticultural production and for improved fruit quality. The study found that combining pollination by both stingless and honey bees resulted in more marketable strawberries, and the study recommended the cultivation of strawberries using both or any bee species best adapted to the climatic condition for their pollination requirement (Asiko, 2012).

Pollinators are also important for indigenous crops, which are often overlooked. Researchers in Kenya observed that African indigenous vegetables, some of which have many nutritional and health benefits, have not been well researched (Abukutsa-Onyango *et al* 2010). They go on to identify a wide range of pollinator-dependent indigenous foods such as African nightshades (*Solanum scabrum*), amaranths (*Amaranthus*

blitum), spider plant (*Cleome gynandra*), slender leaf (*Crotalaria ochroleuca* and *Crotalaria brevidens*), African kale (*Brassica carinata*), jute mallow (*Corchorus olitorius*) and African eggplant (*Solanum macrocarpon* and *Solanum gilo*).

Pollination services are also important for the production of many fruits and vegetables, which are important both for providing micronutrients for the local population but also for Kenya's export market (Table 4).

TABLE 4. **Selected top export crops for Kenya and their level of dependence on pollinators**

CROPS (2015)	EXPORT VALUE (US$ 1,000)	POLLINATOR DEPENDENCE*
Coffee, green	106,588	Modest
Beans, green	69,413	Little
Avocados	28,024	Great
Beans, dry	22,017	Little
Mangoes, mangosteens, guavas	11,853	Great
Sesame seed	2,758	Modest

* http://www.fao.org/fileadmin/user_upload/pollination/docs/POLLINATION_VALUE_ARRAY.xls

MALAWI

Land degradation

A recent assessment of Malawi's land degradation shows that the country is a 'land degradation hotspot' of around 41% of the land area. Land degradation in Malawi is driven by charcoal and wood fuel (for domestic and commercial uses), timber production; unsustainable agriculture, slash and burn, and mining among human-driven activities. These drivers are underlined by the need and demand for resources such as energy, forest products, agriculture and water sectors – but also by persistent poverty, weak policy environment, lack of planning and insecure land tenure.

The main form of land degradation in Malawi is chemical land degradation, which includes soil pollution and salinization/alkalinisation, which has led to 15% loss in the arable land in Malawi in the last decade alone (Kirui, 2016). The annual costs associated with Malawi's land degradation from 2001 – 2009 are staggering, estimated at US$244 million – which is equivalent to 6.8% of the country's GDP. Kirui (2016) estimates that the costs of action against land degradation are lower than the costs of inaction by about 4.3 times in Malawi over the 30-year horizon.

Pollination

There is not much information on pollination services in Malawi. From the FAO guidelines on pollination services valuation database, it was possible to show the importance of pollinators for a few crops which are important for export (Table 5).

TABLE 5. **Selected top export crops for Malawi and their level of dependence on pollinators**

CROPS	EXPORT VALUE (US$ 1,000)	POLLINATOR DEPENDENCE*
Groundnuts, shelled	4,101	Little
Soybeans	2,886	Modest
Coffee, green	1,656	Modest
Sesame seed	219	Modest
Sunflower seed	75	Modest

* http://www.fao.org/fileadmin/user_upload/pollination/docs/POLLINATION_VALUE_ARRAY.xls

Land degradation

Like other countries in Sub-Saharan Africa, Nigeria is experiencing land degradation. A recent study showed that all main ecosystems in Nigeria, including water bodies, savannas, forests and wetlands were declining at a rapid rate (Abbas et al., 2018). Much of this, however, is driven primarily by expansion of agriculture – Nigeria has the largest area under cultivation in the region. Rainfed agriculture, for example, accounted for 40% of the country's territory in 2013 – which is double what it was in 1975. Overall from 1975 – 2013, Nigeria converted the area more than the size of Ghana into a cultivated area. This expansion involves intensive clearing of the natural vegetation.

Pollination

Most of Nigeria's exports of food crops depend significantly on pollinators. Table 6 shows that most of the important export crops in Nigeria depend to a great extent on pollination services.

TABLE 6. Selected top export crops for Nigeria and their level of dependence on pollinators

CROPS	EXPORT VALUE (US$ 1,000)	POLLINATOR DEPENDENCE*
Sesame seed	265,631	Modest
Cocoa, beans	65,905	Essential
Cocoa, butter	50,437	Essential
Cashew nuts, with shell	18,000	Great
Cocoa, powder & cake	3,149	Essential
Cocoa, paste	1,499	Essential
Soybeans	1,284	Modest
Kola nuts	750	Great
Cashew nuts shelled	494	Essential

* http://www.fao.org/fileadmin/user_upload/pollination/docs/POLLINATION_VALUE_ARRAY.xls

ZAMBIA

Land degradation

Zambia has ample agricultural land and 60% of the population depends on small-scale agriculture both for subsistence and for income generation. The smallholder sector employs 67% of the labour force while commercial farming employs 14% (Msangi, 2007). In parts of Zambia, the soils are fragile and infertile due to misuse and a long period of weathering of old mineral-rich rocks. Degradation is thus attributed to prolonged use of the land without appropriate tillage methods and the age of the parent material (Msangi, 2007).

During the last decade, several projects were undertaken in Zambia to ensure sustainable land management. These include conservation farming technologies, with the objective to enable small-scale farmers to adopt more productive and environmentally friendly sustainable conservational farming systems. Other initiatives focused on agroforestry technologies such as improved fallows, mixed cropping, relay cropping and biomass transfer for fertility improvement (Msangi, 2007).

Pollination

Although there is not much information on pollination services in Zambia, several important crops for the export market are dependent on pollinators, as can be viewed in Table 7 below.

TABLE 7. Selected top export crops for Ghana and their level of dependence on pollinators

CROPS	EXPORT VALUE (US$ 1,000)	POLLINATOR DEPENDENCE*
Cotton lint	17,156	Modest
Soybeans	4,245	Modest
Beans, dry	2,079	Little
Cottonseed	684	Modest
Coffee, green	163	Modest

* http://www.fao.org/fileadmin/user_upload/pollination/docs/POLLINATION_VALUE_ARRAY.xls

ANNEX 1

LIST OF THE ANGLOPHONE AFRICA REGIONAL TRIALOGUE PARTICIPANTS

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ANNEX 2
AGENDA OF THE ANGLOPHONE AFRICA REGIONAL TRIALOGUE

DAY 1: Tuesday 28th May

08:30 – 09:00	**Registration**
09:00 – 10:00	**Opening Session** Remark by Prof. John Ohiorhenuan (Resident Representative a.i., UNDP Kenya) Remark by Mr. Henrik Brundin (Director, SwedBio at Stockholm Resilience Centre) Opening Remark by Mr. Richard Mwendandu (Director Multilateral Environment Agreement, Ministry of Environment & Forestry)
10:00 – 10:15	**Introductory Session:** Objectives, Agenda and Methodology
10:15 – 10:45	**Pollinator-themed Coffee Break**
10:45 – 11:50	**Keynote Speeches:** The Linkages between ecosystem health, Land Degradation Neutrality (LDN) and food security
11:50 – 12:20	**Panel Show:** What are the multiple values of pollinators and pollination services? Who holds the knowledge?
12:20 – 13:30	**Lunch**
13:30 – 17:30	**Field Visits:** Bright spots for pollination, sustainable land management and food security

DAY 2: Wednesday 29th May

09:00 – 09:10	**Review of Day One**
09:10 – 09:50	**Keynote Speech:** How great is the problem? Status and trends for pollinators and food security
09:50 – 11:00	**World Café:** Land Degradation and other drivers of change to pollinators and pollination services
11:00 – 11:30	**Coffee Break**
11:30 – 12:00	**World Café:** Land Degradation and other drivers of change to pollinators and pollination services (Cont'd)
12:00 – 13:00	**Panel Show:** Progress with LDN targets and plans and enhancing ecosystem services
13:00 – 14:30	**Pollinator-Themed Lunch**
14:30 – 16:00	**Working Group:** Bright spots - Enhancing pollination services and meeting LDN targets
16:00 – 17:20	**Working Group:** Policy and management options to address the risks and opportunities for pollinators
17:20 – 18:00	**Recap of Day Two:** Communicating our messages
19:00 –	**Cultural Dinner**

DAY 3: Thursday 30th May

| 08:30 – 10:00	**High-Level Breakfast**
[Parallel]	**Key messages from the IPBES global assessment and from the Trialogue sessions are discussed by high-level government authorities, donors and partners**
09:00 – 10:15	**THEMATIC SESSION IV:** Innovation Corner
[Parallel]	**In parallel to the High-Level Breakfast, participants will "sell" innovative ideas and actions to promote pollinator-friendly practice from each of their countries. Short videos will be taken of "Stories of Change" to capture local ideas that can be shared across the region.**
10:15 – 10:30	**Feedback from the High-Level Breakfast and Innovation Corner**
10:30 – 10:45	**Coffee Break**
10:45 – 11:05	**Working Group Feedback:** Policy and management options to address the risks and opportunities
11:05 – 13:00	**Working Group:** Refining the Anglophone Africa national and regional action plans
13:00 – 14:30	**Lunch**
14:30 – 15:00	**Working Group Feedback:** Refining the Regional Action Plans
15:00 – 16:00	**Closing Panel:** How to move forward and keep the momentum going
16:00 – 16:30	**Moment of reflection and evaluation**
16:30 – 17:00	**Closing Session**

ANNEX 3

LOCAL POLLINATION-DEPENDENT INGREDIENTS USED FOR THE TRIALOGUE

INGREDIENT · **MENU** · **POLLINATOR REQUIREMENTS** · **POLLINATORS**

INGREDIENT	MENU	POLLINATOR REQUIREMENTS	POLLINATORS
OKRA	Okra masala	Okra is self-pollinating but it produces a decorative bloom that attracts bees and other insects that travel from one bloom to the next, leading to cross pollination	Honeybees, solitary bees
ONIONS	Clear Beef tea with coriander and herbed onions	Self-pollination within the floret is impossible. Cross-pollination between plants is common and even obligatory in the fertilization of male-sterile onions used in hybrid seed production	Honeybees, solitary bees
ORANGE	Assorted fruit dessert	As the intense fragrance of blooming sweet orange trees (Citrus sinensis) pervades, bees visit the flowers. For many fruit crops, insect pollination, and often cross-pollination between two different clones or varieties is needed to set fruit.	Honey bees, Bumblebees
PAPAYA	Assorted fruit dessert	Papaya, also known as pawpaw, is an important fruit crop for many smallholder farmers in East Africa that is fully dependent on pollinators	Carpenter bees, solitary bees, honeybees
PASSION FRUIT	Assorted fruit desert	Passion fruit relies on bees to assist in their pollination	Carpenter bees, solitary bees, honeybees
PUMPKIN	Honey mint pumpkin	Mechanical transfer of pollen is essential to fruit set. Seed number and fruit weight was increased in proportion to the amount of pollen deposited on the stigma	Honey bees. Some species of wild bees are most efficient pollinators. other insects are involved such as cucumber, scarab and meloid beetles, ants and flies and moths but to a lesser extent than are bees
TOMATO	Yollof rice	Tomato flower is not self-pollinating. One pollen grain is needed for each seed, so many grains are needed on each stigma. Incomplete pollination results in misshapen fruit	Honey Bees, bumble bees, wild solitary bees
MARROW	Roasted peppers and baby marrow	Marrow require pollination for fruit to form successfully. Insect pollination can be poor, in which case take a male flower, fold back the petals to reveal the pollen on the stamen, and insert it into the female flower	Honeybees, squash bees, carpenter bees, solitary bees

ANNEX 4

VOLUNTARY LDN TARGETS IN THE AGNLOPHONE AFRICA TRIALOGUE TARGET COUNTRIES

The framework presents principles to be followed by all countries that choose to pursue LDN. Principles govern application of the framework and help prevent unintended outcomes during implementation and monitoring of LDN. There is flexibility in the application of many principles but the fundamental structure and approach of the framework are fixed, to ensure consistency and scientific rigour.

1. Maintain or enhance land-based natural capital.
2. Protect the rights of land users.
3. Respect national sovereignty.
4. For neutrality, the LDN target equals (is the same as) the baseline.
5. Neutrality is the minimum objective: countries may elect to set a more ambitious target.
6. Integrate planning and implementation of LDN into existing land use planning processes.
7. Counterbalance anticipated losses in land-based natural capital with interventions to reverse degradation, to achieve neutrality.
8. Manage counterbalancing at the same scale as land use planning.
9. Counterbalance "like for like" (Counterbalance within the same land type).
10. Balance economic, social and environmental sustainability.
11. Base land use decisions on multi-variable assessments, considering land potential, land condition, resilience, social, cultural and economic factors.
12. Apply the response hierarchy in devising interventions for LDN: Avoid > Reduce > Reverse land degradation.

13. Apply a participatory process: include stakeholders, especially land users, in designing, implementing and monitoring interventions to achieve LDN.
14. Reinforce responsible governance: protect human rights, including tenure rights; develop a review mechanism; and ensure accountability and transparency.
15. Monitor using the three UNCCD land-based global indicators: land cover, land productivity and carbon stocks.
16. Use the "one-out, all-out" approach to interpret the result of these three global indicators.
17. Use additional national and sub-national indicators to aid interpretation and to fill gaps for ecosystem services not covered by the three global indicators.
18. Apply local knowledge and data to validate and interpret monitoring data.
19. Apply a continuous learning approach: anticipate, plan, track, interpret, review, adjust, create the next plan.*

ETHIOPIA

The following are nine national voluntary targets with the strategies set by the LDN national working group to achieve a land degradation neutral environment throughout the country.

Target 1: By 2031, promote the implementation of community based forest management, forest landscape restoration with indigenous species, avoiding overgrazing, area closure and alternative livelihood systems, and ensure the restoration of 427,730haof forest land lost between 2000 and 2010.

Target 2: By 2036, ensure the rehabilitation and improvement of the productivity of 21,359,490ha of forest land by stopping uncompensated conversion of forest area, especially in slopes, into grassland, cropping or urban areas, and promoting agroforestry, energy saving stoves and, alternative livelihood systems, in order to avoid reduction of carbon sock and limit the risk of erosion.

Target 3: Improve the productivity of 314,990ha of shrubs, grasslands and sparsely vegetated areas by the year 2040 through avoiding overgrazing, promoting controlled grazing, and rangeland management/ improvement.

Target 4: By 2040, rehabilitate and improve the productivity of 12,578,714ha of shrubs, grasslands and sparsely vegetated areas through stopping uncompensated conversion of permanent grasslands in to croplands, promoting controlled grazing, and rangeland management/improvement so as to avoid reduction of soil carbon stock.

Target 5: By 2031, ensure improved productivity of 14,193,615ha of cropland by reverting negative trends of arable land deterioration, including acidification, alkalization and salinization, erosion by strongly discouraging inappropriate practices and supporting soil, water and vegetation long-term conservation practices; limiting drastically the size of individual parcel to the maximum permitted to conserve biodiversity and natural regeneration potential, through agroforestry and green corridors and biodiversity grids, especially in large-scale commercial farms; accelerating the conversation of unsustainable to sustainable cropping, grazing, forestry in the framework of scientifically grounded watershed management plans implemented under legally binding long-term agreements and contracts; and 100% cropland shows stable of increasing land productivity capacity.

Target 6: By 2026 ensure improved productivity of 72,766ha of wetlands and water bodies through stopping uncompensated conversion of wetlands into cropping or urban/industrial/infrastructure areas, in order to avoid depletion of carbon stock and critical biodiversity.

Target 7: Take urgent and significant actions like stopping uncompensated artificialisation /urbanization of arable lands, through urban densification and "building city on city" approach; restoring as much as possible lands degraded by pollutions, originated by urban, industrial, mining untreated contaminants; revitalizing vegetation in degraded slopes, dried lands, closed mines, infrastructure (airports, harbours, roads, dams and reservoirs) using pools of endogenous species and further sustainable use and promoting plantation of indigenous tree species, and improve the productivity of 33,452ha of artificial areas by the year 2026.

Target 8: Through sustainable land management practices particularly implementing biophysical soil and water conservation practicesimprove the productivity of 3,751,173haof bare land and other areas by the year 2036.

Target 9: By 2040, ensure the increase of carbon stockin the country by 148.67 million tons of carbon between 2016 and 2040through achieving the above mentioned target.

GHANA

All listed targets should be accompanied by sustainable management of the resource and envisaged to be achieved by 2030.
- Reforest 882.86 km2 of converted forest into other land use/cover types, and rehabilitate/restore all abandoned legal and illegal mineral mining and sand winning sites by 2030.
- Improve productivity and soil organic carbon stocks in 18,475.96 km2 of cropland by 2030.
- Rehabilitate/restore 5107.70 km2 of degraded forest, including abandoned legal and illegal mineral mining sites for enhanced productivity by 2030.
- Rehabilitate/restore and sustainably manage 4593.39 km2 of degraded shrubs, and sparsely vegetated areas for improved productivity and reduction in bush/wild fires by 2030.
- Reduce conversion of 45,079.72 km2 of remaining forest to other types of vegetation, and halt all illegal mining activities by 2030.
- Increase the soil organic carbon of degraded croplands and rangelands by 66 % (i.e., 1.20 % to 2.0 %) by 2030.

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 EwasoNgiro 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 million Ha.
- Increase by 16% net land productivity in forest, shrubland/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.

MALAWI

LDN at the national scale:
- At national scale Malawi has set a target of achieving land degradation neutrality by 2030 as compared to the baseline of 2015 (no net loss) and an additional 2% of the land territory of 9.4 million hectares improvement. This translates to 188,000 hectares with net gain as compared to 2015.

At sub-regional level the following are the targets:
- LDN is achieved in the High Lands of Nyika, Viphya and Mulanje, Dedza and Zomba mountains by 2030 as compared to 2015 (no net loss).
- LDN is achieved in the land degradation Hotspots along the Rift Valley Escarpment Area of Malawi by 2030 as compared to 2015.
- Attain land degradation neutrality on the Plateaux ecological zone by 2030 as compared to 2015.
- Attain land degradation neutrality in the Shire River basin catchment by 2030; compared to 2015 and an additional 2% of the basin has improved (Net gain).

Specific targets for avoiding, minimizing and reversing land degradation:
- Improve productivity of 754,320 hectares cropland by 2030.
- Improve Soil Organic Carbon (SOC) stocks on cropland to 55 ton/ha by 2025 as compared to 44.7 ton/ha estimated in 2015.
- Rehabilitate one million hectares of degraded land for crop production by 2030.
- Halt the conversion of forests and wetlands to other land cover classes by 2020.
- Improve forest (plantation & indigenous) cover by 33,750 hectares by 2030 as compared to 2015.
- Reduce the rate of top soil loss (soil erosion) to 20 tons per hectare per year by 2030 from the 2015 estimated rated of 29 tons/ha/year.
- Increase forest cover by 2% from 2015 baseline by 2022.
- Restore 820,000 hectares of degraded indigenous forest by 2030.
- Sustainably manage 138,000 hectares of plantation forest by 2025.
- Restore 36,000 hectares of degraded stream banks by 2030.
- Protect 2.4 million hectares of natural forest by 2035.

NIGERIA

LDN at the national scale:
- LDN is to be achieved by 2030 as compared to 2015 and an additional 20 % of the national territory has improved (net gain).

LDN at the sub-national scale
- LDN is to be achieved in the following regions by 2030 as compared to 2015 (no net loss) and an additional 20% of the following regions has improved (net gain): South western region, South East region, South Southern region, North western region, North Eastern region, North Central region, Imeko Game Reserve of Imeko/Afo LGA, Ogun state, Aworo Forest Reserve of Yewa North LGA, Ogun state, Saki of Saki East LGA, Oyo state, Ilesha Ibaruba of Baruten LGA, Ejeba of Ughilli North LGA, Delta, Oroma-Etiti of Anambra west LGA, Anambra state, Orishaeze of Ngor-Okpalla LGA, Imo state, Ifiang Nsung of Bakasi LGA, Cross Rivers, Badoko of Kachia LGA, Kaduna state, Amba of Nsarawa LGA, Nasarawa state, Banaga of Anka LGA, Zamfara State.

Specific targets to avoid, minimize and reverse land degradation
- Improve land productivity and soil organic carbon stocks (SOC) in 463,300 hectares of cropland and grasslands by 2030 as compared to 2015.
- Rehabilitate 1,722,660 ha of cropland showing declining land productivity and 10,565,040 ha of cropland showing early signs of declining land productivity by 2030.
- Halt the conversion of forests and wetlands to other land cover classes by 2020.
- Increase forest cover by 20% by 2030 as compared to 2015.
- Reduce the rate of soil sealing (conversion to artificial land cover) by 40% by 2030 as compared to 2015.

ZAMBIA

LDN at the national scale:

- LDN is achieved by 2030 (no net loss)
- By 2030, the deforestation rate in Zambia is reduced by at least 50%
- By 2030, 40% of households adopt appropriate alternative energy sources from fuel wood
- By 2030 Maintain and/or improve the SOC content (no net loss)
- By 2030 good agricultural practices that mitigate loss of forest cover and SOC are increased from 6000 Km2 in 2015 to 10,000 Km2 in 2030
- By 2030, Zambia shall seek to halt land use change of wetlands and ecologically sensitive areas and normal functions of these areas shall be achieved (no net loss).
- By 2030 integrated land-use planning adopted and practiced across the nation
- By 2030 Land Degradation Neutrality Values have been integrated in the Eight National Development plan, Programmes and other planning processes
- By 2030, 50% of agricultural land is under sustainable agricultural practices compared to 2015
- All land Degraded rehabilitated in mining and quarrying areas by 2030 compared to 2015
- By 2030 Increase forest cover by 5% compared to 2015
- By 2030 the production of timber wood fuel (charcoal & firewood) Strengthened and regulated compared to 2015
- By 2030 the mining industry contribute to management of surrounding indigenous Forests and establishment of forest plantations for local community's timber needs compared to 2015
- By 2030 Catchment Management Plans for the six (6) catchments of Zambia that incorporate measures to mitigate against or prevent land degradation developed
- Increasing national water storage by at least 10 % by 2030 (i.e. from 188 km3 to 207 km3).

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