Government of Malawi

Final Country Report of the LDN Target Setting Programme - Malawi

This report summarizes the key outcomes of the national efforts carried out in 2016 and 2017 towards putting in practice the land degradation neutrality concept of the UNCCD in Malawi

THE GLOBAL MECHANISM
United Nations Convention to Combat Desertification

LDN
Land Degradation Neutrality Target Setting Programme

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Cover photo: *Members of the Malawi National LDN Working Group pose after the Inception and Baseline Validation Workshop on 21st March 2017 outside Sunbird Capital, Lilongwe.*

TABLE OF CONTENTS

Contents

SUMMARY

At the 12th session of the Conference of Parties (COP 12) of the United Nations Convention to Combat Desertification (UNCCD), country Parties reached a breakthrough agreement by linking implementation of the Convention to the Sustainable Development Goals (SDGs). SDG target 15.3 to achieve Land Degradation Neutrality (LDN) by 2030 is a strong vehicle for driving implementation of the UNCCD. In December 2015, the Government of Malawi reiterated its readiness and commitment to set the national LDN baseline, targets and measures. The motivation to commit to LDN and set LDN targets was based on the severity of land degradation in the country and that Malawi has only 28% forest cover despite several years of implementing programmes and initiatives aimed at halting this trend.

Leveraging LDN

The leverage plan for Malawi provides the existing leverage opportunities, required interventions/actions and the institutions or individuals that will be responsible for implementation or coordination of LDN. It shows existing opportunities that can be tapped in promoting and enhancing the attainment of LDN in Malawi. It provides a plan of the intelligent application of national resources to achieve national obligations under Sustainable Development Goals (SDGs) 15 by leveraging the strengths of different players, policies and programmes and supporting their weaknesses. It sets out the issues requiring stakeholder engagement and activities to be undertaken by different stakeholders in ensuring achievement of land degradation neutrality.

Assessing LDN baseline

Setting LDN targets was based on the LDN baseline - the **current status** and conditions of land-based natural capital and the ecosystem services that flow from that land base measured on the basis of the initial numerical value of the recommended three sub-indicators used as proxies of the land-based natural capital: **land cover; land productivity (metric: net primary productivity)** that measures above ground biomass produced by photosynthetically active vegetation'; and **Carbon stocks** above and below ground (metric: soil organic carbon (SOC) stock). Global data sets for these indicators provided by the programme were used. Soil erosion rate was used as an additional indicator based on the assessment done in 2015.

Setting LDN targets

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. The sub-national LDN targets are based on five main landform areas: the Highlands, Escarpments, Plateaux, Lakeshore and Upper Shire Valley, and the Lower Shire Valley. These were said to exhibit climatic, physical and biotic factors that have a bearing on land cover, land productivity and also soil organic carbon and therefore to land degradation. Further, specific targets for avoiding, minimizing and reversing land

degradation have been set in line with the existing commitments including the AFR100 where Malawi has committed to restore 4.5 million hectares of degraded land.

Achieving LDN

A wide range of activities are required to **develop an enabling environment for LDN and to upscale SLM and restoration activities**. The LDN target setting process supports these activities by identifying pathways to: **implementing the measures** identified to achieve the LDN target(s); and **utilizing the response hierarchy** (avoid/minimise/reverse land degradation), taking into account the direct and indirect drivers of land degradation. The implementation of the LDN response hierarchy requires Government leadership and shared ownership and active engagement of various stakeholders, the LDN working group will plays central role in coordinating and facilitating progress towards LDN, including the: communication of the multiple benefits from LDN; mainstreaming of LDN into national policies; increased investments in LDN-related activities; and establishment/strengthening of LDN partnerships.

Conclusions

SDG target 15.3 to achieve LDN by 2030 is indeed a strong vehicle for driving implementation of the UNCCD. Under LDN target setting programme Malawi has established the LDN baseline and has established targets to be achieved by 2030. Land degradation trends and drivers have been established and the necessary policy and technical measures have been identified to be implemented towards LDN achievement. The process has yielded other achievements besides building consensus on what needs to be done that include analysis of the enabling environment for LDN and strategy for mainstreaming LDN in national policies and commitments and other areas. Lessons learned during the process include need for support to NFP and stakeholders in the designing of transformative LDN projects and their implementation and also in integrating LND in policies and commitments.

LDN targets of Malawi

National Level: Land degradation neutrality achieved by 2030 (no net loss) and an additional 2% net gain as compared to 2015.

At sub-regional level the following are the targets:

1. 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)
2. LDN is achieved in the land degradation Hotspots along **the Rift Valley Escarpment Area** of Malawi by 2030 as compared to 2015
3. Attain land degradation neutrality on the **Plateaux ecological zone** by 2030 as compared to 2015
4. 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

1. Improve productivity of **754,320 hectares** cropland by 2030

2. Improve Soil Organic Carbon (SOC) stocks on cropland **to 55 ton/ha by** 2025 as compared **to 44.7 ton/ha** estimated in 2015
3. Rehabilitate **one million** hectares of degraded land for crop production by 2030[1]
4. Halt the conversion of forests and wetlands to other land cover classes by 2020
5. Improve forest (plantation & indigenous) cover **by 33,750 hectares** by 2030 as compared to 2015
6. 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.
7. Protect **2.4 million hectares** of natural forest by 2035[1]
8. Increase forest cover by **2% from 2015** baseline by 2022[2]
9. Restore **820,000 hectares** of degraded indigenous forest by 2030[1]
10. Sustainably manage **138,000 hectares** of plantation forest by 2025[1]
11. Restore **36,000 hectares** of degraded stream banks by 2030[1]

Notes: [1] Part of Malawi's AFR100 commitment to restore 4.5 million hectares by 2030
[2] Target appearing in the Draft Malawi Growth and Development Strategy III

Country Profile

Location: A country in Southern Africa. It is bordered by Mozambique on the east and southwest, by Tanzania on the north and northeast, and by Zambia on the west and northwest.

Population 2017: 18,008,081 Urban: 2,929,915 (16%) Rural: 15,078,166 (84%)

GDP: 5.442billion US$

HDI: 0.476 (2015) 170 out of 188 Countries

Area: Total area:118484 sq. km; Land: 94,080 sq. km; Water: 24,404 sq. km

[1] As part of Malawi's AFR100 commitment to restore 4.5 million hectares by 2030.
[2] Target appearing in the Draft Malawi Growth and Development Strategy III.

LEVERAGING LAND DEGRADATION NEUTRALITY (LDN)

Malawi's interest to commit to LDN and set LDN targets

At the 12th session of the Conference of Parties (COP 12) of the United Nations Convention to Combat Desertification (UNCCD), country Parties reached a breakthrough agreement by linking implementation of the Convention to the Sustainable Development Goals (SDGs). SDG target 15.3 to achieve Land Degradation Neutrality (LDN) by 2030 is a strong vehicle for driving implementation of the UNCCD. In a letter dated 5th December 2015 from the Executive Secretary of the UNCCD to the Minister of Natural Resources, Mining and Energy in Malawi UNCCD indicated that it would be pleased to include Malawi as a partner and beneficiary of the UNCCD's LDN Target Setting Program (LDN TSP), which was being established to support country parties to set their voluntary LDN targets that would be used to achieve land degradation neutrality according to Malawi's specific national circumstances and development priorities.

In his response the Minister of Natural Resources, Energy and Mining in a letter dated 22nd December 2015 to the UNCCD Secretary General reiterated Malawi's readiness and commitment to be included as a partner and beneficiary to the programme and get assistance in defining its national baseline, targets and measures. The motivation to commit to LDN and set LDN targets was based on the severity of land degradation in the country and that Malawi has only 28% forest cover despite several years of implementing programmes and initiatives aimed at halting this trend. Malawi further welcomed the adoption of the Sustainable Development Goals (SDGs) especially SDG target 15.3 as it will provide an opportunity to strengthen its efforts. Malawi's dependency on agriculture for its economic development makes it vulnerable to impacts of land degradation.

Link between LDN, achieving SDGs and other Malawi's commitments

Malawi is a signatory to a number of Multilateral Environmental Agreements (MEAs) including the three Rio Conventions; the UNCCD, the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention on Biological Diversity (CBD). It has elaborated national strategies towards meeting its obligations under those conventions and other agreements.

Malawi is one of the ten African countries which have launched African Forest Landscape Restoration Initiative (AFR100), a Pan-African, country-led effort to restore 100 million hectares of degraded and deforested landscapes by 2030. This commitment is in line with the LDN target that under the SDGs is planned to be achieved by 2030 and therefore LDN will contribute significantly towards AFR 100 target for Malawi which is **to restore 4.5 million of degraded landscape by 2030**. AFR100 also supports the Bonn Challenge, a global target to bring 150 million hectares of land into restoration by 2020 adopted in Germany in 2011, the New York Declaration on Forests that extends that challenge to 350 million hectares by 2030, and the African Resilient Landscapes Initiative (ARLI), an initiative to promote integrated landscape management with the goal of adapting to and mitigating climate change

A number of African countries which have submitted their Intended Nationally Determined Contributions (INDCs) have included restoration, conservation of standing forests, or "climate-smart" agriculture. Specifically Malawi submitted its INDCs in September 2015, which include activities in

energy production and utilization, industrial processing, agriculture, forestry and land use and in water. Implementing all unconditional and conditional mitigation activities is Malawi's expected target under the NDCs that would lead to the reduction of its per capita emissions from 1.4t CO_2e per capita in 2010 to around 0.7 to 0.8t CO_2e per capita in 2030 compared to expected business as usual emissions of around 1.5t CO_2e per capita in 2030. The LDN initiative therefore has the potential of contributing towards the achievement of Malawi's climate commitments.

Other Malawi's commitments are contained in various strategies aimed at meeting its obligations under various MEAs and agreements such as the National Strategy for Sustainable Development, the National Biodiversity Strategy, the National Adaptation Programme of Action (NAPA), the National Action Programme (NAP) and others. All these have targets on land management that are relevant to LDN.

SDG 15 aims at sustaining life on land and includes a target (15.3) that makes explicit reference to LDN: "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 LDN process in Malawi followed a request by COP 12 to the Secretariat and Convention's bodies to "develop guidance for formulating national LDN targets and initiatives" and to also "provide scientific guidance to the operationalization of the voluntary land degradation neutrality (LDN) target" for country parties. The process has assisted Malawi to come up with LDN targets that reflect the national targets identified by the government.

In the recently launched Malawi Growth and Development Strategy (MDGS) III, SDGs have been integrated. For SDG target 15.3 it is not specifically mentioned as a target in the MDGS III, however a number of strategic priority areas in the framework have goals and activities relevant to the attainment of land degradation neutrality. Three priority areas; agriculture and climate change management, human settlement and physical planning, and environmental sustainability in the MDGS III have activities which if implemented would contribute to target 15.3 of the SDGs.

Leverage opportunities identified

In the context of the LDN target setting process, leverage opportunities have been identified and assessed to upscale LDN implementation in Malawi. The results of the assessment are summarized in table 1 below, the main leverage opportunities identified are:

- Integrating LDN in overall development planning framework; the Malawi Growth and Development Strategy III
- Integrating LDN in the Agricultural Sector wide Approach (ASWAp)
- Engagement with public sector on LDN
- Engagement of specific private sector for involvement in the LDN project

Table 1: LDN leverage opportunities identified

Leverage Opportunities		Actions	Responsibilities
Why does LDN matter?			
1.	Creating multiple benefits	• Justify relevance of LDN to Malawi's social and economic development agenda /Malawi Growth and Development Strategy (MGDS) • Link LDN to achievement of other SDGs • Multi-stakeholder involvement in LDN target setting programme	• Economic Planning and Development • Ministry of Natural Resources, Mining and Energy
2.	Fostering policy coherence	• Integrate LDN and other SDGs in the national development framework • Review relevant policies to assess LDN coherence, make recommendations for policies were coherence can be made. • Integrate LDN into donor cooperation frameworks • Mainstreaming of LDN into relevant policies and programmes	• Economic Planning and Development • NFP/Consultant • Policy and Planning Units of relevant ministries • Donors
3.	Advancing climate action	• Integrate LDN into National Action Program of Action • Ensure synergistic implementation of the three Rio Conventions • Create coordinating mechanism for the three conventions • Intensify implementation of NAPA, Nationally Appropriate Mitigation Action (NAMA) and Nationally Determined Contributions (NDCs)	• Department of Environmental Affairs • UNCCD, CBD and UNFCCC NFPs[3] • Principal secretary of the Ministry of Natural Resources, Mining and Energy • NFP monitor implementations in relation to LDN
4.	Tapping financing opportunities	• Implement the National Climate Change Investment Plan • Build capacity to effectively utilize existing UNCCD funding windows • Develop fundable transformative LDN project proposals to access the LDN Fund • Include LDN in the national budget and allocate adequate resources LDN related sectors	• Department of Environmental Affairs/Relevant sectors • UNCCD NFP • Ministry of Natural Resources, Mining and Energy/ Ministry of Finance, Economic Planning and Development
WHAT to leverage?			
5.	National development programmes, priorities and objectives	• Sustainable Development Goals • Malawi Growth and Development Strategy • Agricultural Sector Wide Approach (ASWAp) • LDN related programmes and projects	• Ministry of Finance, Economic Planning and Development • Relevant sectors • Different project implementers
6.	Country commitments and engagements	• WSSD Commitments as contained in the National Strategy for Sustainable Development (NSSD) • AFR1000 commitment(4.5 million of degraded and deforested area) • Nationally Determined Contributions • Nationally Appropriate Mitigation Actions (NAMA)	• Department of Environmental Affairs • National Sustainable Development Steering Committee • Forestry Department • Other relevant sectors
WHO to engage to create leverage?			
7.	Senior government	• Minister responsible for Finance, Economic Planning and Development • Minister of Agriculture, Irrigation and Water Development • Principal Secretaries of all relevant ministries • Chef Directors	• Minister of Natural Resources, Energy and Mining • Principal Secretary in the Ministry of Natural

			Resources
8.	National coordination mechanisms	• National GEF Steering Committee • UNCCD Steering Committee • Agricultural land and Water management working group (ASWAp) • National Biodiversity Conservation Steering Committee • National Climate Change Steering Committee	• Principal Secretary in the Ministry of Natural Resources • Director of Forestry • National Consultant
9.	International development partners	• United Nations Development Programme • Food and Agriculture Organization • World Bank • Royal Norwegian Embassy • Irish Aid • Japanese International Cooperation Agency • United States Agency for International Development • European Union • British Department for International Development (DFID)	• Director of Forestry • NFP
10.	National and International non-governmental stakeholders	• Total LandCare • Christian Aid • Farmers Union of Malawi • National Association for Smallholder Farmers in Malawi • Association of Environmental Journalists in Malawi • Civil Society Agriculture Network (CISANET)	• Consultant • NFP
11	Private Sector Institutions	• Water Utility companies • Malawi Trade and Investment Centre • ILLOVO Sugar Company • Electricity Supply Commission of Malawi • BERL	• Consultant • NFP
12	Academic and Research institutions including CGIRs	• Lilongwe University of Agriculture and Natural Resources • University of Malawi- LEAD • ICRAF • Forestry Research Institute of Malawi	Director/NFP Consultant

LDN working group – issues discussed and agreed upon

At the beginning of the LDN target setting process a National LDN Working Group was constituted to steer and coordinate the process and also promote LDN mainstreaming into national policies and plans and their implementation for effective contribution towards attainment of sustainable development goals. The Working Group drew its membership from various stakeholder groups including public sector, private sector, civil society organization, research and academia and representation of the donor community. It comprised members of the Stocktaking and Mapping Working Group under the National Forestry Landscape Restoration Programme and others taken from other sectors. The total number of members was thirty (30); however the average participation at meetings, due to other problems, was around twenty (20).

At every stage of the LDN target setting process the LDN Working Group discussed and agreed on issues related to the draft outputs at the stage. Its first meeting was at the Inception and Data Validation

Workshop held on 21st March 2017 which was also attended by the Regional LDN Consultant and since then it met a number of times. The Working Group discussed and agreed on a number of issues including, among others, the following:

- Composition, Terms of Reference, working modalities of the Working Group;
- Reconstitution of the then existing Stocktaking and Mapping Working Group[4] under the National Forest Landscape Restoration Programme after expiry of its mandate to take over LDN work;
- Use of the information from the assessments under the other LDN related initiatives such as the National Forest Landscape Restoration programme;
- Adoption of the global data sets provided on the three LDN indicators except the land cover[5] indicator for which comparable nationally sourced datasets existed. In a later Working Group meeting the default land cover data sets were also adopted;
- Adding topsoil loss (soil erosion) as the fourth indicator to be considered; this should be based on the assessments done in 2015;
- Linking the LDN baseline date to the date of the beginning of the national development planning framework; the Malawi Growth and Development Strategy III that time under development;
- Identification of key policies and measures for addressing LDN;
- Integration of LDN into key national policies and commitments; and,
- Development of LDN transformative projects.

ASSESSING LAND DEGRADATION NEUTRALITY

LDN trends and drivers

The country has a total land area of about 9.4 million hectares with varying degrees of degradation. This study conducted a rapid assessment of existing sources of geospatial data for deriving land cover change rates to be used as baselines. In 2012, three independent datasets were produced with the support of various donors, including FAO (FAO 2012), the Japan International Cooperation Agency (JICA) (Malawi government, 2012), and the USAID-SERVIR hub at the Regional Center for Mapping of Resources for Development (RCMRD 2012). All three datasets are primarily based on Landsat data, and each is supplemented by various other sensors and maps. For reasons of compatibility with the provided default data sets in relation to number of land cover classes, and assurance obtained from the Forestry Department that the JICA data sets represented what was closest to reality, it was agreed by the National Working Group this should be used as the baseline. In the later discussions due to uncertainties in obtaining similar data sets for monitoring, the Working Group settled to use the global default data sets with the understanding that the UNCCD Secretariat will ensure provision of similar data sets. In addition there was a complication with the use of JICA data sets in that it would entail reworking the other two indicators that were based on the land sue categories of the

[4] The Stocktaking and Mapping Working Group under the National Landscape Restoration Programme was reconstituted to include other members as agreed by the LDN National Working Group

[5] For land cover indicator, the data set produced with support from JICA was first adopted but later due to uncertainties of future data availability for monitoring it was agreed to use the default data set. It was also noted that use of JICA data would entail recalculations of the other two indicators that were based on the global land cover categories.

global data sets.

Time series data (2000-2010) has been used to come up with the picture of land degradation in Malawi. Setting the LDN baseline has been a stock-taking exercise where a snapshot of the current land-based natural capital was developed, but does not provide any information on the current status of land degradation. The general picture shows that agriculture remains the major driver of land degradation in Malawi.

The three indicators from global sources for setting the baseline (i.e. land cover, land productivity and carbon stocks above and below ground (metric: SOC)), complemented as needed by nationally relevant indicators and other available information, are used to assess land degradation trends. The land productivity loss from degradation is estimated at 25% for Africa, with crop yield losses of 4-11% and depletion of forest resources at 12.7% between 1990 and 2005 for Malawi[6] Forest resources remain chief source of energy in Malawi and other parts of Africa and as such face pressure from increasing population. Between 1990 and 2010 net change in tree forest has been negative 0.7% whereas agricultural land registered a positive increase of 2.9% within the same period.

The Malawi National Environmental Action Plan (1994) listed the most serious environmental issues in Malawi as: soil erosion, deforestation, water resource degradation, threat to fish resource, threat to biodiversity, human habitat degradation and air pollution and it also documented their causes and effects. The UNCCD National Action Programme for Malawi identified symptoms of land degradation as: reduction of yield or crop failure; reduction of perennial plant cover and biomass, reduction of available woody biomass; reduction of available water due to reduction of river flow or ground water resources; encroachment of sand that overwhelms productive land, settlements or transport and communication systems; and increased flooding, sedimentation of water bodies, water and air pollution.

The table below summarises the identified drivers of land degradation in Malawi which point to agriculture as the main culprit. This is due to cultivation in fragile areas and lack of use of good agricultural practices by smallholder farmers.

Table 2: Direct and indirect drivers of land degradation in Malawi

Direct drivers of land degradation	Indirect drivers of land degradation
• Improper management of the soil • Poor agricultural practices, including use of environmentally fragile areas • Deforestation and removal of natural vegetation • Over-exploitation of vegetation for domestic use particularly for fuel (wood and charcoal) • Overgrazing in areas with high cattle density • Waste deposition and mining of quarry and sand	• Population pressure • Insecure land tenure • High poverty • Poor access to inputs (including access to credit/financing) and infrastructure • Low literacy, limited access to knowledge and extension support services • Governance, institutional settings and policies (subsidies,

[6] Kirui K, 2015. Costs of land degradation in East Africa. International Conference of Agriculture economists, Milan, Italy

• Urbanisation and infrastructure development • Uncontrolled bushfires • Natural causes (floods and droughts)	incentives) • Lack of coordination among sectors • Political interference and misinterpretation of democracy • Small per capita land holding sizes - Continuous cultivation and nutrient mining • Lack of alternative energy sources • Low allocation of resources to natural resources management sectors

LDN institutional and legal environment

The Malawi Growth and Development Strategy (MGDS) has been the guiding development framework for Malawi since 2006. It was revised in 2012 and expired in June 2016 and has been succeeded by Malawi Growth and Development Strategy III running from 2017 to 2022 responding to the aspirations of the 2015 adopted Sustainable Development Goals (SDGs). The two earlier medium term strategies (i.e. MGDS I and II) had the objectives of reducing poverty and creating wealth through sustainable economic growth and infrastructure development in order to propel Malawi to a middle income status at the end of Vision 2020. The MGDS III aims ***at building a productive, competitive and resilient*** nation by consolidating achievements of the earlier strategies. Maximizing the contribution to economic growth through the sources of growth as advocated for in the MGDS III is only possible if the land, upon which majority of rural poor depend on for livelihoods, is wisely and rationally utilized.

In addition, Malawi is a signatory to important multilateral environmental agreements (MEAs), including the three Rio Conventions; UNCBD, UNFCCC and UNCCD and has obligations and commitments under these and other conventions that can be achieved through implementation LDN interventions.

The UNCCD National Action Plan (NAP) is coordinated by a national UNCCD Steering Committee with the NFP as its Secretariat. This has not been active for a long time but the LDN process provided an opportunity for its revival[7]. The various natural resources management institutions; public, private and Civil Society organizations have programmes related to LDN although they suffer from poor coordination.

Most importantly, the right to clean environment is enshrined in the Malawi Constitution of 1995 and forms a strong foundation for policy and legal reform in environmental governance. Section 13 declares: "The State shall actively promote the welfare and development of the people of Malawi by progressively adopting and implementing policies and legislation aimed at managing the environment responsibly".

As stated earlier the supreme law of the land, the Malawi Constitution, provides solid grounds for developing, implementing and enforcing policies and legislations that will ensure sustainable

[7] The National UNCCD Steering Committee's long inactivity made it difficult to give it the responsibility of coordinating LDN process instead the reconstituted Stocktaking and Mapping Working Group under the National Forest Landscape Restoration Programme coordinated the LDN process.

environmental management. The lists below are some of the relevant laws that are in line with LDN aspirations:

- Forestry Act (1997) regulates the management of trees and forests under customary and private land as well as in protected areas;
- Water Resource Act (2013) provides for legal framework for the establishment of the River Basin Management Authorities under the National Water Resource Authority to look at the management of each river basin and sub-basin and restricts human activities below a 100 year flood line thereby protecting riverbanks;
- Mines and Minerals Act (1981) gives power to the Department of Mines to provide for an orderly and environmentally sustainable mining industry;
- National Parks and Wildlife (Amendment) Act (2004) declares protected areas of public land; national parks; wildlife reserves or nature sanctuaries and creates necessary governance and funding frameworks for their management;
- Irrigation Act (2001) provides for sustainable development of and management of irrigation and for the protection of the environment form irrigation related degradation;
- Local Government Act (1998) supports implementation of the Decentralization Policy by giving powers to the local authorities for planning and development of their areas including natural resource management;
- The Land Act (2016) provides for land administration and management for all matters related to land. It maintains two categories of land, namely, public land and private land and vests land in the Republic;
- Customary Land Act (2016) takes into consideration the system of titling of customary land as advocated by the National Land Policy. The act formalizes the powers and duties of traditional leaders in land administration and management through the creation of committees and tribunals empowered to carry out the function land allocation, adjudication and management, and settlement of customary land disputes. The Act promotes the governance principles of the Voluntary Guidelines for the Responsible Governance of Tenure for Land, Fisheries and Forestry (VGGT) which are also consistent with LDN technical guidelines
- The Environmental Management Act (2017) is the umbrella Act in the environmental sector and guides the management of the environment and for the first time creates an independent body to coordinate environmental issues

An analysis of the strengths, weaknesses, opportunities and threads of the legal and institutional framework is presented in table 3.

Table 3: A SWOT analysis of the legal and institutional framework

STRENGTHS	**WEAKNESSES**
a. Institutional	**a. *Institutional***
-Decentralization of government functions and authority	-Lack of coordination among sector
-Improved collaboration among players at the	-Poor collaboration among the many players involved in sustainable land management at the national level\

District Assembly level -The role of non-governmental organization strengthened -Availability of NAP implementation structures -The creation of an independent National Environmental Management Council under the 2017 EMA ***b. Legal*** -Some acts have been reviewed and in line with LDN (Forestry, Fisheries, Water, Agriculture, Wildlife, Irrigation, land) -The 2016 Land related Acts provide for security of land tenure rights -The 2017 Environment Management Act provides muscle for enforcement of LDN related activities	-Inactive NAP National Steering Committee -Under resourced NFP ***b. Legal*** -The non-existence of the Agriculture Land Use and Management Act is a big gap -Forest act needs revision to be in line with the revised National Forestry Policy -The Local Government Act not explicit on environmental issues and obligations at District Assembly level -Land titling for the newly introduced customary estates not piloted and not yet rolled out
OPPORTUNITIES ***a. Institutional*** -The availability of institutions in both public and private sector with mandates related to LDN - Creation of the new National Environment Management Council -Interinstitutional Working Group on Sustainable Land Management under ASWAp exists and has potential for leveraging LDN -Working Group on Mapping and Stock taking under the National Forest Landscape Restoration program relevant to LDN -Supporting policies in agriculture, forestry, lands, environment and other relevant sectors ***b. Legal*** -Complementary legislations exist among the various government departments	**THREATS** *a.* ***Institutional*** -Lack of qualified staff, expertise, funds and equipment to help in implementation and enforcement of existing national laws and international conventions related to LDN -Entrenched sectoral policies, programmes, laws and institutional arrangements requiring closer inter-ministerial coordination **b. Legal** -Lack of coordinated implementation and enforcement

Land Degradation Neutrality baseline

As part of the LDN TSP, Malawi received **default data derived from global data sources** for its use and validation where national data is absent. The global data sets were presented and formed the basis for contextualization in the absence of site specific data at the Inception and Data Validation Workshop held in Lilongwe on Tuesday 21st March 2017. It was revealed at that Validation Workshop that another

data set on SOC exists on *Geoportal.rcmrd.org*, but after careful perusal it was found out it was not different from that from global source provided by the programme. A decision was then reached to still use the default SOC data. Details of the LDN baseline can be found in the Annex.

Land Cover

A study done in 2012 covering three epochs; 1990, 2000 and 2010 with JICA support to the Department of Forestry estimated that area under forest in 2000 was put at 25,951.4 km^2 and in 2010 was at 24,177km^2 translating to a decline of 1,774.4 km^2 of forests compared 225 km^2 estimated by the default data under the same period. Table 4 below summarizes the land cover and the land cover changes in the three epochs; 1990, 2000 and 2010 as estimated by JICA supported study.

Table 4: Land cove and land cover changes

	1990		2000		2010	
	Area(km2)	%	Area(km2)	%	Area(km2)	%
Forest land	26429,6	22,3	25951,4	21,9	24177	20,4
Cropland	57739	48,8	58528,8	49,5	59415,4	50,2
Grassland	3516,2	3,0	3358,6	2,8	3180,4	2,7
Wetland	30228,7	25,5	30097,1	25,4	30902,1	26,1
Settlements	224,3	0,2	240,1	0,2	513,2	0,4
Otherland	160,8	0,1	144,4	0,1	132,3	0,1
Unclassified	21,8	0,02	0	-	0	-
	118320,4		118320,4		118320,4	

Data Source: Forest Resource Mapping Project under The Japanese Grant for the Forest Preservation Programme to The Republic of Malawi (2012)

The default data estimates the forest cover at 18,740 km^2 and 18,515 km^2 in 2000 and 2010 respectively representing a net decline of 225 km^2 within that ten year period. As for the cropland area was estimated at 64,931 km^2 in 2000 and at 65,114 km^2 in 2010 representing a net increase of area under agriculture of 183 km^2 during that period. There was an increase of 42 km^2 of area under shrubs, grasslands and sparsely vegetated area during the same period and no changes were detected in areas under wetlands and water bodies, artificial or built up areas and bare lands and other areas. Superposing the 2000 and 2010 land cover maps gives the changes in land cover between the two dates (see Figures 1 and 2 below) in particular the red spots are potential hotspots that changed from forest to cropland. Given the scale of the study, these estimates may as well be on the low side but they coincide with those identified under the soil loss assessment study of 2015 carried out by the Department of Land Resources Conservation in the Ministry of Agriculture, Irrigation and Water Development in published in 2016.

The country has experienced negative land change due to deforestation. Drivers of deforestation include charcoal and firewood, agricultural expansion and uncontrolled wild fires. Indirect causes include

population pressure and poverty. Deforestation has been highest in the Northern of Malawi where population is low

Land Productivity Dynamics

There is no comparable nationally derived data on this sub indicator as defined in the LDN methodological note. According to the default data 295 km^2, 302 km^2, 3,279 km^2, 372 km^2 and 67km^2 of land that remained forest, shrubs, croplands, wetlands and artificial/built up areas respectively in the ten year period registered signs of declining net land productivity while 4,418 km^2, 1,699 km^2, 3,045 km^2, 585 km^2 and 4 km^2 for forest, shrubs, croplands, wetlands and artificial/built up areas respectively depicted signs of increasing productivity. 1197 km^2, 813 km^2, 11738 km^2 of the areas that remained forests during the period had early signs of decline, stable but stressed, and stable not stressed net land productivity. On average 71% of the total land area of Malawi was stable and not stressed level of net land productivity while 10% had increasing land productivity and only 4% showed signs of net land productivity decline.

Of the 182 km2 forest land that converted to cropland between 2000 and 2010 about 5.2 km^2, 38.9 km^2, 22.1 km^2, 74.8 km^2 and 41.0 km^2 had declining, early signs of decline, stable but stressed and increasing net land productivity respectively.

Declining land productivity has been mainly caused by over exploitation of vegetation for domestic use and unsustainable agricultural practices. This causes soil erosion which reduces land productivity. Indirect drivers include population pressure. Stable but stressed land productivity was mainly caused by improper management of annual, perennial and scrub and tree crops.

Soil Organic Carbon

The default data on Soil Organic Carbon (SOC) stocks in the upper the 30 cm is presented in Annex III, LDN baseline data tables. For areas where land cover remained unchanged from 2000 to 2010, SOC stocks were highest in forest areas and lower in wetlands. There was a net SOC loss of 182,709 tons as a result of land cover transition from forest to crop land during 2000 to 2010 period. The main cause of SOC loss could be improper crop soil management, where the SOC output (e.g., crop residue removal and yield harvest) exceeds the inputs. This occurs principally from plowing that turns over the soil, making it susceptible to high temperatures and accelerated erosion. Farmers apply marginal inputs and produce marginal yields in a continuous cycle. Under cropland, the decomposition of tropical crop residues is normally faster than forest litter, which would suggest that their potential to contribute to long-term SOC is limited. Crop organic resources contain more of the labile SOC pools (light fraction C and particulate organic carbon) which are sensitive to management practices. Studies have found that the light fraction and particulate organic carbon, are relatively easily decomposable and are greatly depleted upon cultivation explaining why a new, lower equilibrium SOC stock is reached upon conversion from forest to agriculture. Very large additions of organic matter are generally required to compensate for the high decomposition rates and with that to increase the soil's carbon content. Restoring SOC using sustainable land management (SLM) practices is essential to enhancing soil quality,

sustaining and improving food production, maintaining clean water, and reducing increases in atmospheric CO_2.

The original default data table reports a value 70.7 tons/ha of SOC under bare land land cover class which is higher than in cropland. This is rather strange as bare lands by definition have no vegetation, which is the source of SOC. The explanation for this high value is that somewhere in the islands of Lake Malawi a pixel of very high content of SOC was identified as the source of this very high carbon rating. This normally occurs as a result of edge effect in land cover classification and it's co-occurrence with high SOC values in the maps themselves. The value of this land cover and the associated LPD area and SOC value therefore have been adjusted to zero as reflected in the baseline tables.

Soil Erosion

Soil erosion has been identified as the most serious environmental problem facing Malawi which has far reaching implications to social and economic development of the country.[8] Estimates on soil loss have varied but the most often sited was the one estimated by the World Bank which put it at an average of 20 metric tones per hectare per year[9]. Recent estimation using the Soil Loss Estimation Model for Southern Africa (SLEMSA) done by the Department of Land Resources Conservation with the technical support of FAO and UNEP put the average top soil loss at an average of 29 metric tones per hectare per year[10] representing an increase from the previous estimates. Although the various soil loss study results are not strictly comparable owing to differences in time, methods, and assessment scales, they point to a general soil loss pattern in the country. This new soil loss estimate has been presented as an official rate for planning purposes and for LDN given the importance of soil loss as a land degradation indicator the baseline of 29 metric tones per hectare per year is adopted.

[8] Soil erosion topped the list of the environmental issues identified in the Malawi National Environmental Action Plan

[9] World Bank,1992. Malawi Economic Report on Environmental Policy, World Bank, Lilongwe

[10] FAO, UNEP and UNDP, 2016. Soil Loss assessment in Malawi, Rome, Italy

Figure 1: Land use/Land use changes 2000-2010

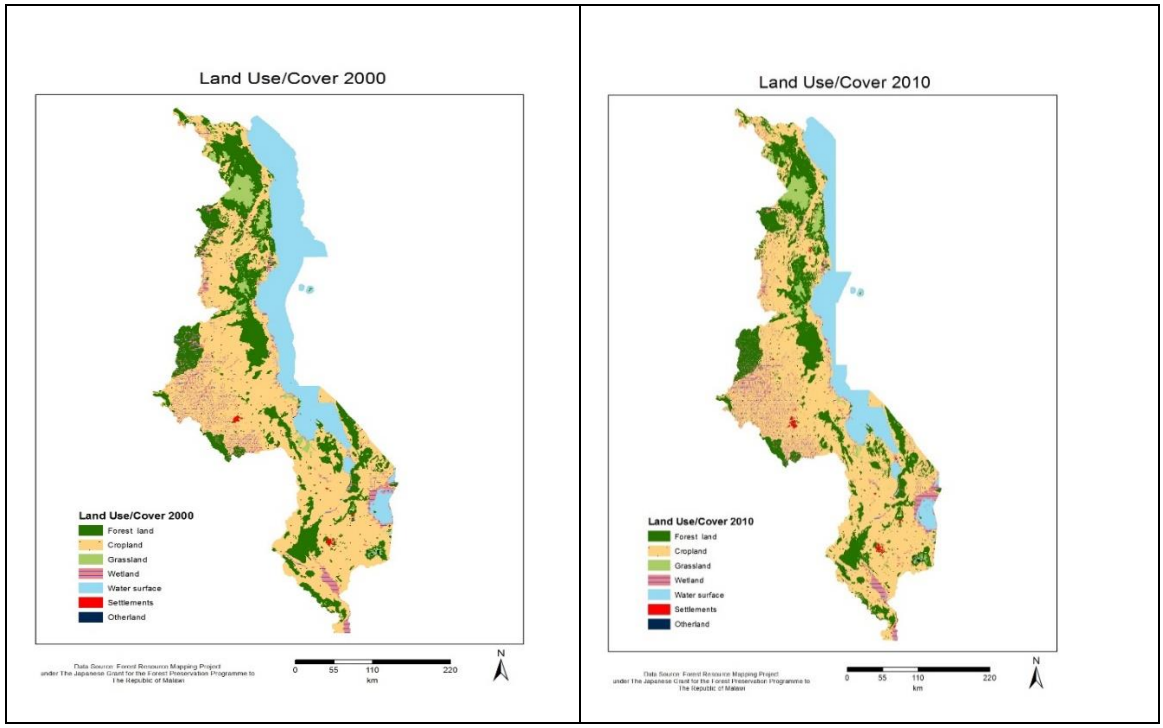
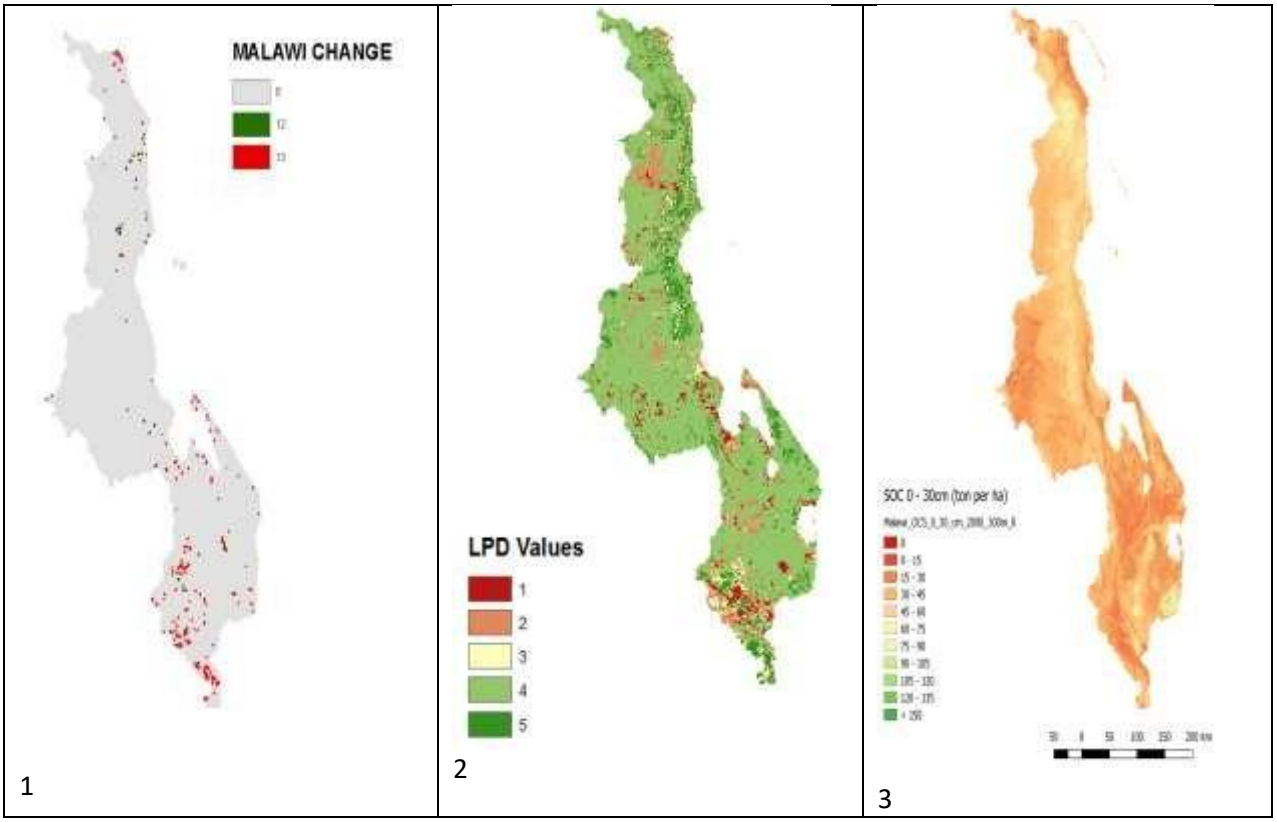


Figure 2: Land use/cover change between 2000 and 2010 (1), land productivity (2) and soil organic carbon (3)



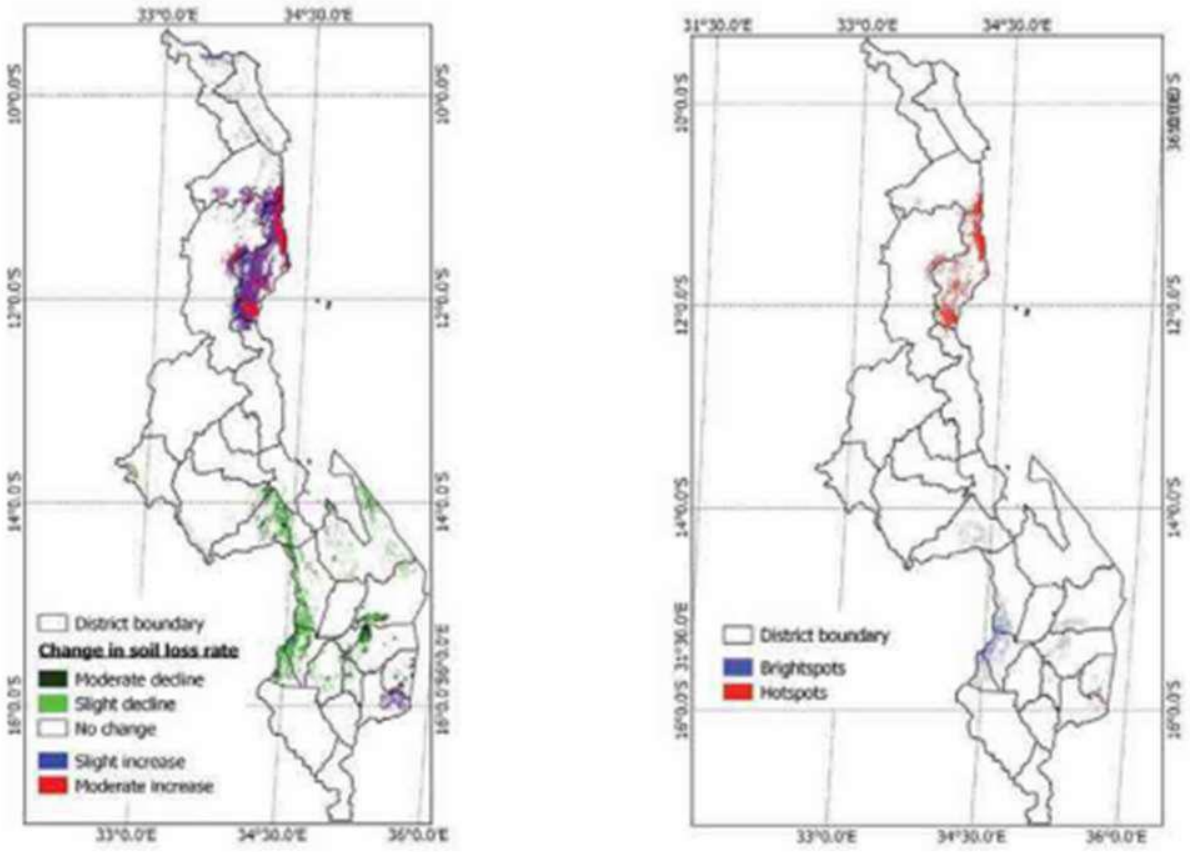
1 2 3

LDN HOT SPOTS

The assessment of soil loss in the country done by the Department of Land Resources Conservation in the Ministry of Agriculture, Irrigation and Water Development published in 2016 identified hotspots for soil erosion. Since land cover is a very important parameter in the model used to estimate soil loss, there is agreement in areas identified as hotspots with those using land cover change from global data sets. These hot and bright spots in Malawi include: Mzimba east, Nkhotakota and Nkhatabay in the north due to largest land cover change from natural vegetation to cropland; Dedza and Ntcheu in the central region; and Zomba, Machinga, Phalombe, Mulanje and Neno in the south.

The soil loss hotspot areas are those that had high (strong) soil loss rates in 2014 and also had increasing rates of soil loss between 2000 and 2014. The bright spots are those that had high (strong) soil loss rates but declining rate of soil loss between 2000 and 2014. The Rift Valley ridges in the Central (in Dedza and Ncheu) and in the south (in Zomba, Machinga and Neno) had the majority of bright spot areas. Nkhata Bay and some parts of western Mzimba were the hotspot areas of soil loss (see Figure 3 below)

Figure 3: Locations of land degradation hotspots



The reasons for selecting these hotspots were mainly low vegetation cover, slope steepness, slope length and observed top soil loss

SETTING LAND DEGRADATION NEUTRALITY TARGETS

Land Degradation Neutrality targets

As much as it is desirable to attain LDN with a possibility of having net gain, the Working Group decided to take a pragmatic view considering the high current level of land degradation, the pace of past restoration efforts and general resource constraints that halting land degradation is perhaps the most ambitious target that Malawi should aspire to achieve.

Sub-national Agro-ecological Zones

For the purpose setting LDN targets at sub-national level, the National Working Group meeting held on 4th July 2017 resolved to use agro-ecological zones rather than administrative or forestry zones as earlier proposed. The sub-national LDN targets will be based on five main landform areas, i.e. the Highlands, Escarpments, Plateaux, Lakeshore and Upper Shire Valley, and the Lower Shire Valley. These were said to exhibit climatic, physical and biotic factors that have a bearing on land cover, land productivity and also soil organic carbon and therefore to land degradation.

i. **The Highlands**: These consist of isolated mountains between 1,320-3,000 masl. Extensive highland plateaux are found in the Nyika, Viphya and Mulanje, while Dedza and Zomba are more isolated. Slopes can become precipitous, and soils are predominantly leached latosols.

ii. **The Escarpments**: These are associated with major fault lines along the edge of the Rift Valley, running from Karonga in the north to Nsanje in the south. They are also found around the highland plateaux and mountains. Soils are predominantly thin latosols.

iii. **The Plateaux:** Three quarters of Malawi consists of plateaux at elevations of 750-1300 masl. The topography is flat to rolling, with scattered rock inselbergs. The soil is deep well drained latosols on higher parts of the catena, with poorly drained sand and clay in the hollows. Poorly drained hollows are locally called *dambos*,

iv. **The Lakeshore and Upper Shire Valley**: Lakeshore plains occupy 8% of the total land area, at 465-600 masl. The land is flat to gently undulating, with deep calcimorphic soils in the hollows. The upper Shire River flows through a broad flat valley from the south of the lake towards the south of the country. Soils are similar to those along the lakeshore. Mopanosols are found in some areas along the river.

v. **The Lower Shire Valley**: The lower Shire extends from Kapichira falls to Nsanje at the bottom of the country, mostly at less than 180 masl. The river flows through two marshes with extensive areas of hydromorphic soils. To the east of the river, up to the Thyolo escarpment, soils are medium to coarse textured alluvial and colluvial. To the west there is a broad plain with vertisols and grey brown earths, rising towards the western escarpment. Some areas of saline soils are found.

Specific targets

These are defined with reference to specific land cover classes with the understanding that 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. It is at this level that other national commitments are included as targets contributing to attainment of land degradation neutrality. Malawi having completed a National Forestry Landscape Restoration opportunity assessment, this part has relied heavily on this assessment besides commitments under Born Challenge/ AFR100, INDCs and others.

The LDN targets for Malawi are summarized in box 1 below.

Box 1: LDN targets for Malawi

National Level: Land degradation neutrality achieved by 2030 (no net loss) and an additional 2% net gain as compared to 2015.

At sub-regional level the following are the targets:

1. 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)
2. LDN is achieved in the land degradation Hotspots along **the Rift Valley Escarpment Area** of Malawi by 2030 as compared to 2015
3. Attain land degradation neutrality on the **Plateaux ecological zone** by 2030 as compared to 2015
4. 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

1. Improve productivity of **754,320 hectares** cropland by 2030
2. Improve Soil Organic Carbon (SOC) stocks on cropland **to 55 ton/ha by** 2025 as compared **to 44.7 ton/ha** estimated in 2015
3. Rehabilitate **one million** hectares of degraded land for crop production by 2030[1]
4. Halt the conversion of forests and wetlands to other land cover classes by 2020
5. Improve forest (plantation & indigenous) cover **by 33,750 hectares** by 2030 as compared to 2015
6. 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.
7. Protect **2.4 million hectares** of natural forest by 2035[1]
8. Increase forest cover by **2% from 2015** baseline by 2022[2]
9. Restore **820,000 hectares** of degraded indigenous forest by 2030[1]
10. Sustainably manage **138,000 hectares** of plantation forest by 2025[1]
11. Restore **36,000 hectares** of degraded stream banks by 2030[1]

Associated measures to achieve Land Degradation Neutrality

A combination of policy and technical interventions are required to address land degradation in Malawi. The policy arena in support of LDN is characterized by a number of national and institutional policies developed in support of delivery of national and sectoral mandates. There are also a number of projects in the agriculture and natural resources management sectors that support technical interventions to address land degradation in Malawi.

The potential options for measures are as diverse as the forms and drivers of degradation. The same diversity applies to the level and scale of activities (e.g. national, local). Malawi has therefore set its measures in line with the trends and drivers of land degradation identified. Addressing only the symptoms of land degradation will fall short of making real progress towards LDN.

Measures address **policy or technical issues** and are implemented in the form of **programmes or projects** that will be tailored to a specific area at a given geographical and temporal scale. Policy measures mainly address the indirect drivers of land degradation (e.g. land tenure, education, governance) and should be identified drawing on the assessment of the drivers of land degradation and the legal and institutional environment.

Technical measures mainly address the direct drivers of land degradation and can for example be classified in **agronomic, vegetative, structural and management measures.** The proposed measures identified during the LDN target setting process for consideration by the UNCCD National Focal Point institution and the LDN working group are summarized in table 4

Table 4: Proposed measures

Negative trend Choose an item.	Area [sq km]	**Driver**		**Measure**		
		Direct	Indirect	Choose an item.	Area [sq km]	Timeline
		Choose an item.	Choose an item.			
Negative Land Cover Change	-225	Deforestation	Povertry	Programmes and Projects	225	2025
Declining Land Productivity	4315	Over exploitation of vegegation for domestic use	Population pressure	Structural measures	3279	2030
Early Stage of Land Productivity	8481	Over exploitation of vegegation for domestic use	Population pressure	Structural measures	800	2030
Stable but Stressed (Land productivity)	3303	Improper management of annual, perennial and	Land tenure	Policy and plans	3303	2020

		scrub and tree crops				
Soil Organic Carbon Loss	47.1 ton/ha	Improper soil management	Education access to knowledge and support services	Vegetative measures	75	2030
Other Soil loss/ soil erosion	100000	Improper soil management	Education access to knowledge and support services	Agronomic measures	1000000	2030

ACHIEVING LAND DEGRADATION NEUTRALITY

Leverage already achieved

The existence in Malawi of various policies, legal frameworks, institutional arrangements and programmes that support or have potential to support LDN creates an enabling environment for the achievement of LDN in the country by 2030. This can be considered to be one of the areas where leverage is already achieved although there is room for improvements in terms of mainstreaming and coordination. A number of existing programmes to address LDN related issues and can be said to leverage efforts towards LDN achievement such as those mentioned below.

In addition, the following LDN transformative projects and programmes opportunities were identified during the LDN target setting process:

LDN relevant ongoing projects

- Promoting Responsible Land Governance for Sustainable Agriculture in Malawi
- Enhancing Community resilience programme (ECRP)
- Shire River Basin Management Programme
- Private and Public Sector Partnership Project on Sustainable Land Management in the Shire River Basin.
- Protecting Ecosystems and Restoring Forests in Malawi (PERFORM)
- The Millennium Challenge Account – Malawi
- Scaling Up of Modernized Climate Information and Early Warning Systems in Malawi
- Lake Chilwa Basin Climate Change Adaptation Programme
- The Economics and Policy Innovations for Climate-Smart Agriculture (EPIC) project.
- Climate Proofing Local Development Gains in Rural and Urban Areas of Malawi.
- Private and Public Sector Partnership Project on Sustainable Land Management in the Shire River Basin.
- Malawi Drought Recovery and Resilience Project
- The Malawi Agricultural Infrastructure and Youth in Agribusiness Project (AIYAP).

- Multi Donor Trust Fund (ASWAp-SP) II.

Planned LDN related projects

- Shire Valley Transformation Project. Establishing market-linked smallholder farming ventures; and developing professionally operated irrigation services
- Malawi Agriculture Commercialization Project
- Follow up project to Enhancing Community resilience programme (ECRP)
- National Forest Landscape Restoration Programme

The Nationally Designated Authority (NDA) for both Green Climate Fund and the Global Environmental Facility (GEF) is the Department of Environmental Affairs in the Ministry of Natural Resources, Mining and Energy where the Forestry Department which is the National Focal Point for UNCCD fallows under. An essential component for the success of the GCF/GEF design component has not been accomplished in Malawi as no national entity is accredited to facilitate direct access of these funding windows. The process to accredit national GCF organization has started and to date the Leadership for Environment and Development (LEAD) and the Malawi Environmental Endowment Trust (MEET) are the two entities likely to be accredited in the near future.

Climate funds provide exclusively for "international access", which allows for the provisions of funds to Malawi via international implementing agencies such as:

- Food and Agriculture Organization (FAO)
- United Nations Environment programme (UNEP)
- United Nations Development Program (UNDP)
- African Development Bank
- International Fund for Agricultural Development (IFAD)
- International Union for Conservation of Nature (IUCN)
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH (GIZ)

With regard to the Adaptation Fund, no national implementing entities could be identified. International implementing entities include:

- UN Agencies : FAO, UNDP and UNEP
- International Fund for Agriculture Development (IFAD)
- World Food Programme (WFP)
- International Union for the Conservation of Nature (IUCN)
- World Bank

Proposed 'quick wins' towards the design of a LDN transformative project in Malawi are:

- Mainstreaming LDN into Promoting Responsible Land Governance for Sustainable Agriculture in Malawi project
- Mainstreaming LDN in the Shire River Basin Management Programme

- Mainstreaming LDN in Protecting Ecosystems and Restoring Forests in Malawi (PERFORM) project
- Mainstreaming LDN in Scaling Up of Modernized Climate Information and Early Warning Systems in Malawi Project
- Mainstreaming LDN in Climate Proofing Local Development Gains in Rural and Urban Areas of Malawi
- Mainstreaming LDN in Malawi Drought Recovery and Resilience Project
- Mainstreaming LDN in the Malawi Agricultural Infrastructure and Youth in Agribusiness Project.
- Integrating LDN in the Multi Donor Trust Fund Support Project (ASWAp-SP).

In the medium-term, it is suggested to explore the possibility to co-design new LDN transformative projects and programmes with various partners including the Food and Agriculture Organization of the United Nations (FAO), the World Bank (WB), International Fund for Agricultural Development (IFAD), the International Union for Conservation of Nature (IUCN) and/or other international or national partners. Below are some of the possible project ideas:

- Land Resources appraisal and assessment of potential use to enhance land degradation neutrality attainment
- Restoration of degraded Forest Landscapes and farm managed natural regeneration in agriculture landscapes
- Biodiversity conservation in Malawi wetlands of international importance under Ramsar Convention
- Integrating Land Degradation Neutrality in Curriculums of Agriculture and Natural Resources Management Training Institutions
- Rehabilitation of Chikangawa Forest Plantation through promotion of sustainable management practices and law enforcement

CONCLUSIONS

Achievements

SDG target 15.3 to achieve LDN by 2030 is indeed a strong vehicle for driving implementation of the UNCCD. The technical and financial support provided by the UNCCD to Malawi towards establishing LDN targets has yielded several achievements that include, among others, the following:

- Identification of leveraging opportunities and development of a national LDN leveraging plan to enhance engagement of different LDN stakeholders and leveraging of efforts and resources towards LDN achievement;

- Establishment of the baseline for the three indicators; land cover, and productivity and soil organic carbon and in addition soil erosion that will form the benchmark for monitoring and evaluation of LDN activities in the years running to the target date of 2030;

- Identification of land degradation hotspots based on the default data received and also on the soil erosion assessment conducted in 2015 that will be the focus for future LDN transformative projects to be developed;

- The identification of trends and drivers for land degradation from time series data that helped to establish policy and technical interventions to address land degradation;

- Establishment of LDN targets at national and subnational levels including the policy and technical interventions required to address land degradation problems and achieve LDN;

- Initiation of the discussion among stakeholders to establish nationally validated and accepted land use data sets among the several data sets produced by different stakeholders;

- Identification of LDN integration opportunities in different national l policies and commitments and the development of a robust strategy for mainstreaming;

- Establishment of a LDN Working Group, based on the 'Stocktaking and Mapping Working Group' under the National Forest Landscape Restoration Programme, that has the potential to coordinate and oversee the development of transformative LDN projects and programmes and their implementation thereby ensuring coordination of efforts and resources towards achievement of LDN.

Lessons learnt

The LDN target setting process has provided lessons to the country parties:

- Centralization of LDN TSP management at UNCCD secretariat/Global Mechanism helped to streamline methodologies and provision of global default data sets to ensure uniformity of approach and reporting.

- While there was an opportunity to utilize nationally generated data sets; Malawi lacked reliable datasets for all three indicators except land cover. Although at the beginning of the process the JICA land cover datasets were preferred, uncertainties regarding future systematic data capture for monitoring of the programme the global default data eventually was used to set baseline.

- There was no provision in the programme budget to facilitate maximum NFP's participation; the assumption was this could be covered in the NFP's normal government budget. For Malawi this was not attainable as the NFP, like most public agencies, was inadequately resourced under the national budget. Future support to LDN processes should make a deliberate effort to provide some funding to the NFP to support its full participation;

- Fund requests for national programme activities were supposed to be submitted at least four weeks in advance. While this was understandable as the UNCCD secretariat was dealing with a number country parties and had to have long period for planning and disbursement to their

service providers in the respective countries, the four week timeframe for the NFP and the national Consultant was too long as the plans could easily be overtaken by certain nationally important events. In future disbursements through the service provider should be based on agreed work plan and budget and bookings for meeting venues should be done locally not from UNCCD secretariat

- The national Consultant needed some form of capacity building during the LDN target setting process and this was realized initially judging from the fact that there was some training planned to take place in Nairobi but failed. Later there was a capacity assessment questionnaire which was circulated and filled by the NFP and the Consultant but never came to any development and implementation of capacity building exercise to address the identified capacity gaps. Future support to include capacity building of the NFP and other stakeholders and consideration should also be given to link up with training institutions to star courses on LDN;

- Malawi failed to take full advantage of the skype meetings scheduled due to poor internet connectivity experienced. These meeting were important as they provided a platform for sharing experiences among participating country parties and also to get guidance from the facilitators. Although at times recorded or written records were circulated after the meeting, Malawi missed the interactions with the other participants to be able to contribute and ask questions.

ANNEXES

Annex I: List of National LDN Working Group Members

GOVERNMENT				
	NAME	**Qualification**	**Institution**	**Functional Title**
1	Kasizo Chirambo	MSc (INRD), BSc (Forestry)	Department of Forestry	Deputy Director of Forestry
2	Cecilia Chauluka	M.Sc	Department of Forestry	Deputy Director of Forestry
3	Mrs. Patricia Masupayi	Master of Forestry (MF), BSc (Agric)	Department of Forestry	Chief Forestry Officer
4	Farayi Kafanikhale		Department of Forestry	
5	Monipher Musasa		Department of Environmental Affairs	
6	Mphatso Kalemba		Environmental Affairs Dept	
7	Mrs. Gertrude Kambauwa	M.Sc, B.Sc (Agric)	(Agriculture)Land Resources Conservation Department	Deputy Director
8	Henry Hunga	M.Sc, B.Sc (Agric	Agriculture (Department of Land Resources and Conservation)	Principal Land Resources Conservation Officer
9	Nyuma Mughogho	MSc (INRD), BSc (Forestry)	Department of Forestry	Deputy Director of Forestry
10	Peter Kavalo Phiri		Department of Mines	Senior Mining Officer
11	Hannah Chabwera	B.Sc (Statistics)	National Statistical Office	Statistician
12	Jolamu Nkhokwe	M.Sc (Met Sciences)	Department of Meteorological Services and Climate Change	Director of Meteorological Services and Climate Change
SCIENCE (Academia and Research)				
12	Dr. Tembo Chanyenga	PhD, MSc, BSc (Forestry)	Forestry Research Institute of Malawi (FRIM)	Deputy Director of Forestry (Research)
13	Gerald Meke	M.Sc, B.Sc	Forestry Research Institute of Malawi (FRIM)	Forestry Researcher
14	Dr. Steve Makungwa	Ph.D	Lilongwe University of Agriculture and Natural Resources (LUANAR)	Senior Lecturer
15	Dr. Dalitso Kafumbata	Ph.D	Chancellor College, University of Malawi	Senior Lecturer
16	Mathews Tsirizeni	MSc (Environmental Science)	LEAD-SEA	Programme Manager
17	Dr. Mavuto Tembo	Ph.D (Land	Mzuzu University	Senior Lecturer

		Management)		
18	Mrs. Patricia Kafera			
CSOs				
19	Chris Mwambene	M.Sc	Coordination Unit for Rehabilitation of Environment (CURE)	Executive Director
20	Mr. Robert Kafakoma	M.Sc (Forestry)	Training Support for Partners	Executive Director
21	Haig Sawasawa	M.Sc (GIS), B.Sc (Agric)	Total Land Care	GIS Expert
	PRIVATE SECTOR			
22	Harrison Ofesi	M.Sc	Agricultural Research and Extension Trust (ARET	Senior Forestry Officer
	OTHERS			
23	Stephen Nanthambwe	M.Sc (Resource Assessment) B.Sc	ELM Consultants	Managing Consultant
24	Etta M'mangisa	M.Sc	UNDP	Senior Programme Analysist

Annex II: Dates and short description of working group meetings and workshops

Date	**Activity/ Task**
21st March 2017	National LDN Inception Workshop and validation of baseline data
11th April 2017	GIS Experts meeting to review the global data sets and compare with the nationally generated data sets where available
2nd May, 2017	To discuss LDN Targets basing on the Baseline and nationally set targets and commitments.
15th June, 2017	LDN Targets Setting Workshop, presentation of the draft targets and getting inputs from members of the LDN Working Group
4th July 2017	LDN Target Validation- discussions on the draft LDN targets providing inputs for improvements
20th December 2017	LDN Transformative project development and integration of LDN into policies and commitments

Annex III: Baseline data tables

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
1- Forest	18740	18515	-225	295	1197	813	11738	4418	53	54.,3
2- Shrubs, grasslands and sparsely vegetated areas	9161	9203	42	302	936	583	5553	1699	130	53.0
3- Croplands	64931	65114	183	3279	6150	1644	50801	3045	195	44.7
4- Wetlands and water bodies	4174	4174	0	372	174	259	1278	585	1507	40.5
5- Artificial areas	304	304	0	67	24	4	203	4	2	47.6
6- Bare land and other areas	0	0	0							
SOC average (ton/ha)										47.1
Percent of total land area				4%	9%	3%	71%	10%	2%	
Total (sq. km)	**97310**	**97310**	**0**	**4315**	**8481**	**3303**	**69573**	**9752**	**1887**	

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**
Forest to Cropland	5,2	38,9	22,1	74,8	41,0	**182**
Forest to Shrubs, grasslands and sparsely vegetated areas	0,5	9,5	7,2	16,1	9,1	**42**

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	183	43,0	33,0	786429	603720	-182709
Forest to Shrubs, grasslands and sparsely vegetated areas	42	49,4	49,4	207648	207648	0
Total	**225**			**994077**	**811368**	**-182709**
Percent loss total SOC stock (country)						**-0,04%**

(*) sq. km. stands for square kilometre or km^2. To convert sq. km to hectares (ha) x100.

(**) Values for NetLPD 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).

(*****) The areas corresponding to marine and other major international water bodies are excluded as out of LDN TSP scope which concerns degradation on terrestrial ecosystems only.
Wetlands and smaller sweet water bodies are included as they are an integral part of the surrounding terrestrial areas that deliver the corresponding ecosystem services.

Annex IV: List of reports submitted (available in drop box)

- LDN Leverage Plan
- Land Degradation Trends and Drivers
- LDN National Targets
- LDN Baseline
- Key Policy-technical measures to achieve LDN
- LDN Legal and Institutional Environment
- Republic of Malawi National Land Degradation Neutrality Targets
- Governmental High Level Note
- Malawi Land degradation Neutrality National Report