Nigeria

Final report of the Land Degradation Neutrality Target Setting Programme

May 2018

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Summary

This report provides a summary of the LDN target setting process in Nigeria. The country has a total land area of 923,786 Km^2 with a population of about 180 million people, currently less than 10% of the total land area is classified as forest. Land degradation is growing at an alarming rate across all the ecological zones. Nigeria joined the LDN program having understood the benefits and links with other SDGs in addressing food security, unemployment, degraded land, water and climate change. The trend and major drivers of this degradation and LDN hotspots were identified while mitigating measure were also provided. Nigeria is just coming out of recession, the government is working seriously to boast the economy with National Economic Recovery Growth Plan (NERGP) 2017-2020. In achieving LDN, Nigeria is leveraging on NERGP, Nigeria's Agriculture Promotion Policy 2016-2020, Nigeria Ecologic fund, and Great Green Wall involving all concerned stakeholders. The policy and legal frameworks related to LDN, including the UNCCD National Action Programme (NAP) were analyzed and LDN transformative projects and program opportunities were identified.

Due to the absence of and low quality of national data in respect of the three indicators for assessing LDN, namely land use/cover, land productivity and soil organic carbon at the disposal of the country, the national working group agreed to use the default data provided by UNCCD secretariat.

The following LDN targets have been set for 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

The degraded hotspots to restore include Imeko Game Reserve (95,488 ha), Aworo Forest Reserve (21,299ha), Saki (66.29ha), Ilesha Ibaruba (47.33ha), Ejeba (85.22ha), Oroma –Etiti (94.48ha), Orishaeze (170.31ha), Ifiang Nsung (104.03ha), Badoko (18.73ha), Amba (337.96ha) and Banaga (65.27ha). In addition, it is aimed at achieving LDN in the following regions by reducing land degradation by 20% by 2030 as compared to 2015: South western region, South East region, South Southern region, North western region, North Eastern region, North Central region.

Abbreviations

LDN TSP	Land Degradation Neutrality Target Setting Programme
SDGs	Sustainable development goals
NAP	UNCCD National Action Programme
UNCCD	United Nations Convention to Combat Desertification
FAO	Food and Agriculture Organization
FDF	Federal department of Forestry
ERGP	Economic Recovery and Growth Plan
NDC	Nationally Determined Contributions
AFR100	Africa Forest Landscape Restoration Initiative
REDD+	Reduce Emissions from Deforestation and Forest Degradation
SLM	Sustainable Land Management
LDNWG	Land Degradation Neutrality working group

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Introduction

Land degradation is a serious environmental threat in Nigeria with its associated problems. The country has made several efforts to address this problem but the result is insignificant. This made Nigeria signify its interest in joining the holistic UNCCD process to address land degradation through setting voluntary preliminary Land Degradation Neutrality (LDN) targets to be achieved by 2030. This report has four chapters with details on how the country carried out the target setting exercise.

Chapter one gives the demographics of the country, the reason why it joined the process, the leverage opportunity identified and the link between LDN, achieving SDGs and other country commitments. It also provides an overview on the working group meetings/workshops organized during the target setting process.

Chapter two highlights the trends and drivers of land degradation and analyses the drivers of degradation. The legal regulatory framework related to LDN and the Aligned UNCCD NAP is discussed.

Chapter three discusses the LDN target setting with its corrective measures and the identified LDN hotpots.

Chapter four highlights the leverage achieved in the course of the work and the LDN transformative projects and program opportunities that were identified.

Chapter One

1.0 Leveraging LDN

1.1 Interest of Nigeria to commit to LDN and set LDN targets

Nigeria has a total land area of 923,786 Km^2 with a population of about 180 million people. According to FAO (2015), about 7.7% of the total land area of the country is classified as forest and 2.9% of the total land area as other wood land with a total growing stock of 936 million m^3. The country has diverse and complex vegetation types with contiguous ecological zones. The ecological zones from North to South are namely: Sahel savannah, Sudan savannah, Guinea savannah, Derived savannah, Lowland rain forest, Freshwater swamp forest, Mangrove swamp Forest and Coastal vegetation, with a Montane region on the South-Eastern border in the Cameroun Highlands and the Jos Plateau in the middle belt of Nigeria (FDF, 1999).

Land degradation is a serious environmental problem across the ecological zones of Nigeria. Population increase, unemployment, unsustainable agricultural practices, mining and quarrying, infrastructure, transportation and energy are the drivers of the degradation. The resultant effects of land degradation in Nigeria include unemployment, pockets of conflict for resources (herdsmen crises), food insecurity, desertification, drought, flood and erosion.

The Nigerian government has put up various program/efforts in the past to address the menace with insignificant results. The present government of Nigeria is determined to address the problem of land degradation through the Economic Recovery and Growth Plan (ERGP) and is equally determined to achieve its Nationally Determined Contributions (NDC).

The country believes in the multiple benefits that LDN offers to address national development priorities such as food security, poverty reduction and climate action. This made the country

signify interest in committing to LDN with a letter dated 26th January 2016, reference number FMENV/HM/GEN/UN/03. The country kickstarted the LDN-TSP process with an Inception Workshop and Inauguration of the Working Group on 9th March 2017. It also endorsed its preliminary voluntary LDN targets on the 24th August 2017 and committed to achieve the set targets with a letter dated 7th September 2017.

1.2 Link between LDN, achieving SDGs and other country commitments

Taking into account the multiple environmental and societal benefits which LDN will provide for Nigeria, achieving LDN will address issues such as food security, income equality, poverty, and resource availability. LDN provides significant benefits for the mitigation and adaptation to climate change. Halting and reversing land degradation can transform land from being a source of greenhouse gas emissions to a sink by increasing carbon stocks in soils and vegetation (UNCCD, 2016).

LDN plays a key role in strengthening the resilience of rural communities against climate shocks by securing and improving the provision of vital ecosystem services. LDN is also closely related to many other SDGs. There are direct linkages between LDN and SDGs in the area of poverty, food security, environmental protection and sustainable use of natural resources (Akhtar Schuster et al. (in prep)). To meet the SDGs, it will be vital to manage these linkages and harness the synergies between them. Implementing LDN creates multiple benefits and will, therefore, make a direct contribution to achieving these and other SDGs (UNCCD, 2016).

There is a strong link between Nigeria's national SDG process and the National Economic Recovery and Growth Plan (NERGP), namely in restoring economic growth while also leveraging on the ingenuity and resilience of the Nigerian people. The NERGP spells out the

government's roadmap for security improvement; war against corruption as well as general economic revitalization and is a compendium to the government's sectoral plans for agriculture and food security; energy and transport infrastructure as well as for industrialization and social investments (FGN, 2017).

LDN will help achieving Nigeria's commitment to restore 4 million hectares of degraded land and forest by 2030 in the context of the Africa Forest Landscape Restoration Initiative (AFR100). Furthermore, LDN will also help in attaining Nigeria's REDD+ commitment to achieve 20 percent reduction in emissions by 2025 and boost its determination to achieve its NDC. LDN will also contribute to Nigeria's commitment to TerrAfrica on Sustainable Land Management (SLM) which focuses on investment-based articulation of the nation's land and renewable natural resources management agenda, with an emphasis on reducing the risk posed by climate change on the livelihood of the rural farmers, mitigating climate change through sustainable practices and securing appropriate benefits.

1.3 Leverage opportunities identified

In the course of this project, certain national developmental priorities that can be leveraged upon to achieve LDN were identified. They include:

i. National economy recovery growth plan;
ii. Vision 2020;
iii. Nigeria's ecological fund; and
iv. Nigeria's Agriculture Promotion Policy.

1.4 LDN working group

The main stakeholders identified in the context of the LDN target setting process include:

i. Senior government officials who are engaged in policy making and implementation of sustainable land management from the Office of the President on the Sustainable Development Goals (SDG);
ii. The various Ministries of Agriculture, Environment, Forestry, Mining, Transportation, Urban Development, etc., at both State and National levels.
iii. Specific agencies and departments like the Department of Drought and Desertification, the Federal Department of Forestry, the Climate Change Agency, the Department of Erosion and Flood Control, the Federal Department of Agriculture, the Departments of Land Resources, Power, Works and Housing, and the National Bureau of Statistics and National Planning.
iv. Universities and other research institutions involved in Land Management and Agriculture, etc.
v. Major International and Development partners such as UNDP, World Bank, FAO, IFAD, JICA;
vi. The National Assembly, Security agencies, International and Local NGOs were included and leveraged for effective implementation of LDN in Nigeria.

For the full composition of the national LDN working group see Annex A.

During the LDN target setting process, four workshops were organized, namely the Inception Workshop, the First Working Group meeting, the Second Working Group meeting and the Final Validation of preliminary voluntary target workshop.

At the inception workshop held on 9th March 2017, the working group members were inaugurated and the terms of reference for their work was distributed. The group was familiarized with the concept of LDN and agreed that all sectors should look at the methodological note of LDN to see how their respective sectors could help in setting achievable LDN targets for the country. It was also agreed that organizations that have any data on the three LDN indicators should share the data during the first working group meeting.

At the first meeting of the working group on 27 April 2017, a call was issued for national data related to the LDN indicators in the custody of the organizations in charge. Members critically looked at the available data and found that they were inadequate in view of the establishment of the LDN baseline and related targets. It was agreed that the default data provided by the Secretariat of the UNCCD in the context of the LDN Target Setting Programme (LDN TSP) would be used and validated through a ground survey. It was also agreed that year 2010 should be chosen as the base year. The default data was analyzed and 13 degraded hotspot areas were identified across the ecological zones of the country, putting security and accessibility into consideration. However, 10 degraded hotspot in Ogun, Kwara, Oyo, Anambra, Imo, Delta, Cross river, Nasarawa, Zamfara and Kaduna states were validated via ground survey.

During the second working group meeting on 29-30 June, 2017, the following activities were carried out and achieved:

- The report of the ground survey was validated;
- Trend and drivers of degradation were assessed;
- SWOT analysis aligned to the UNCCD National Action Programme (NAP) was carried out;

- The legal regulatory framework required to enable the achievement of the LDN target within the aligned NAP was discussed;
- Voluntary preliminary targets were validated;
- LDN monitoring, reporting, evaluation and verification system was proposed;
- LDN Budget assumptions were calculated.

At the validation workshop on 24th August 2017, the report of the national working group was thoroughly reviewed for further inputs before endorsement. Participants of the workshop were grouped into three to look into various sections of the document. Finally, the proposed LDN voluntary preliminary targets for Nigeria were validated by the working group.

Chapter Two

2.0 Assessing LDN

2.1 LDN trends and drivers

Land degradation is a serious problem in Nigeria cutting across the whole country, with its associated consequences such as drought, sand dune and desertification, prominent in the northern part of the country, and soil erosion in the southern part of the country. Based on the default data related to the LDN indicators provided by the UNCCD Secretariat in the context of the LDN TSP, in the period 2000 to 2010, more than 463,360 ha of forestland was lost, including 344,710 ha area converted to shrubs, grasslands and sparsely vegetated areas, and 118,570 ha converted to cropland. Bare lands and other areas increased by 80 ha. For the land productivity dynamic, it was observed that 360,340 ha of forestland had shown declining productivity while 178,620 ha of forestland showed early signs of decline. It was also noted that the average soil organic carbon stock for the country is 37ton/ha (figure 1 - 4). A total soil organic carbon loss of 1,307,187 tons has been estimated for the changes of forest land to other land use, representing 0.04% of the national soil carbon stock (table 6).

A distinction is often made between direct causes and indirect causes of land degradation (Geist and Lambin, 2001; Millennium Ecosystem Assessment, 2005; Kissinger *et al*., 2012). Direct causes are human activities or immediate actions that directly impact land cover and loss of carbon. These causes can be grouped into categories such as agriculture expansion (both commercial and subsistence), infrastructure development and wood extraction. Underlying causes are complex interactions of fundamental social, economic, political, cultural and technological processes that are often distant from their area of impact (Geist and Lambin, 2001). These underpin the proximate causes and either operate at the local level or have an indirect

impact from the national or global level. They are related to international (i.e., markets, commodity prices), national (i.e., population growth, domestic markets, national policies, governance) and local circumstances (i.e., change in household behavior) (Geist and Lambin, 2002; Obersteiner *et al*., 2009). The data obtained from field surveys were used to analyze the drivers of land degradation in Nigeria and then classified, based on their level of severity on land degradation, from high, medium and low (LDNWG, 2017). Expanding industrial areas was rated low while unsustainable water usage, rainfall pattern, commercial farming (large scale), land tenure system and poor cross-sectoral collaboration were rated medium. Overgrazing, land pollution, increasing population, rapid urbanization, poverty, subsistence farming (small-holders), climate change, limited financial resources, poor financial management, weak policy implementation, lack of adoption of technologies and political interference in land management were rated high (table 2).

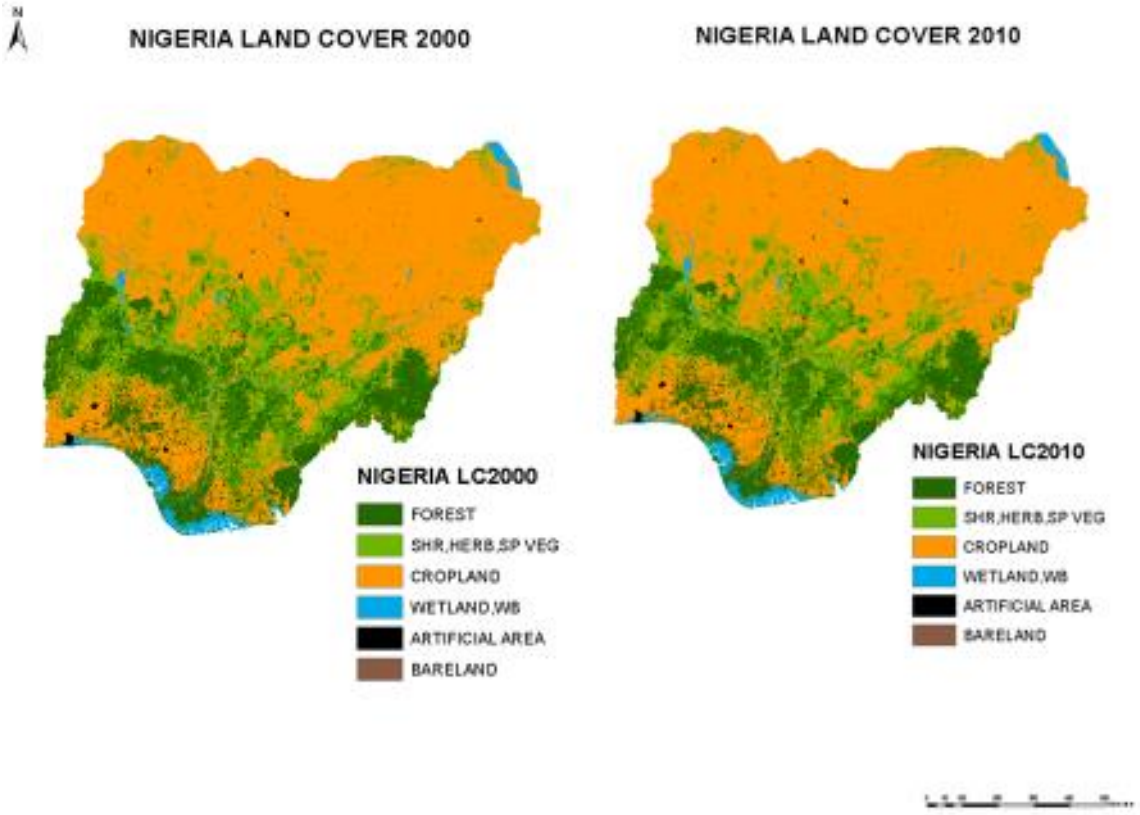

Figure 1: Land use /cover 2000-2010 (data from ESA)

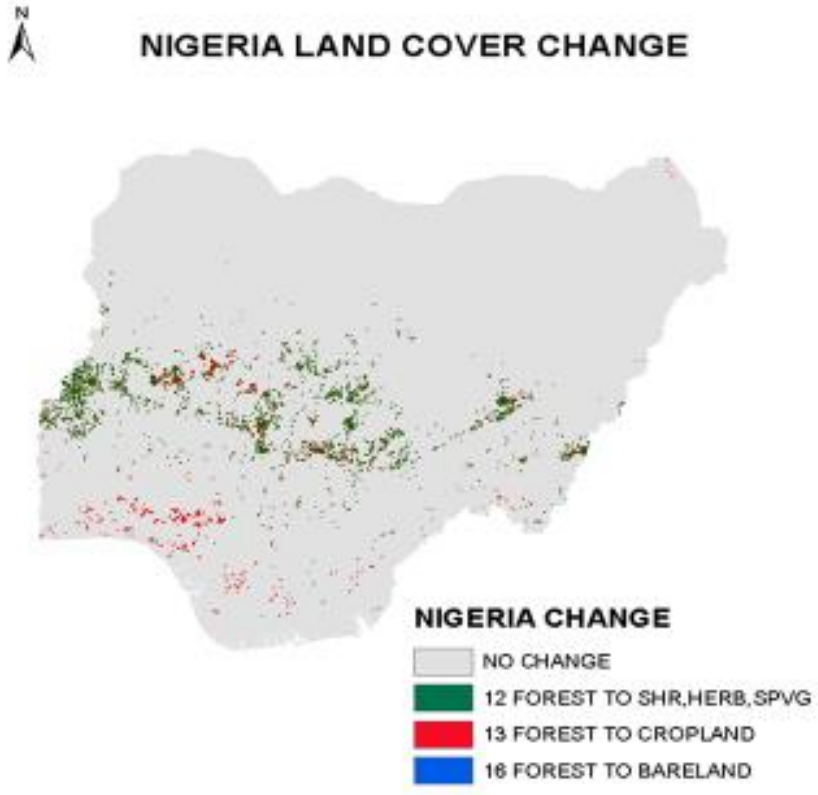

Figure 2: Land cover/use change in Nigeria from 2000 to 2010 (data from JRC - EC)

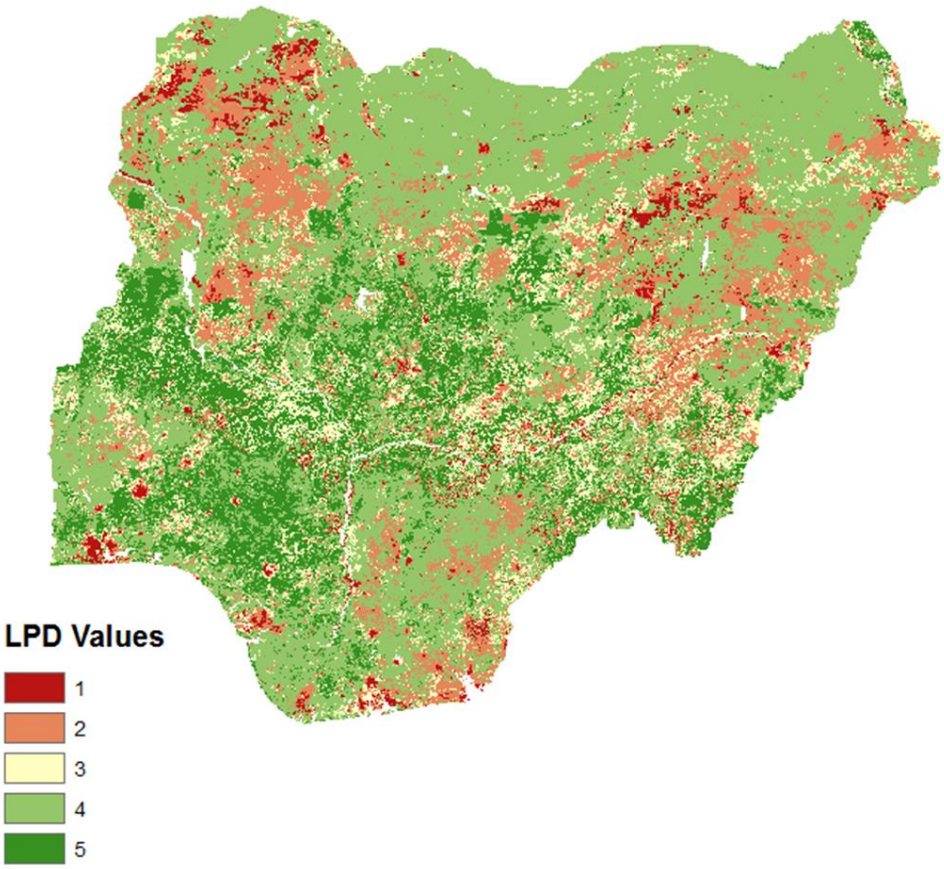

Figure 3: Land productivity dynamics in Nigeria 1999 - 2013 (data from JRC - EC)

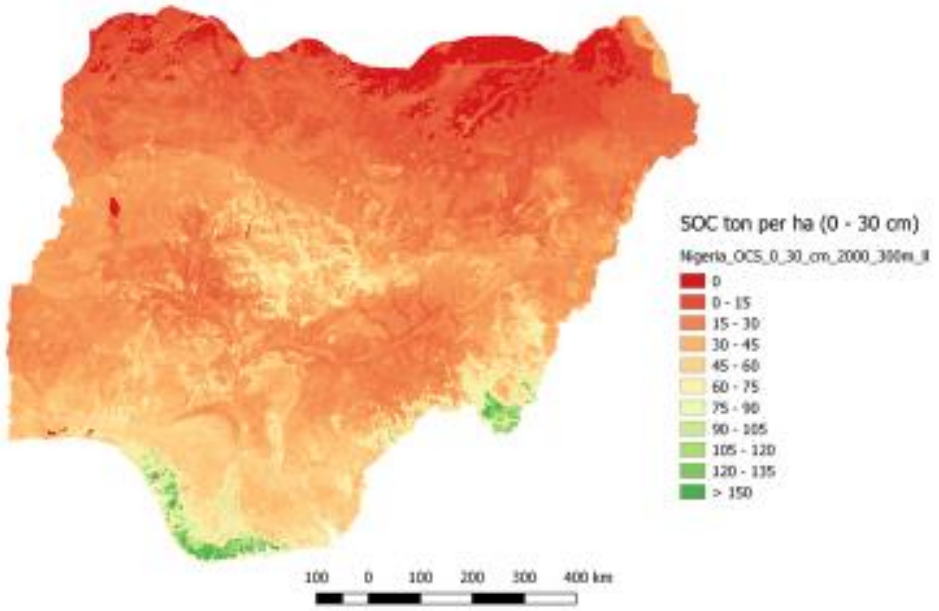

Figure 4: Soil organic carbon in Nigeria 2000 (data from ISRIC)

Table 2: Analysis of drivers of land degradation in Nigeria

Driver	Low	Moderate	High
Overgrazing			X
Land Pollution			X
Increasing Population			X
Rapid Urbanization			X
Mining (Sand, Solid Minerals, etc.)			X
Unsustainable Water Usage		X	
Poverty			X
Rainfall pattern		X	
Subsistence farming (Small-holders)			X
Commercial Farming (Large Scale)		X	
Expanding industrial areas	X		
Land tenure system		X	
Climate Change			X
Limited financial resources			X
Poor financial management			X
Weak policy implementation			X
Poor cross-sectoral collaboration		X	
Lack of adoption of technologies			X
Political Interference in land management			X

2.2 LDN institutional and legal environment

The strengths, weaknesses, opportunities and threats of the Aligned NAP to implement the UNCCD in relation to LDN in Nigeria are considered in this section. This section also addresses the legal and regulatory framework that are or should be put in place to enable the achievement of the LDN target within the Aligned NAP.

The national focal point of the UNCCD is the Federal Ministry of Environment. The objective of the Aligned NAP is to develop an integrated strategy that focuses on improved productivity of land, as well as the rehabilitation, conservation and sustainable management of land and water resources for improved living conditions and well-being of communities in the areas affected by desertification and land degradation. The Aligned NAP is in general well-equipped to help Nigeria achieve land degradation neutrality. However, all the weaknesses, threats, strengths and opportunities should be fully addressed to achieve LDN.

Table 3. SWOT analysis of Aligned NAP

	STRENGTHS	**WEAKNESSES**
Internal Factors	The NAP has political support	No clear mandate for the Federal Ministry of Environment regarding land use Planning.
	The NAP has multi institutional support via the Federal Ministry of Environment	No general consideration of the NAP apart from the Federal Ministry of Environment
	The NAP covers LDN related aspects/activities adequately.	No land degradation index
	The development of an LDN index would make it easy to measure progress	The concept of LDN is not captured in the NAP
	Nigeria has natural resource conservation institutions at local and national levels that can support the LDN activities	No clear single way to create a monetary value to land degradation, i.e. compared to carbon credits
		No link between resource rights over different natural resources (i.e. thatching grass and grazing rights) and land rights where

		resources are found
		Poor funding by national government
		The poor handling of land reform processes
		Limited capacity in implementing agencies
	OPPORTUNITIES	**THREATS**
External Factors	Development of state Development Strategy by the relevant state agencies	The LDN index may not be applicable to all countries or sub-national entities
	LDN makes the targets of reducing land degradation more feasible by setting degradation and restoration rates instead of a fixed target to stop degradation	If funding institutions are not convinced of the concept, there could be funding constraints for project implementation
	The existence of clear targets will make it easy for national institutions to work on preventing land degradation	Staff turnover in government could derail/slow down progress
	The development of a LDN index makes it easy to measure progress	Not all land management related action in Nigeria explicitly include LDN targets: industrial development; state land use planning
	Reduction in the cost of satellite images will make monitoring cheaper	Inadequate funds for Nigeria to Implement projects
	The availability of open source software will reduce the costs of data processing	Possible uncoordinated implementation of land degradation related research work by academic institutions that could cause overlaps and constrain already limited funding resources
	The potential development of a UN LDN related protocol will improve the LDN profile globally	
	Poverty reduction and wealth creation are some of the major focus of the Nigerian government. These should contribute to a reduction in land degradation in the long term	

In Nigeria, a multitude of policies and regulations as well as laws exist, which are relevant for LDN and which LDN can leverage upon. A summary of these policies and laws is summarized in below table.

Existing policies and regulations relevant for LDN	Existing laws relevant for LDN
• Economic Recovery and Growth Plan 2017 - 2020 • Vision 20:2020 • National Policy on Environment • National Drought and Desertification Policy • National Policy on Drought Preparedness • National Policy on Climate Change • National Adaptation Strategy and Action Plan • National Erosion and Flood Control Policy • National Forestry Policy • National Biodiversity Strategy and Action Plan • National Agricultural Policy • National Water Resources Master Plan • National Housing Policy • National Gender Policy • National Watershed Management Policy • Oil Spill Recovery, Clean – Up, Remediation and	• Constitution of the Federal Republic of Nigeria (1999), As Amended • Environmental Impact Assessment (EIA) Act. CAP E12, LFN 2004. • National Environmental Standards And Regulation Enforcement Agency (NESREA) Act 2007 • Federal Solid and Hazardous Waste Management Regulations (1991). • The Nigerian Urban And Regional Planning Act CAP N138, LFN 2004 • Land Use Act CAP 202, LFN 2004 • Harmful Waste (Special Criminal Provisions) Act CAP H1, LFN 2004 • Oil in Navigable Waters Act, CAP 06, LFN 2004. • Associated Gas Re-Injection Act, CAP 20, LFN 2004. • The Endangered Species Act, Cap E9, LFN 2004. • Inland Fisheries Act, Cap I10, LFN 2004. • Exclusive Economic Zone Act, CAP E11, LFN 2004 • Oil Pipelines Act, Cap 07, LFN 2004. • Nuclear Safety and Radiation Protection Act, CAP N142, LFN 2004. • Nigerian Mining Corporation Act. Cap N120, LFN 2004. • River Basins Development Authority Act, CAP R9, LFN 2004. • Agriculture (Control of Importation) Act, Cap A93, LFN 2004. • Pest Control Production (Special Powers) Act, Cap P9, LFN 2004. • Factories Act, Cap F1, LFN 2004. • Water Resources Act, Cap W2, LFN 2004. • The Federal National Parks Act, Cap N65, LFN 2004. • Niger-Delta Development Commission (NDDC) Act, Cap N68, LFN 2004. • Environmental Pollution Control Law • Nigerian Minerals and metals policy, 2008 • Nigerian minerals and mining Acts, 2007 • Nigerian minerals and mining regulations, 2011

Damage Assessment Regulation, 2011. • Oil Spill and Oily Waste Management Regulation, 2011	• National oil spill Detection and Response Agency (Establishment) Act, 2006 • National Crop Varieties and Livestock Breeds (Registration, etc.) Act. 2013 • National Inland Waterways Authority Act, CAP N47, LFN 2004 • 30. National Agency For The Great Green Wall (establishment) act, 2015

2.3 LDN baseline

The LDN baseline for Nigeria as validated by the LDN working group is presented in table 4 to table 6. After consideration of available national data, the group decided to validate the LDN baseline based on the default data provided by the LDN TSP.

Table 4: Presentation of LDN baseline of Nigeria using the LDN default data

Land Use/Cover Category	Area (2000)	Area (2010)	Net area change (2000-2010)	Net land productivity dynamics (NetLPD)** (sq km)						Soil organic carbon (2000)**
	sq km*	sq km	sq km	Declining	Early signs of decline	Stable but stressed	Stable not stressed	Increasing	No Data***	ton/ha
1- Forest	170218	165584	-4633.6	3603.4	17862	27953.3	62836.9	52691.2	636.9	51.1
2- Shrubs, grasslands and sparsely vegetated areas	170075	173522	3447.1	3267.1	18824	27495.4	70738.6	52026.4	1170.8	41.1
3- Croplands	545350	546536	1185.7	17226.6	105650	51058.4	323464	47090.7	2045.2	29.7
4- Wetlands and water bodies	22253	22253	0	2351.9	2661.8	2160.5	8607.2	1893.3	4578.3	76.2

5- Artificial areas	5640.1	5640.1	0	2176.4	823.8	537.3	1736.4	278.1		88.2	43.1
6- Bare land and other areas	409.5	410.3	0.8	77.2	17.7	45.8	258.4	0.8		10.4	8.8
SOC average (ton/ha)											**37**
Percent of total land area				**3%**	**16%**	**12%**	**51%**	**17%**		**1%**	
Total (sq km)	**913945**	**913945**	**0**	**28703**	**145840**	**109251**	**467642**	**153981**		**8530**	

Table 5: Net land productivity dynamics (NetLPD) trend 2000-2010

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	15.9	221.7	197.4	361.7	382.7	1179.4
Forest to Shrubs, grasslands and sparsely vegetated areas	52.8	523.3	928.8	789.2	1137.2	3431.3
Forest to Bare land and other areas	0.36		0.27	0.18		0.8

Table 6: Soil organic carbon 0 - 30 cm (2000-2010)

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	1186	44.7	33.7	5300847	3995001	-1305846
Forest to Shrubs, grasslands and sparsely vegetated areas	3447	39.2	39.2	13529223	13529223	0
Forest to Bare land and other areas	1	29.5	16.1	2952	1611	-1341
Total	**4634**			**18833022**	**17525835**	**-1307187**
Percent loss total SOC stock (country)						**0.04**

(*) sq. km. stands for square kilometer 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).

(^) Where LPD totals differ from the Net area change (2000-2010) in Table 5, the differences are due to LPD No Data values being excluded from Table 4

Chapter Three

3. LDN targets and measures

During the LDN target setting process, the following voluntary LDN targets have been validated by the national LDN working group and endorsed by the Minister of State Environment as of 7 September 2017:

LDN at the national scale

LDN is 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 will 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[1]

- 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

The corrective measures identified to achieve the LDN targets are presented in table 7.

Table 7: LDN corrective measures

Negative trends	Area (Ha)	Corrective measures	LDN target Area (Ha)	LDN target Time (year)	Investments required (USD)
Conversion of forests into shrubs, grasslands and sparsely vegetated areas with declining productivity	528,000	Reforestation with local species	-528,000	2030	47,520,000.00
Conversion of forests into cropland with early signs of declining productivity or stable and not stressed	3,776,000	Reforestation with local species	-3,776,000	2030	339,840,000.00
Forest showing early signs of decline and having a declining productivity	214,654,000	Avoiding further decline of forest through economic incentives (Rehabilitation)	-214,654,000	2030	19,318,860,000.00
Shrubs, grasslands and sparse vegetation showing early signs of decline	188,240,000	SLM practices to avoid overgrazing SLM practices to avoid soil erosion Consider enforcing compensation	-188,240,000	2030	16,941,600,000.00
Cropland showing declining productivity and early signs of decline	1,228,770,000	Use agroforestry practices to improve cropland productivity	-1228,770,000	2030	110,589,300,000.00

Shrubs, grasslands and sparse vegetation increasing productivity	5,202,640	Introduce financially viable alternative options for the prevention of bush encroachment	-5,202,640	2030	46,823,760,000.00
				Total	**194,060,880,000.00**

Cost estimations M USD = Million USD; (1 sq km = 100 ha):
Reforestation to USD 9000/ha or USD 900 000/sq km (Summers *et al.*, 2015),
Summers DM, Bryan BA, Nolan M and Hobbis TJ. The costs of reforestation: a spatial model of the costs of establishing environmental and carbon planting. Land Use Policy 44: 110-121.

The degraded hotspots identified for the purpose of restoration (see table 8) include Imeko Game Reserve and Aworo Forest Reserve (116.79ha), Saki (66.29ha), Ilesha Ibaruba (47.33ha), Ejeba (85.22ha), Oroma –Etiti (94.48ha), Orishaeze (170.31ha), Ifiang Nsung (104.03ha), Badoko (18.73ha), Amba (337.96ha) and Banaga (65.27ha) in the following states of Ogun, Oyo, Kwara, Delta, Anambra, Imo, Cross River, Kaduna, Nasawara and Zamfara respectively. The corrective measures to restore the degraded hotspots are also presented in the table below.

Table 8: Hotspots and corrective measures

Hotspot	**ID**	**Negative trends**	**Area (Ha)**	**Corrective measures**	**LDN target Area (Ha)**	**LDN target Time (year)**	**Investments required (USD)**
Zamfara	25	Conversion of forests into cropland	65.27	Reforestation with local species SLM practices to avoid overgrazing	-65.27	**2030**	587,430
Kaduna	1205	Conversion of forests into shrubs, grasslands and sparsely vegetated areas	18.73	Reforestation with local species SLM practices to avoid overgrazing	-18.73		168,570
Kwara	4470	Conversion of forests into shrubs, grasslands and sparsely vegetated	47.33	Use agroforestry practices to improve cropland productivity	-47.33		425,970

		areas					
Oyo	5268	Conversion of forests into shrubs, grasslands and sparsely vegetated areas	66.29	Use agroforestry practices to improve cropland productivity. Reforestation with local species	-66.29		596,610
Nasarawa	5592	Conversion of forests into shrubs, grasslands and sparsely vegetated areas	337.96		-337.96		3,041,640
Ogun	8316	Conversion of forests into shrubs, grasslands and sparsely vegetated areas	116.79	Use agroforestry practices to improve cropland productivity. Reforestation with local species	-116.79		1,051,110
Anambra	9270	Conversion of forests into cropland	94.48	SLM practices to avoid soil erosion, Use agroforestry practices to improve cropland productivity, Consider enforcing compensation	-94.48		850,320
Delta	9403	Conversion of forests into cropland	85.22	SLM practices to avoid soil erosion, Use agroforestry practices to improve cropland	-85.22		766,980

				productivity, Consider enforcing compensation			
Imo	9465	Conversion of forests into cropland	170.31	SLM practices to avoid soil erosion, Use agroforestry practices to improve cropland productivity, Consider enforcing compensation	-170.31		1,532,790
Cross River	9522	Conversion of forests into cropland	104.03	SLM practices to avoid soil erosion, Use agroforestry practices to improve cropland productivity, Consider enforcing compensation	-104.03		936,270

Chapter Four

4.0 Achieving LDN

4.1 Leverage already achieved

Sustainable use of natural resources provides a buffer against poverty and opportunities for self-employment in the informal sector. Conversely, if poorly managed, the environment could easily become hazardous and threatening to rapid socio-economic development and human survival. To achieve the required rapid economic growth that will launch Nigeria onto a path of becoming one of the twenty largest economies in the world by 2030, the protection and sustainable use of the country's natural environmental resources is imperative. This implies that the national environmental assets must be maintained at a level that meets the need of the present generation without jeopardizing the interests of future generations. The development process envisaged in Vision 20:20, Economy recovery growth plan 2017-2020, Nigeria's Agriculture Promotion Policy 2016-2020, Nigeria Ecologic fund and Great Green Wall principally in terms of economic growth must be made to be compatible with environmental protection. Herein lies the major challenge for the country. For national development to be sustainable, it is imperative to conceptualize the environment as a cross-cutting development issue and ensure that our environmental resources are properly valued and accounted for in our development process. Also, food security is a major challenge which the nation tends to achieve by 2020. There are direct linkages between LDN and the National Development Programmes and Priorities in the area of poverty, food security, environmental protection and sustainable use of natural resources. The Federal Ministry of Budget and National Planning and the Federal Ministry of Agriculture and Rural Development have been thoroughly engaged in the course of this work and are fully

committed to achieve LDN as it will help achieve the country's overarching target of having a developed nation and a safer and cleaner environment. LDN also leverages on the following Nigerian commitments; NDC, REDD+, GGW and AFR100.

A gap in some national policies have been identified which may hinder the achievement of LDN by 2030. For this reason, Nigeria has prioritized its effort to integrate LDN into the following documents:

- National Agricultural Policy
- National Housing Policy
- National Mining Policy

4.2 LDN transformative projects and programs: opportunities identified

LDN targets and hotspots

Table 9 presents some initiatives relevant to LDN which can be leveraged upon and their funding sources. Other funding sources that the country has yet to access are also presented.

Table 9: LDN relevant initiatives and projects

Funding source	Opportunities
GEF-6/7 www.thegef.org	National Accredited Entity: ❖ African Development Bank ❖ United Nations Development Programme • Sustainable Fuelwood Management in Nigeria - 20.9 Mil. USD • Food-IAP: Integrated Landscape Management to Enhance Food Security and Ecosystem Resilience in Nigeria – 64.3 Mil. USD • LCB-NREE: Nigeria Child Project: Comprehensive and Integrated Management of Natural Resources in Borno State – 35.8 Mil. USD
Adaptation Fund www.adaptation-fund.org	No project funded yet
Green Climate Fund www.greenclimate.fund	No project funded yet

LDN Fund http://www2.unccd.int/actions/impact-investment-fund-land-degradation-neutrality	No LDN Fund Project assessed so far but there are several potential investments
World Bank http://projects.worldbank.org/P124905/nigeria-erosion-watershed-management-project?lang=en	Nigeria Erosion and Watershed Management Project - 500.00 million

Presently, there are some ongoing projects funded by GEF which are relevant to LDN. They include Sustainable Fuelwood Management in Nigeria at 20.9 Mil. USD, Food-IAP: Integrated Landscape Management to Enhance Food Security and Ecosystem Resilience in Nigeria at 64.3 Mil.USD and LCB-NREE: Nigeria Child Project: Comprehensive and Integrated Management of Natural Resources in Borno State at 35.8 Mil. USD. Also, Imeko/Aworo restoration project to restore 108,000 hectares of degraded land is in design.

Proposed strategy towards the design of a LDN transformative project in Nigeria

Quick-win

- Join the next Phase of the "Nigeria Erosion and Watershed Management Project"

Medium-term

- Submit a project to the United Nations Development Programme for funding by the GEF
- Submit a project to the Africa Finance Corporation for funding by the GCF
- Submit a project to the Bank of Industry (BoI) for funding by the AF though Bank of Industry (BoI) is proposed as implementing entities (registration is still in process)

5. Conclusions

The concern for a cleaner and greener environment led the Government of Nigeria to commit to set voluntary LDN targets. Population growth, which is bringing serious competition on the available land, high poverty and unemployment rates are increasing and seriously affecting people's livelihood as a result of increasing land degradation. The LDN target setting process opened the consciousness of the country to be more serious in addressing this threat. This is important especially in the area of data management, as the country does not have reliable data available at national level to define the LDN baseline and to set LDN targets. In such a case, the LDN national working group agreed to use the default data provided by the UNCCD Secretariat. Furthermore, in the course of the LDN target setting process, all sectors that have anything to do with land were encouraged to participate in the formulation of the LDN targets. Lastly, the LDN-TSP also created an avenue for the country to join and commit to the African Forest Landscape Restoration Initiative (AFR100).

6. Annex

Annex a: List of working group

S/N	NAME	ORGANISATION
1	Bala Haruna Gukut	UNCCD National Focal Point, Department of Drought and Desertification Amelioration, Federal Ministry of Environment
2	Chindaba M.	Department of Drought and Desertification Amelioration, Federal Ministry of Environment
3	Adiji Ayodeji.O	Desk Officer LDN, Department of Drought and Desertification Amelioration, Federal Ministry of Environment
4	Isah Aishatu N.	Department of Drought and Desertification Amelioration, Federal Ministry of Environment
5	Eguaoje Festus O.L	GEF office, Federal Ministry of Environment
6	Nafiu Akinielu	Department of Environment Assessment, Federal Ministry of Environment
7	Adekambi Olalekan	Department of Forestry, Federal Ministry of Environment
8	Barde J.D	Climate change department, Federal Ministry of Environment
9	Mr. Ologun Freeman	Department of Forestry, Federal Ministry of Environment
10	Yusuf Addy	Ecological Fund Office
11	Gani Garba J.	Federal Ministry of Agriculture and Rural Development
12	Babarinde S	Federal Ministry of Water Resources
13	Ibok Edifon I	Federal Ministry of Science and Technology
14	Sabiu Ali Dan-Abba	Federal ministry of Mines and Solid Mineral Development
15	Joseph Alozie	Nigerian Meteorological Agency (NIMET)
16	Dr. Godstime K. James	National Space Research and Development Agency (NASRDA)
17	Omotola Adeniyi	National Bureau of Statistics
18	Jacob Ayuba Francis	National Environmental Standard Regulation Enforcement Agency (NESREA)
19	Igoche A Peter	Federal Ministry of Power, Works & Housing
20	Dr. Nwosu Callistus	Federal Ministry Of Planning and Budget
21	Yusuf Aliyu	Sustainable Development Goals Office
22	Karima S Jibril	Nigeria Erosion and Watershed Management Project (*NEWMAP*)

23	John Lahu	National Oil Spill Detection and Response Agency
24	Dr. Nwangwu Augustine .C	Federal Ministry of Agriculture and Rural Development
25	Dr. Magnus Chidi Onuoha	National Assembly
26	Samuel Ngala	National Assembly
27	Mr. Henry Nsonwu	Head of Survey and mapping, Federal Ministry of Environment
28	Dr (Mrs) Nnemeka. E. Ihegwuagu	Agricultural Research Council of Nigeria
29	Prof. Akindele .S.0	Federal University of Technology. Akure.(FUTA)
30	O.N Oladele	Forestry Research Institute of Nigeria, Ibadan (FRIN)
31	Mahmood Musa Mahmood	National Space Research and Development Agency (NASRDA)
32	Nkem. Ononiwu	Country Consultant
33	Uche Isieke	Asst. Country consultant
34	Zainab A. Musa	National Bureau of Statistics
35	Nwaneri Regina	Department of Drought and Desertification Amelioration, Federal Ministry of Environment

Annex b: Nigeria LDN national working group - pictures

Figure5: Inception workshop

Figure 6 Inception workshop

Figure 7: First working group meeting

Figure 8: First working group meeting

Figure 9: First working group meeting

Figure 10: Second working group meeting

Figure 11: Second working group meeting

Figure 12: Second working group meeting

Figure 13: Validation workshop

Figure14: Validation workshop

Figure15: Validation workshop

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