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

LDN
Land Degradation Neutrality
Target Setting Programme

**Convention on
Biological Diversity**

gef

**TECHNICAL
REPORT**

LAND DEGRADATION NEUTRALITY FOR
BIODIVERSITY CONSERVATION

CONTENTS

LIST OF BOXES AND FIGURES

LIST OF BOXES

LIST OF FIGURES

LIST OF ACRONYMS

ABT   Aichi Biodiversity Target

CBD   Convention on Biological Diversity

GEF   Global Environment Facility

IPBES   Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

IPCC   Intergovernmental Panel on Climate Change

LDN   Land Degradation Neutrality

NBSAP   National Biodiversity Strategy and Action Plan

PES   Payments for ecosystem services

SDG   Sustainable Development Goal

UN   United Nations

UNCCD   United Nations Convention to Combat Desertification

UNFCCC   United Nations Framework Convention on Climate Change
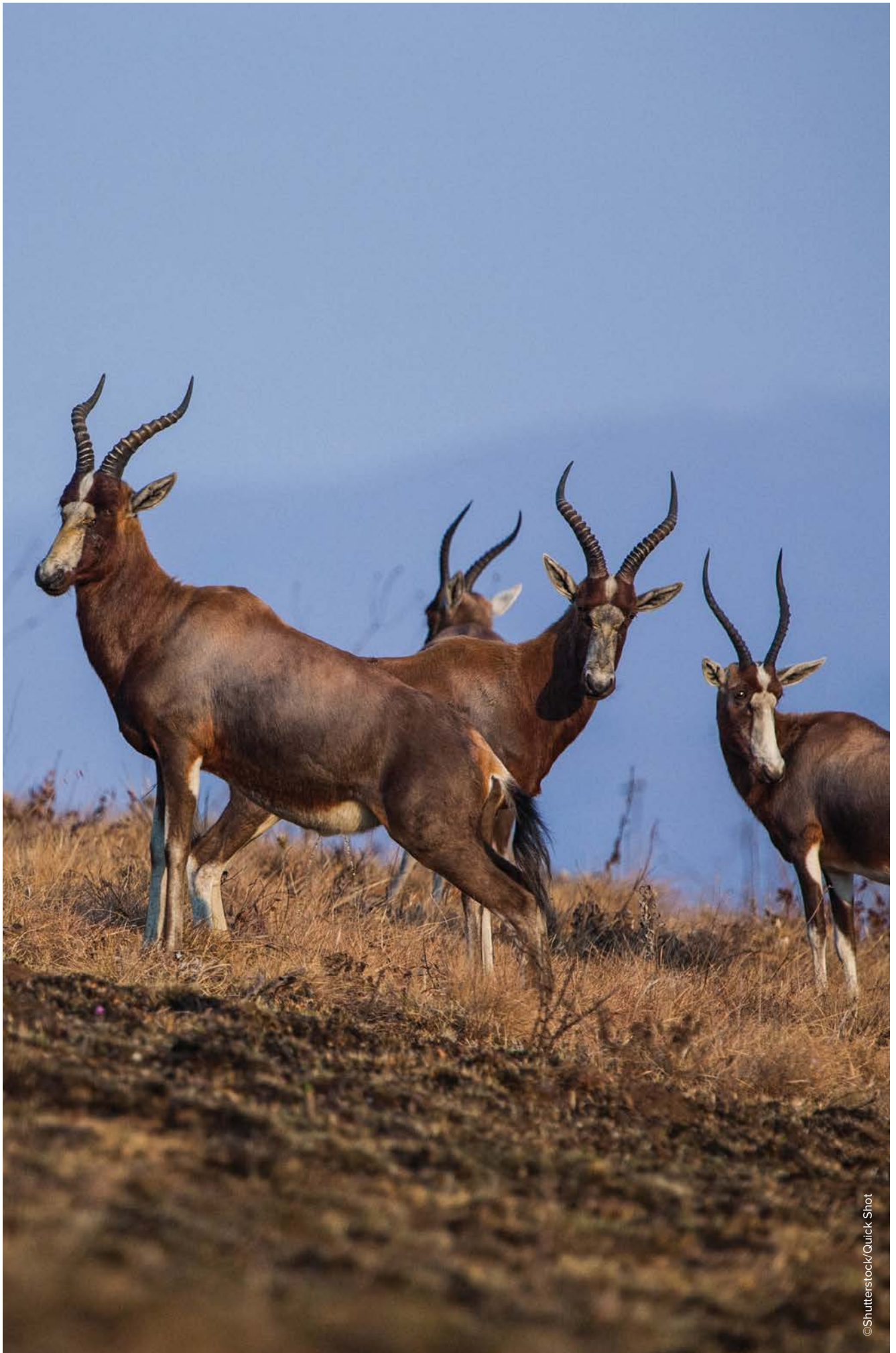
©Shutterstock/Quick Shot

EXECUTIVE SUMMARY

Land degradation and the loss of biological diversity are two of the most pressing environmental threats facing humanity. Both are eroding the planetary life support systems on which the prosperity and well-being of current and future generations depend. Action to address these crises, as well as the gathering climate emergency, has so far been inadequate and transformative change on all continents and at all scales is needed in order to ward off the most serious risks to our economies, societies and the natural world.

Rising awareness of Earth's environmental challenges has intensified the search for solutions, including within the United Nations system. Addressing such complex problems requires policies and interventions that recognize the interconnectedness of natural and human systems and integrate multiple goals, maximizing synergies and minimizing negative trade-offs.

Land Degradation Neutrality (LDN), a global target adopted by the members of the United Nations as part of the 2030 Agenda for Sustainable Development, provides a framework for action that can integrate biodiversity conservation and other objectives in its overarching goal of keeping our lands healthy and productive.

This report presents the results of an analysis of the key elements of the LDN framework developed by the United Nations Convention to Combat Desertification (UNCCD),the LDN voluntary commitments (comprising targets and measures) adopted by countries and the Convention on Biological Diversity (CBD) and its Strategic Plan for Biodiversity 2011-2020. The analysis found significant synergies between LDN and the CBD's Strategic Plan that policymakers can draw on to produce more effective and efficient actions on these urgent environmental issues.

At the most fundamental level, the CBD and the LDN framework both rest on core objectives that show strong support for the sustainable use of natural resources, including ecosystems and biodiversity. Both also include a commitment to the 'triple bottom line' of environmental, economic and social goals.

Based on its fundamental objectives, the LDN framework is built around a set of principles, including integrated land-use planning and good governance, which are likely to ensure that biodiversity conservation is taken into account in more integrated environmental policymaking. For example, the principles include the LDN response hierarchy, which prioritizes efforts to avoid degradation, including the loss of natural habitats.

LDN also offers significant synergies and support for biodiversity conservation in practice. Commitments that countries have made under LDN bolster all five of the Strategic Goals and more than three-quarters of the 20 Aichi Biodiversity Targets (ABTs) in the Strategic Plan for Biodiversity 2011-2020. This report provides examples of the support for each of the relevant ABTs and suggests how the available synergies can be further exploited.

The analysis of the commitments of the countries that have so far defined voluntary targets in pursuit of LDN shows that their current plans could significantly support many biodiversity goals, such as combatting deforestation, conserving and sustainably managing ecosystems, and maintaining key ecosystem services. Realizing those benefits by 2030 will depend on the ambition of the countries and the level and scale of LDN implementation that can be achieved with the technical and financial support of relevant partners.

The findings in this report also highlight the substantial additional scope for countries to design LDN targets and measures that will serve both national and international biodiversity goals, for example in areas including the urgent need to raise both awareness and increased financial support for action against biodiversity loss and land degradation.

The synergies available to policymakers are also evident from an examination of countries' National Biodiversity Strategies and Action Plans (NBSAPs). For example, national action on habitat loss, sustainable use, protected areas, essential ecosystems services and ecosystem restoration show significant complementarity with the goals of LDN.

To realize the potential for integrated policymaking, countries are encouraged to design what the UNCCD describes as LDN Transformative Projects and Programmes. This report provides several examples and case studies of how countries are engaging in LDN implementation efforts that recognize biodiversity conservation as an integral part of protecting their land capital.

Hence, this report shows that LDN has important complementarity and synergies with biodiversity conservation. These synergies offer a sound basis for the integrated design of effective policies,

programmes and interventions. When implemented at a scale large enough to bring about transformative change, integrated projects can more effectively and efficiently address the urgent challenges of protecting the health of our land as well as its biological diversity.

The international community has an opportunity to better reflect the synergies between LDN and biodiversity conservation in the ongoing process of developing the post-2020 biodiversity framework. Countries will also be able to step up joint action on both agendas in the context of the 2021-2030 UN Decade on Ecosystem Restoration.

©Shutterstock/Quick Shot

LAND DEGRADATION NEUTRALITY FOR **BIODIVERSITY CONSERVATION**

KEY MESSAGES

◈ Land degradation and biodiversity loss are strongly related and are both the causes and consequences of a single environmental crisis affecting all life on land.

◈ Addressing both challenges, while also achieving the Sustainable Development Goals (SDGs), demands common approaches and solutions, involving integrated policymaking and action at both global and national levels.

◈ The strong overlap between the main drivers of land degradation and biodiversity loss shows the potential for Land Degradation Neutrality (LDN) to address these drivers, through concerted actions to protect ecosystems, manage land sustainably and deploy nature-based solutions to address climate change.

◈ In order to increase synergies in implementation among the Rio Conventions (the United Nations Convention to Combat Desertification, the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change), there is great potential to align LDN targets and measures with existing and future commitments on biodiversity and climate change, so as to take advantage of the expected multiple co-benefits of these activities. Likewise, national strategies and targets that could be adopted to implement the post-2020 global biodiversity framework could seek to align with existing commitments already taken by countries to achieve LDN.

◈ International agencies, national governments and donors should focus more resources on building capacities for the design and implementation of LDN Transformative Projects and Programmes that can deliver multiple objectives.

◈ The 2021-2030 UN Decade on Ecosystem Restoration and the CBD's post-2020 global biodiversity framework provide a unique opportunity to scale up joint UNCCD and CBD implementation and make a pivotal contribution to achieving the SDGs.

1. INTRODUCTION

Land degradation and biodiversity loss are among the most pressing environmental challenges facing humanity. Land degradation has reduced the productivity of nearly one-quarter of the global land surface, impacted the well-being of about 3.2 billion people and cost about 10% of annual global gross domestic product in lost ecosystem services.[1] An estimated 23% of total anthropogenic greenhouse gas emissions derive from agriculture, forestry and other land uses, contributing to climate change.[2] Land-use change, habitat loss and fragmentation and other factors involved in land degradation processes are driving unprecedented losses in the biodiversity that underpins many of the benefits derived from nature. The average abundance of native species in most major land-based habitats has fallen by at least 20% and around 1 million species face extinction unless the pressure on nature can be reduced. Many of the global biodiversity targets set for 2020 will not be met[3] (see also Box 1).

Awareness of the gravity of environmental degradation and the threat it poses to the sustainability of economies and societies is on the rise. The urgency of this environmental challenge has resulted in increasing pressure on leaders and experts to find solutions that can yield clear immediate benefits, and which could become the foundations of a more sustainable outcome. The search for effective policy responses is supported by the rapid emergence of new scientific insights, but knowledge gaps regarding Earth's natural and human systems and their interactions persist. At the same time, there is increasing evidence and understanding of how the causes and consequences of global warming, the degradation of ecosystems and the loss of biological diversity are tightly interwoven. Plans and actions to address them, as well as to prevent and mitigate the associated risks, must also be strongly integrated.

The United Nations Convention to Combat Desertification (UNCCD), the Convention on Biological Diversity (CBD), and the United Nations Framework Convention on Climate Change (UNFCCC) (collectively known as the Rio Conventions) are spearheading global environmental policymaking on land, biodiversity and climate to address the multiple challenges that countries are facing in these areas. However, effective implementation of these Conventions depends, to a large extent, on the existence and expansion of operational synergies among them.[4] Making progress toward their mutual objectives requires integrated assessments and planning to establish priorities, maximize synergies and balance trade-offs.

Box 1: Land degradation and biodiversity in numbers

The wellbeing of 3.2 billion people is impacted by land degradation.

Nearly one-quarter of the global land surface has reduced productivity due to land degradation.

About 1 million animal and plant species are threatened with extinction.

At least 680 vertebrate species have gone extinct since the 16th century.

The average abundance of native species in most major land-based habitats has fallen by at least 20%, mostly since 1900.

One-third of the solution to the climate crisis can be found through restoration, conservation and other land management actions.

Sources: IPBES, 2018; IPBES, 2019; Griscom et al., 2017

©Shutterstock/Quick Shot

The adoption of the 2030 Agenda for Sustainable Development, which includes major environmental objectives among its 17 global goals and 169 associated targets, has underlined the complexity facing policymakers at all levels and the need to seek mutually supporting implementation strategies that can deliver multiple benefits at scale.

Aligning efforts to address land degradation and biodiversity loss makes sense. A significant component of life on Earth takes place on land or is affected by terrestrial processes. The direct and indirect drivers of land degradation and biodiversity loss are substantially the same – from consumer habits and trade to the conversion of natural habitats and unsustainable farming. In most cases, measures taken to address one will have positive consequences for the other.

Some evidence that governments are aligning policy in these areas can already be found in the targets and action plans that they have drawn up under the Rio Conventions, and momentum to realize more of the potential gains is building. In 2019, Parties to the UNCCD invited countries committed to Land Degradation Neutrality (LDN) to "implement measures to accelerate [its] achievement by fostering synergies among the Rio Conventions and other multilateral environmental agreements, including the consideration of joint programming activities."[5] A year earlier, Parties to the CBD encouraged "actions for enhanced synergies" among the Rio Conventions in the development of the post-2020 global biodiversity framework. The recently declared 2021-2030 UN Decade on Ecosystem Restoration will make integrated policies and action more relevant than ever. More immediately, the upcoming adoption of a new global framework for biodiversity under the CBD in 2020 represents a key window of opportunity for countries to coordinate and integrate more closely their national and international strategies for biodiversity conservation, climate change mitigation/adaptation and LDN.[6]

This technical report is one of a series of studies designed to increase awareness and understanding of the opportunities that LDN presents for synergies with other social and environmental objectives and how voluntary LDN targets and associated measures adopted by UNCCD country Parties can contribute to multiple Sustainable Development Goals (SDGs). It is also part of the response of the Global Mechanism of the UNCCD to specific recommendations for greater knowledge sharing as part of an evaluation of the LDN Target Setting Programme completed in April 2019.[7] In addition to this study on the contributions of LDN to biodiversity conservation, complementary studies on other thematic areas have been produced, including: forest and landscape restoration,[8] poverty and inequality,[9] food insecurity in mountain regions,[10] and gender equality.[11] Further studies are under development focusing on how LDN targets contribute to the sustainable development of Small Island Developing States (SIDS), climate change mitigation and adaptation, sustainable agriculture and food security, water security, and land-use planning.

The series of studies is aimed at a wide range of stakeholders involved in land management, including governments, research institutions, development banks and agencies, private companies, community organizations and land users. This report shows how the voluntary targets that countries have adopted in pursuit of LDN and the biodiversity goals set by country Parties to the UNCCD and the CBD, respectively, mutually support efforts to protect their land and biodiversity. The synergies and benefits highlighted here can help countries engaged in LDN to reflect the full value of biodiversity in their plans to safeguard their land and other natural resources and motivate more countries to follow suit. Likewise, this report can also inspire countries to use LDN as a powerful tool to implement their biodiversity-related goals. This is particularly important at a time when the post-2020 biodiversity framework is being developed and the global community is gearing up for the 2021-2030 UN Decade on Ecosystem Restoration.

2. THE LAND DEGRADATION-BIODIVERSITY NEXUS

2.1 Land and degradation

The United Nations Convention to Combat Desertification (UNCCD) defines land as "the terrestrial bio-productive system that comprises soil, vegetation, other biota, and the ecological and hydrological processes that operate within the system."[12] Land degradation is defined in the UNCCD as the loss of biological or economic productivity and complexity in agricultural, range or forest land due to processes arising from human activities, such as the erosion or deterioration of soil and the loss of natural vegetation.[13] These definitions make clear that land degradation is directly concerned with biodiversity at both the species and ecosystem levels, in natural areas as well as those used for human activities. By emphasizing the importance of hydrological processes and natural vegetation, they also indicate why wetlands are included in considerations of land degradation.

Healthy land is vital to the existence and persistence of all human societies. From food, fodder, water and materials such as timber and fibre, to climate regulation, pest and disease control and cultural identity, the benefits provided by land are myriad and indispensable. But as the demands on land from a growing and more prosperous global population increase, finite land resources are coming under increasing pressure. At the same time, climate change threatens to disrupt and undermine the capacity of the land to keep delivering the vital services on which people rely.

The clearance of natural vegetation to make way for farmland, settlements and infrastructure and the over-exploitation of land and its resources have led to widespread degradation. Less than one quarter of the Earth's land remains free of substantial human impacts. Most of the remaining three quarters has been negatively affected by degradation and transformations of varying intensity. Most transformation has occurred in developed countries. However, developing countries are currently undergoing the most rapid change as more land is converted to agriculture.[14] While humanity as a whole has never been so prosperous, economic progress has been achieved by consuming at an unsustainable rate the natural capital on which that well-being depends. For example, a recent landmark assessment of biodiversity and ecosystem services[15] found that, while agricultural production, fish harvests, bioenergy production and harvesting of materials have all increased in recent decades, 14 of the overall 18 categories of ecosystem services included in the assessment showed declines over the same period (see Figure 1).[16] Continuing on this track may condemn future generations to live on an impoverished planet, stripped of the productive land and ecosystems that today provide us with so much.

In some parts of the world, degradation already threatens food and water security as well as human health and safety. By 2050, land degradation and climate change combined could cut crop yields by some 10%. Pollution, over-extraction and other factors mean that four fifths of the world's population live in areas where water security is threatened. Land degradation can also increase the risk of diseases, displacement and disasters.[17]

©Shutterstock/Quick Shot

Nature's contribution to people	50-year global trend	Directional trend across regions	Selected indicator
REGULATION OF ENVIRONMENTAL PROCESSES 1 Habitat creation and maintenance	↓ ↓	○ ○	• Extent of suitable habitat • Biodiversity intactness
2 Pollination and dispersal of seeds and other propagules	↓ ↓	○ ○	• Pollinator diversity • Extent of natural habitat in agricultural areas
3 Regulation of air quality	↘	↓↑	• Retention and prevented emissions of air pollutants by ecosystems
4 Regulation of climate	↘	↓↑	• Prevented emissions and uptake of greenhouse gases by ecosystems
5 Regulation of ocean acidification	→	↓↑	• Capacity to sequester carbon by marine and terrestrial environments
6 Regulation of freshwater quantity, location and timing	↘	↓↑	• Ecosystem impact on air-surface-ground water partitioning
7 Regulation of freshwater and coastal water quality	↘	○	• Extent of ecosystems that filter or add constituent components to water
8 Formation, protection and decontamination of soils and sediments	↘	↓↑	• Soil organic carbon
9 Regulation of hazards and extreme events	↘	↓↑	• Ability of ecosystems to absorb and buffer hazards
10 Regulation of detrimental organisms and biological processes	↓ ↘	○ ○	• Extent of natural habitat in agricultural areas • Diversity of competent hosts of vector-borne diseases
MATERIALS AND ASSISTANCE 11 Energy	↗ ↘	↓↑ ↓↑	• Extent of agricultural land – potential land for bioenergy production • Extent of forested land
12 Food and feed	↗ ↓	↓↑ ↓↑	• Extent of agricultural land – potential land for food and feed production • Abundance of marine fish stocks
13 Materials and assistance	↗ ↘	↓↑ ↓↑	• Extent of agricultural land – potential land for material production • Extent of forested land
14 Medicinal, biochemical and genetic resources	↘ ↓	○ ○	• Fraction of species locally known and used medicinally • Phylogenetic diversity
NON-MATERIAL 15 Learning and inspiration	↓ ↓	○ ○	• Number of people in close proximity to nature • Diversity of life from which to learn
16 Physical and psychological experiences	↘	○	• Area of natural and traditional landscapes and seascapes
17 Supporting identities	↘	○	• Stability of land use and land cover
18 Maintenance of options	↓ ↓	○ ○	• Species' survival probability • Phylogenetic diversity

DIRECTIONAL TREND

Decrease ←——————→ Increase

Global trends: ↓ ↘ → ↗ ↑

Across regions: ○ Consistent   ↓↑ Variable

LEVELS OF CERTAINTY

● Well established

● Established but incomplete

● Unresolved

Source: IPBES, 2019

2.2 Biodiversity and land degradation

As defined in the Convention on Biological Diversity (CBD), biological diversity encompasses "the variability among living organisms from all sources, including, inter alia, terrestrial, marine and aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems."[18]

Under this widely accepted definition, biodiversity is both a core element of the ecosystems – natural and modified – that provides humanity with vital services, and a service in itself.[19] For example, micro-organisms cycle nutrients in the soil, woody plants sequester carbon, and bees and other insects pollinate many of the world's food crops. At the same time, those crops as well as the myriad variety of domestic farm animals that provide us with food are derived from the diversity of wild plants and animals that have evolved on Earth: trees are harvested for timber, resin and medicines; and diverse wildlife and habitats meet the cultural, spiritual and recreational needs of people around the world.

Just as biodiversity is central to the services provided by land, it is also vulnerable to land's mismanagement, and biodiversity loss is one of the primary casualties of land degradation. Biodiversity is believed to be declining faster than at any time in human history, with around 1 million species at risk of extinction within decades.[20] The Living Planet Index, an indicator of global biodiversity that tracks vertebrate abundance, shows a decline of 60% between 1970 and 2014.[21] Many key components of biodiversity that support food and agriculture – from livestock breeds to wild food species and soil organisms – are also in decline.[22]

The close correlation between biodiversity loss and land degradation is demonstrated by the fact that they share the same primary driver: the conversion of natural habitats for human use for farmland, settlements or infrastructure. Other shared drivers (direct and indirect) include overexploitation of natural resources, poor land management, pollution, unsustainable consumption and production patterns and economic trade. Climate change is an accelerator for downward trends in both land and biodiversity. This makes the Land Degradation Neutrality (LDN) framework articulated under the UNCCD particularly valuable as a platform for developing solutions to these inter-related challenges.

2.3 Land Degradation Neutrality

LDN is relatively new in the international environmental policy landscape. It emerged from the 2012 UN Conference on Sustainable Development, better known as Rio+20, as it took place two decades after the 1992 'Earth Summit' in Rio de Janeiro that launched the Rio Conventions and put sustainable development on the global policy agenda. The outcome document from Rio+20, The Future We Want, commits countries to "strive to achieve a land degradation-neutral world". This aim was subsequently adopted by the UN General Assembly as part of SDG 15 (Life on Land) of the 2030 Agenda for Sustainable Development.

In 2015, the UNCCD adopted SDG Target 15.3 and the objective of LDN (see Box 2 for a full definition of LDN[23]) as a strong vehicle to drive implementation of the Convention and the achievement of multiple SDGs, including those related to climate change mitigation and adaptation, and biodiversity conservation.

Box 2: What is Land Degradation Neutrality?

The UNCCD defines Land Degradation Neutrality (LDN) as *"a state whereby the amount and quality of land resources necessary to support ecosystem functions and services and enhance food security remain stable or increase within specified temporal and spatial scales and ecosystems".*

LDN is an integral part of Sustainable Development Goal Target 15.3, which aims to *"combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world"* by 2030.

LDN encourages countries to adopt a broad range of measures to avoid or reduce land degradation through appropriate planning, regulation and sustainable land management practices, combined with localized action to reverse past degradation, through land restoration and rehabilitation, to achieve a state of no net loss of healthy and productive land.

To make LDN a reality, the UNCCD developed a scientific conceptual framework,[24] technical guidance[25] and practical tools to help countries to assess the current state of their land and the drivers of degradation. Through the LDN Target Setting Programme,[26] the Global Mechanism and the secretariat of the UNCCD, in collaboration with 18 international partners, assist countries to set LDN targets and associated measures, and to move toward LDN through policy integration and investments in transformative projects and programmes. As of November 2019, 123 countries have committed to this voluntary process, and more than 80 have already set LDN targets,[27] signalling a strong political commitment and sending a clear message to the international community on the relevance of LDN.

2.4 LDN and the SDGs

An important contribution of LDN is that better management of land is central to the 2030 Agenda for Sustainable Development. Avoiding, reducing and reversing land degradation is essential for reaching many of the SDGs, including poverty reduction, food and water security and gender equality as well as biodiversity conservation. A recent expert assessment found that land degradation was relevant to the targets of all 17 Goals, and that synergies were available in every case.[28] Scientists recognize that many measures associated with LDN, including sustainable land and forest management, ecosystem conservation and land restoration, contribute to climate change adaptation and mitigation.[29] The UN General Assembly has acknowledged that LDN can accelerate the achievement of multiple SDGs.[30] Figure 2 shows some of the SDGs with the strongest links to LDN.

As well as LDN, SDG 15 incorporates seven other important global targets for the conservation and sustainable use of biodiversity. These objectives are expressed more expansively through the CBD and its Strategic Plan for Biodiversity 2011-2020. The next section takes the Strategic Plan's targets as the basis for assessing in more detail how LDN is contributing to biodiversity conservation.

Figure 2   **Land Degradation Neutrality, an accelerator of the Sustainable Development Goals**

1 NO POVERTY — Targets 1, 2, 4, 5

2 ZERO HUNGER — Targets 1, 2, 3, 4

5 GENDER EQUALITY — Targets 5A, 5B, 5C

6 CLEAN WATER AND SANITATION — Targets 1, 4, 5, 6

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Target 15.3
combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world

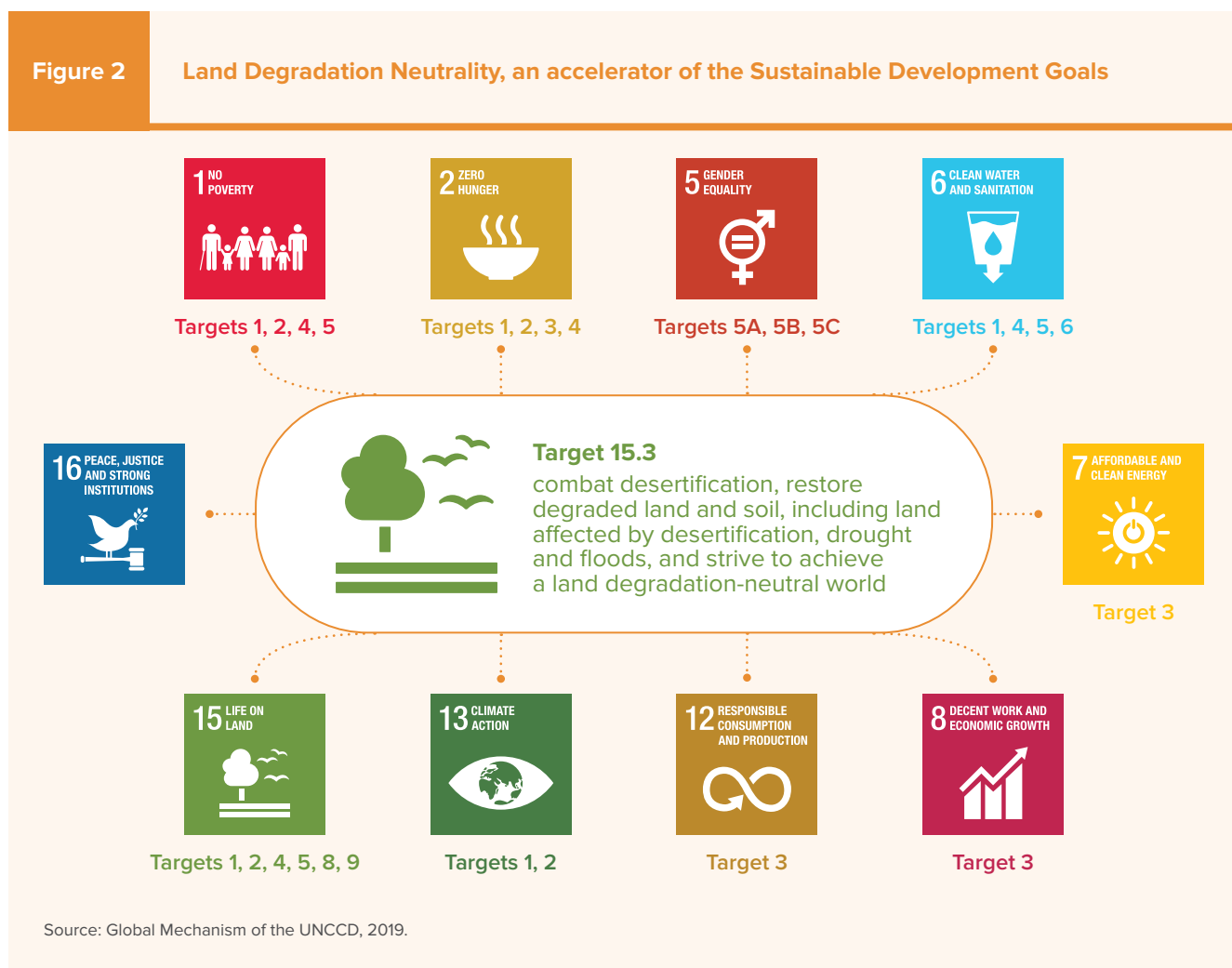7 AFFORDABLE AND CLEAN ENERGY — Target 3

15 LIFE ON LAND — Targets 1, 2, 4, 5, 8, 9

13 CLIMATE ACTION — Targets 1, 2

12 RESPONSIBLE CONSUMPTION AND PRODUCTION — Target 3

8 DECENT WORK AND ECONOMIC GROWTH — Target 3

Source: Global Mechanism of the UNCCD, 2019.

3. LDN AND BIODIVERSITY: POLICY AND PRACTICE

Pursuing LDN can support the conservation of biodiversity in many ways. These ways range from raising understanding and awareness of environmental issues among citizens and officials to on-the-ground interventions that protect forests and wetlands while helping people draw on the benefits that land resources provide on a more sustainable basis. This section illustrates the potential synergies between LDN and biodiversity conservation in detail by:

- comparing the core objectives of LDN with those of the CBD;

- exploring the approaches and principles involved in pursuing LDN and how they can support biodiversity conservation;

- assessing countries' LDN targets and measures against global biodiversity goals, and

- looking at how the implementation of LDN can conserve biodiversity in practice.

This section starts by illustrating the potential synergies available to policy-makers and practitioners in or across the two fields, then showcases how and the extent to which these synergies are being realized in practice. The analysis shows how, in many cases, actions taken primarily in pursuit of LDN have incidental co-benefits for biodiversity. But it also indicates where the selection and calibration of LDN interventions can enhance the positive benefits for conservation. In doing so, it illustrates the opportunities for maximising the overall gains from integrated policy-making and land-use planning where multiple objectives are fully considered.

3.1 Mutual objectives

Article 1 of the CBD outlines the convention's three fundamental objectives:[31]

- the conservation of biological diversity;

- the sustainable use of its components, and

- the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

These three objectives underpin the other provisions of the CBD and have guided subsequent decision-

making by its Parties, including the design and adoption of the Strategic Plan for Biodiversity 2011-2020 and the 2050 vision of a world of "living in harmony with nature" where "biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people."[32]

The core objectives of LDN are listed in its Scientific Conceptual Framework,[33] developed by the UNCCD's Science-Policy Interface, a body that facilitates dialogue between scientists and policy makers in order to deliver science-based, policy-relevant information, knowledge and advice.. The framework forms the basis for the detailed guidance provided to countries pursuing LDN.[34] The framework lists five objectives, three of which are particularly supportive of those of the CBD. The relevant LDN objectives seek to:

- maintain or improve the sustainable delivery of ecosystem services;

- seek synergies with other social, economic and environmental objectives, and

- reinforce responsible and inclusive governance of land.

Maintaining or improving the sustainable delivery of ecosystem services requires countries to manage and use land resources in ways that sustain or enhance the health of both natural and human-influenced ecosystems. Biodiversity is both an essential element of the ecosystems providing vital services – for example, the array of insects that pollinate crops and micro-fauna that maintain soil fertility – and a service in itself. This LDN objective also encompasses efforts to increase agricultural resilience to climate change and other shocks through, inter alia, building natural capital. Given that biodiversity is an integral component of natural capital, many measures taken to achieve the first objective of LDN will also support the first CBD objective of conserving biodiversity.

Sustainably delivering ecosystem services as part of the first objective for achieving LDN also strongly implies that human exploitation of biodiversity – for instance the harvesting of valuable timber trees in natural forest, or the killing or capturing of wild fauna for food or trade – must be managed so as not to deplete ecosystems, species or genetic

©Pedro Lara Almuedo

variability. Thus, this objective of LDN can also provide significant support to the second objective of the CBD to sustainably use the components of biodiversity (see Box 3).

<div style="border:1px solid orange">

Box 3: The definition of 'sustainable use' in Article 2 of the CBD

Sustainable use means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.

</div>

The third CBD objective, which is on the fair and equitable benefit-sharing from the use of genetic resources, is not addressed directly by the three LDN objectives stated above. Nevertheless, principles of fairness and equity are central to the LDN objective of reinforcing the responsible and inclusive governance of land. These principles are also emphasized across the LDN framework, including in relation to good governance, stakeholder participation (including the participation of women) and the protection of the rights and livelihoods of vulnerable and marginalized groups.[35]

LDN can support all of the objectives of the CBD through its central goal of seeking synergies with other social, economic and environmental objectives. The LDN framework is designed to encourage and accommodate mutually supportive action to, for example, build soil organic carbon and fertility, improve water-use efficiency and reduce pressure on natural systems. It is thus intended to help address biodiversity loss and climate change as well as land degradation and wider sustainable development challenges simultaneously.

3.2 Supportive principles and approaches

The scientific conceptual framework for LDN provides a deeper understanding of LDN. For countries that have voluntarily chosen to pursue LDN, it helps them to plan and implement measures to combat desertification, land degradation, and drought. The framework, along with subsequent detailed guidance provided by the UNCCD's Global Mechanism and the Science-Policy Interface, detail a number of principles and approaches. The principles are considered "essential elements that must be adhered to in order to achieve LDN."[36] A number of these principles and approaches are conducive to biodiversity conservation and go beyond the objectives of LDN. The LDN response hierarchy and indicators, along with the principles and the synergies they offer with biodiversity conservation, are highlighted below.

• **The LDN response hierarchy**

Under LDN, countries follow a response hierarchy that has action to avoid land degradation as its top priority, followed by reducing degradation and finally reversing past degradation (see Figure 3). The response hierarchy recognizes that avoiding or reducing land degradation will likely maximize long-term benefits and be more cost-effective than reversing degradation. This is particularly true for biodiversity, which can be quickly lost through land degradation but takes many decades to recover through restoration. By prioritizing the prevention and reduction of degradation, the LDN response hierarchy works to protect and sustainably manage productive landscapes, including protected areas, which are often highly biodiverse and important for the conservation of threatened species and ecosystems. Restoration and rehabilitation remain important options for recovering, where feasible,

Maximize conservation of natural capital

AVOID

1

Avoid: Land degradation can be avoided by addressing drivers of degradation and through proactive measures to prevent adverse change in land quality of nondegraded land and confer resilience, via appropriate regulation, planning and management practices.

REDUCE

2

Reduce: Land degradation can be reduced or mitigated on agricultural and forest land through application of sustainable management practices (sustainable land management, sustainable forest management).

REVERSE

3

Reverse: Where feasible, some (but rarely all) of the productive potential and ecological services of degraded land can be restored or rehabilitated through actively assisting the recovery of ecosystem functions.

Source: Orr *et al.*, 2017

the functions and services of a given ecosystem, together with its associated biodiversity.

• **The LDN indicators**

The LDN mechanism identifies three global indicators that countries can use to establish baselines and monitor progress towards LDN: land cover, land productivity and carbon stocks. The indicators are assessed by measuring land cover change, net primary productivity and soil organic carbon, respectively. All three can also be useful indicators for biodiversity and provide another aspect of mutual support between conservation and land management efforts. Monitoring changes in land cover can provide an indication of reductions or increases in vegetation, habitat fragmentation or conversion, with profound implications for biodiversity. Measuring land productivity can also help to gauge the health of ecosystems, including agri-ecosystems, and the biodiversity they contain. Estimates of carbon stocks provide a picture of the quality of soil, including of the soil biota so vital to the state of natural and managed land. Because quantified LDN targets set by many countries are based on these indicators, achieving them implies progress towards important objectives of biodiversity conservation.

Given the importance of soil as a global carbon store, the use of these indicators in the LDN framework offers opportunities for synergies in reporting under all three of the Rio Conventions.

• **Maintaining or enhancing land-based natural capital**

LDN is achieved when the quantity and quality of land-based natural capital is stable or increasing, despite the impacts of global environmental change. Biodiversity is vitally important in the maintenance of natural capital and the ecosystem services that flow from it,[37] including from the forests and agricultural land included in natural capital accounting.[38] While biodiversity is not directly captured in the three main LDN indicators, the LDN framework encourages countries to use additional indicators where appropriate, including those for biodiversity. These can refer to any other nationally relevant indicators that may address some of the drivers or consequences of land degradation (for example soil salinization or soil erosion) or indicators related to specific biodiversity values that are relevant to the country. On this basis, achieving LDN strongly implies, and likely requires, successful biodiversity conservation.

- **Integrated land-use planning**

  The neutrality mechanism of LDN, whereby gains in natural capital in one area can counterbalance degradation in another, must be embedded in land-use planning that allows different land uses to be categorized and accounted for. Countries that introduce or strengthen integrated land-use planning in pursuit of LDN will also be better able to incorporate biodiversity values and conservation priorities into decision-making around land use and changes therein. A related LDN principle encourages governments to align and incorporate LDN planning and implementation with existing planning and policy processes in order to reduce duplication of efforts. Incorporating both LDN and biodiversity conservation processes in this way can increase efficiencies for both.

- **Social aspects: gender, land governance and consultative processes**

  Women serve as environmental stewards, but due to their unequal access to land and lower land rights in many countries, they are often excluded from the conservation and management of land and forests and encounter barriers to participation in planning and policymaking processes. The scientific conceptual framework for LDN recognizes the role of women and indigenous groups in safeguarding land and land-based natural capital and has specific principles and approaches to ensure equal access and rights for these groups.

  LDN actions should not compromise the rights of land users, especially small-scale farmers, women and indigenous groups, to derive benefits from the land, and should not diminish the land's provisioning capacity or cultural value. This principle includes promoting and protecting tenure and access rights for both women and men[39] and ties in with efforts under both LDN and the CBD to safeguard vulnerable groups and ensure that the benefits from the sustainable use of land and biodiversity accrue to all. For example, the scientific conceptual framework for LDN stresses the unequivocal importance of women to LDN efforts, encourages countries to include gender perspectives in preliminary LDN assessments and calls for actions that ensure women's contribution in the planning and implementation of LDN. Consequently, actions to achieve LDN should help meet a target in the Strategic Plan for Biodiversity 2021-2030 that the needs of women be taken into account when safeguarding essential ecosystem services.

  The LDN framework also embraces several principles in addition to the safeguards and integrated planning processes described above that are associated with the concept of good governance. These include stakeholder consultation, participatory planning processes, informed decision-making, transparency and accountability. Realizing these principles as part of LDN will encourage their use in wider planning and policy processes, helping governments to achieve their objectives in LDN along with those in biodiversity conservation and other areas related to land governance.

Considering the above, it is clear that the principles and approaches at the core of LDN guide countries toward adopting targets and measures that not only offer significant co-benefits for biodiversity conservation, but are also suitable for integrated policy-making and planning processes that can maximize those benefits, minimize trade-offs and make it easier for countries to pursue multiple objectives and obligations more effectively and efficiently.

3.3 Compatible targets

The synergies between efforts to combat land degradation and conserve biodiversity become more concrete when looking at the targets and measures adopted by countries committed to LDN alongside the Strategic Plan for Biodiversity 2011-2020, a framework for biodiversity management and policy development agreed by the Parties to the CBD in 2010 and intended as a stepping-stone toward its 2050 vision. The Strategic Plan incorporates the Aichi Biodiversity Targets (ABTs), which best represent the current conservation priorities of the international community. From the ABTs, countries have translated the framework into National Biodiversity Strategies and Action Plans (NBSAPs) to drive conservation action at national and sub-national levels.

In 2018, the Parties to the CBD adopted a comprehensive and participatory process[40] for the development of a post-2020 global biodiversity framework to be adopted in 2020. Initial submissions from Parties and observers indicate support for using the ABTs as a starting point for discussing future targets.[41] As part of this process, the UNCCD has outlined how elements of the LDN conceptual framework, including its response hierarchy, could be adapted for a new biodiversity target on habitat loss.[42] Thus the assessment performed here is likely to retain its relevance for the post-2020 period. Once the new biodiversity framework is in place, countries can begin work on updated NBSAPs, which represents a critical opportunity to design and present more integrated policies and interventions. Similarly, under the 2030 Agenda for Sustainable Development, countries will need to report regularly on their progress toward SDG Target 15.3 on LDN and will be able to upgrade their LDN commitments (comprising both targets and measures) accordingly.

This section of report analyses the relationship between LDN and the ABTs in three stages: first, it examines action for LDN against the individual ABTs, which are organized under the Strategic Goals of the Strategic Plan for Biodiversity 2011-2020, in order to identify the potential synergies between them. This section then looks at the extent to which the actual targets and measures that countries have adopted so far in pursuit of LDN are exploiting the opportunities to efficiently pursue LDN and biodiversity conservation together. Finally, it looks at how countries' NBSAPs, in turn, also contain elements that support LDN.

At this stage, it is important to recognize that the results of the analysis should only be considered indicative. Several factors, including the broad scope of the ABTs and the varying level of detail in LDN targets and measures and in the formulation of the NBSAPs, introduce a degree of imprecision and interpretation to the findings presented. The selection of best practice examples, both in the analysis and the subsequent case studies, are also not exhaustive and are meant to be illustrative.

LDN's potential to support the ABTs

The 20 ABTs are grouped under five Strategic Goals. As shown explored in more detail following, each of the Strategic Goals and more than three-quarters of the ABTs can be advanced by measures undertaken in pursuit of LDN (see Figure 4).

Figure 4 — How LDN can support each of the Strategic Goals for biodiversity conservation

Aichi Biodiversity Targets (ABTs)

Strategic Goal A
Mainstream biodiversity across government and society
100%

Strategic Goal B
Reduce direct pressures on biodiversity and promote sustainable use
83%

Strategic Goal C
Safeguard ecosystems, species and genetic diversity
67%

Strategic Goal D
Enhance benefits to all from biodiversity and ecosystem services
67%

Strategic Goal E
Enhance Implementation through participatory planning, knowledge management, capacity building
75%

Proportion of ABTs supported by LDN

- Automatically advanced by implementation of LDN targets and measures
- Potentially advanced by implementation of LDN targets and measures
- Largely beyond the scope of LDN targets and measures

Within the ABTs, three groups can be distinguished in relation to LDN. Firstly, there are seven ABTs that arguably will be automatically advanced in countries making progress toward LDN as a result of their fundamental overlap (marked in dark green in Figure 4). For example, successful LDN programmes can be seen to support ABT 1 to promote awareness of the values of biodiversity and of the ecosystem services that it helps provide through LDN's emphasis on the need to manage land sustainably and protect ecosystem services, and on the engagement stakeholders to implement measures on the ground. A further nine ABTs can be significantly advanced by targets and measures that countries could potentially adopt under LDN (marked in light green). These include, for example, ABT 8 on reducing pollution, where measures under LDN to make land management more sustainable can include integrated nutrient and pest management that curbs the excessive use of agrochemicals. The remaining four ABTs (marked in red) are those that lie largely beyond the scope of LDN or where LDN's potential contribution is indirect.

The remainder of this section examines each ABT individually, using the same colour coding as in Figure 4. Where appropriate, the analysis states briefly how LDN can support the specific ABT; lists some relevant LDN measures; suggests ways in which synergies can be deepened, for example, by maximizing co-benefits; and provides examples of LDN country commitments likely to contribute to biodiversity conservation. Taken as a whole, this section shows how the synergies evident from comparing the objectives and principles that guide LDN under the UNCCD and biodiversity conservation under the CBD can be realized.

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

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

A successful LDN programme will promote awareness of the value of biodiversity and of the ecosystem services that it provides. This occurs through LDN's emphasis on the need to manage land sustainably and protect ecosystem services as well as the engagement and participation of stakeholders in setting targets, identifying measures and building broad and strong support for the implementation of actions to achieve LDN on the ground.

Relevant LDN measures: awareness raising campaigns through civil society groups and the media; training exercises.

Deepening synergies: LDN awareness campaigns can include elements designed specifically to expand understanding of how biodiversity contributes to maintaining the land productivity and livelihoods through, for example, soil fertility, pollination, water supply and resilience against climate change.

Good practice: Panama plans to raise awareness in the media and social networks about natural capital, the economic value of forests and the ecosystem services they provide, and the impact of replacing forests on the country's natural heritage; Montenegro wants to raise awareness about soil and land degradation and promote sustainable land management through educational programmes; Côte d'Ivoire will build the capacity of actors through awareness campaigns and disseminate existing land degradation legislation to accelerate its ownership and application.

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

Mapping land use, monitoring changes therein, and integrating land-use planning in pursuit of LDN strongly encourages decision-makers to consider the value of the ecosystems and the services they provide as they design and pursue sustainable development strategies. Environmental data gathered for LDN is typically aggregated at the national level in order to assess whether LDN targets have been achieved and is available for economic valuation and incorporation into national accounting structures.

Relevant LDN measures: integrated land-use planning at national and sub-national levels; integrating LDN into national development and anti-poverty programmes; including LDN in strategic environmental assessments and environmental impact assessments.

Deepening synergies: assessments of land-use changes or development programmes involving potential trade-offs between land productivity and biodiversity conservation should consider the full range of biodiversity values as well as the implications for land degradation.

Good practice examples: an LDN target of the Dominican Republic is to promote and support land-use planning in 30 pilot municipalities within areas critically exposed to land degradation processes; Ghana aims to assist communities to develop and implement land-use plans for the sustainable management of rangelands.

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

Incentivizing sustainable land management through policy reform supports the creation of an enabling environment for LDN and will have clear benefits for biodiversity. Integrated planning could ensure that biodiversity goals are also reflected in new or reformed policies on, for example, tax incentives and payments for ecosystem services (PES).

Relevant LDN measures: land-use charges; PES schemes; tax breaks; financial penalties.

Deepening synergies: fiscal reforms are opportunities to identify and reduce subsidies that contribute most to a wide range of environmental concerns, including land degradation and biodiversity loss, and to design replacements that bring the largest gains, minimize trade-offs and protect vulnerable social groups.

Good practice examples: Lebanon intends to develop financial incentives for the implementation of sustainable land management practices, in line with mitigation and adaptation strategies on climate change and conservation of biological diversity; Mongolia envisages a PES system to protect its headwaters and wetlands; Lesotho wants to use grazing fees to improve the management of rangelands.

By 2020, at the latest, **Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production** and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

LDN will likely prove unattainable unless the production of food and forest products is made sustainable. As such, ABT 4 is another key biodiversity goal that offers clear and substantial synergies with efforts to prevent land degradation. LDN can help foster sustainable consumption by encouraging countries to support certification schemes for products derived from the sustainable use of land. LDN approaches also clearly entail keeping the use of natural resources including water and wood within ecological limits.

Relevant LDN measures: in addition to sustainable land and forest management, LDN encourages soil and water conservation; sustainable alternatives to firewood to protect forests; and "green" or "organic" certification programmes for sustainable farm and forest products.

Deepening synergies: Integrated Water Resource Management policies included in commitments for LDN can incorporate safeguards for biodiversity in wetlands and other ecosystems as well as maintaining sustainable water supplies for agriculture and other water consumers.

Good practice examples: Niger is promoting alternative construction techniques and energy sources to reduce demand for timber and firewood; the Philippines wants to strengthen 'green standards' in the agri-business sector; Egypt aims to grow crops that require less water and to adopt modern irrigation systems.

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use

By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and **degradation and fragmentation is significantly reduced.**

The conversion of natural and semi-natural habitat to agricultural land is a primary driver of land degradation. Thus, in the vast majority of countries, LDN requires action to reduce and halt conversion and degradation in forests and wetlands that contributes directly to attaining ABT 5.

Relevant LDN measures: strengthening protected area networks, including forest reserves; designing and implementing land use plans; curbing illegal woodcutting and mining.

Deepening synergies: establishing community-based conservation and management programmes for forests and wetlands; incorporating ecological corridors into farmland and artificial areas.

Good practice examples: Equatorial Guinea is targeting a 40% reduction in the conversion of forests into other land-cover categories by 2030, compared to the 2000–2010 period; Nicaragua is promoting silvicultural techniques that favour biological connectivity between forest ecosystems.

By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

Restoring wetlands to improve their productivity and carbon stocks in pursuit of LDN will benefit aquatic ecosystems and fisheries, and wetland management strategies that combine LDN, biodiversity and climate considerations may be a promising integrated policy option. However, LDN interventions in wetlands and coastal areas will more directly impact other ABTs (such as ABTs 5, 7, 14 and 15) more than fishing policies and practices.

By 2020 **areas under agriculture, aquaculture and forestry are managed sustainably,** ensuring conservation of biodiversity.

Bringing more land, forests and wetlands under sustainable management is central to preventing and reversing degradation and, thus, achieving LDN. ABT 7 is another biodiversity target that will receive almost universal support from the effective implementation of LDN.

Relevant LDN measures: in agricultural land, soil and water conservation, organic farming and agroforestry; in rangelands, sustainable grazing regimes; sustainable forestry management; wetland management strategies and Integrated Water Resource Management.

Deepening synergies: promoting native tree species in forestry and agroforestry systems; integrated pest and soil fertility management; integrate and balance LDN, biodiversity and climate priorities in community-based wetland and forest management schemes.

Good practice examples: Turkey wants to conserve soil by training farmers in conservation farming, preventing stubble fires that degrade soil, and enforcing grazing plans on rehabilitated pasture; Armenia intends to transform single-species forestry plantations into full-fledged natural forest ecosystems; Cuba is considering incorporating its ABT 7 goals directly into its LDN targets.

By 2020, **pollution, including from excess nutrients, has been brought to levels that are not detrimental** to ecosystem function and biodiversity.

Sustainable land management for LDN promises to curtail the application of non-organic fertilizers and other agrichemicals that pollute soils and habitats, especially wetlands. Efforts to control illegal mining as part of LDN may also help reduce pollution harmful to biodiversity.

Relevant LDN measures: promotion of integrated soil fertility and pest management in croplands; effective regulation and environmental impact assessment for mining operations.

Deepening synergies: focusing the promotion of organic farming in landscapes adjoining or upstream of areas of importance for biodiversity, including coastal wetlands; prohibiting mining in protected areas.

Good practice examples: Sao Tome and Principe aims to reduce by 25% the use of pesticides and chemical fertilizers, while increasing the use of organic products by 25%; Ghana aims to improve regulation of mining concessions and halt illegal mining.

By 2020, **invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways** to prevent their introduction and establishment.

The protection of natural habitat and the sustainable land management promoted by LDN can enhance the resilience of ecosystems and thus reduce their vulnerability to invasion and harm from invasive alien species. Restoration activities for LDN may directly target invasive alien species for removal.

Relevant LDN measures: protection and restoration activities that increase ecosystem resilience; targeted removal of invasive alien species.

Deepening synergies: promoting native species in interventions to control erosion, stabilize dunes and restore degraded land and forests.

Good practice examples: Mauritius aims to restore degraded forest through reforestation and invasive alien species management; Bosnia-Herzegovina wants to revitalize pastures threatened by the expansion of woody vegetation and the emergence of invasive alien species.

By 2015, the multiple **anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized,** so as to maintain their integrity and functioning.

The focus on sustainable land management, including measures to control erosion and reduce the use of agrichemicals, means LDN can reduce the land-based pollution and sedimentation putting pressure on coral reefs and other coastal ecosystems, which are the focus of action under ABT 10.

Relevant LDN measures (in countries with rivers discharging close to vulnerable coastal ecosystems): prevention of deforestation; promotion of soil conservation; and integrated soil fertility management.

Deepening synergies: integrating land and coastal resource management.

Good practice examples: The Philippines intends to mainstream key elements of its National Wetland Strategy in local development planning coupled with investments in integrated coastal resources management.

Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

By 2020, **at least 17% of terrestrial and inland water,** and 10% of coastal and marine areas, **especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas** and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Expanding protected area networks and strengthening their management is a central approach for preventing adverse land-use change, promoting sustainable land and forest management, and restoring productivity and carbon stocks under LDN.

Relevant LDN measures: expansion of protected area networks and other area-based conservation as part of efforts to combat deforestation or wetland degradation; restoration programmes within protected areas.

Deepening synergies: focusing sustainable land management activities in areas adjoining protected areas.

Good practice examples: Togo aims to strengthen its mechanisms for managing and securing protected areas; Moldova want to improve soil quality and carry out ecological restoration of degraded land by extending the forest areas and natural areas protected by the state.

By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

The emphasis on preventing negative land-use change and on restoration under LDN can be helpful in protecting and extending habitats for threatened species, while the distribution of threatened species could be taken into account when planning LDN strategies. However, the focus of LDN on large-scale planning means that LDN targets and measures are unlikely to directly address the status of individual threatened species.

By 2020, the **genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained,** and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Sustainable land management approaches encouraged under LDN can foster diverse cropping and livestock-rearing practices that can help maintain traditional crop varieties and livestock breeds on farms. This can contribute to in situ conservation of genetic diversity. Combating land-use change, including the conversion of natural habitats, can help preserve wild relatives.

Relevant LDN measures: encouraging diverse farming systems and the continued use of locally adapted crop varieties and livestock breeds within sustainable land-use and restoration programmes.

Deepening synergies: incorporating specific measures to maintain *in situ* genetic diversity into sustainable land-management policies, strategies and interventions.

Good practice examples: Jordan aims to improve the complexity (genetic, species, etc.) of agro-ecosystems; Mongolia wants to establish a gene bank for major tree species.

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services

14 By 2020, **ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded,** taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

Preventing degradation and restoring ecosystems under LDN will in almost all cases protect essential services, including the provision of water and food. ,LDN therefore supports ABT 14 in virtually all cases, though targets and measures may not specifically target local communities and vulnerable groups.

Relevant LDN measures: sustainable land management in agro-ecosystems; protection and restoration of natural ecosystems; community forest programmes that promote sustainable use of natural resources.

Deepening synergies: expanding area-based conservation with strong stakeholder participation to prevent negative land-use change, protect biodiversity and carbon stocks, and allow the sustainable use of natural resources by local communities.

Good practice examples: Cambodia reports women, elders and children in local communities and indigenous groups will benefit from the establishment of 23,500 ha of protected forest and wide-ranging restoration efforts; China aims to modernize livestock practices to protect grasslands, promote the income of herdsmen and alleviate poverty.

15 By 2020, **ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration,** including restoration of at least 15% of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Restoration is an integral part of the LDN response hierarchy and for many countries will play a key role in offsetting degradation and thus making the achievement of LDN possible. Enhancing the productivity and carbon stocks of ecosystems through restoration under LDN will also bolster resilience in the face of climate change. As such, almost all national efforts to achieve LDN will support ABT 15.

Relevant LDN measures: protection and restoration of forests, wetlands and soils.

Deepening synergies: targeting restoration work in Key Biodiversity Areas; promoting ecological approaches to restoration, including with native vegetation.

Good practice examples: Namibia has the target to reforest with local species and increase the productivity of 1,380 ha of former forest land converted into croplands, shrubs, grasslands and sparse vegetation; Sierra Leone wants to reclaim and rehabilitate former mining areas with methods including tree planting; Algeria aims to rehabilitate 2 million ha of rangelands in steppe and pre-Saharan regions through grazing bans and techniques to improve the quality of the pastoral landscape.

16 By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

LDN is unlikely to make a direct contribution to achieving this ABT 16. However, as noted, fairness and equity are central to the LDN framework, including its promotion of good governance and protection of the rights of vulnerable and marginalized groups, and of women.

Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building

By 2015, each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

LDN involves participatory processes and capacity building as well as the collection and analysis of environmental information that could be useful in drawing up and implementing NBSAPs. Integrating policy processes and reporting across the Rio Conventions could yield savings and efficiencies. However, LDN does not contribute directly to the preparation and update of NBSAPs.

By 2020, the **traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations,** and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.

As discussed above, the principles of LDN promote participatory processes that consider local and traditional knowledge and include it in decision-making. The principles also include the protection of human rights and well-being. This entails protecting the rights of land users, especially smallholders and indigenous peoples, including their tenure rights.

Relevant LDN measures: participatory decision-making regarding the management of land and ecosystems; strengthening tenure and access rights for members of indigenous and local communities; community-based conservation.

Deepening synergies: mechanisms designed to put traditional and local knowledge at the centre of integrated land-use planning and sustainable land management.

Good practice examples: Tanzania aims to strengthen local agriculture innovation systems; Bolivia is promoting research to recover ancestral knowledge on soil management; Gabon wants to promote traditional knowledge that contributes to sustainable agriculture.

By 2020, **knowledge, the science base and technologies** relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are **improved, widely shared and transferred, and applied.**

Effectively combating both land degradation and biodiversity loss depends on strong scientific understanding of complex socioecological processes. Indicators used to assess land degradation can be useful for assessing biodiversity and vice versa, and data relating to each can be incorporated in environmental information systems. Because LDN requires the gathering and assessment of environmental data, it contributes to ABT 19.

Relevant LDN measures: supporting research into underlying processes of degradation and the effectiveness of interventions; gathering and sharing environmental data; reflecting scientific knowledge in policies and programmes.

Deepening synergies: supporting multidisciplinary approaches in research, information systems, and the design of interventions that reflect the concerns of both land management and biodiversity conservation.

Good practice examples: Sudan plans to carry out a comprehensive survey of natural resources, including biodiversity; Chile's measures include studying hydrological dynamics in watersheds and improving silvicultural afforestation methods; Kazakhstan aims to carry out extensive soil and geobotanical surveys.

By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

To the extent that LDN measures help realize the Strategic Goals and ABTs of the Strategic Plan, all financial resources mobilized for LDN contribute to the Strategic Plan's implementation. The LDN framework also encourages the integration of multiple environmental goals in Transformative Programmes and Projects, with the potential to deliver more cost effectively an array of benefits at scale and, in turn, attract significant finance from donors and national budgets.

Relevant LDN measures: sustainable national budget allocations; measures to attract international development assistance; innovative programmes to secure private sector finance.

Deepening synergies: Transformative Projects and Programmes that help combat both land degradation and biodiversity loss and attract significant international development funding.

Good practice examples: Zimbabwe plans to fund LDN from national budget allocations and additional support from international development partners, and to establish a land rehabilitation fund with contributions from the mining sector; Guinea aims to allocate a portion of tax revenue from the mining sector to sustainable land management.

©FAO/Giulio Napolitano
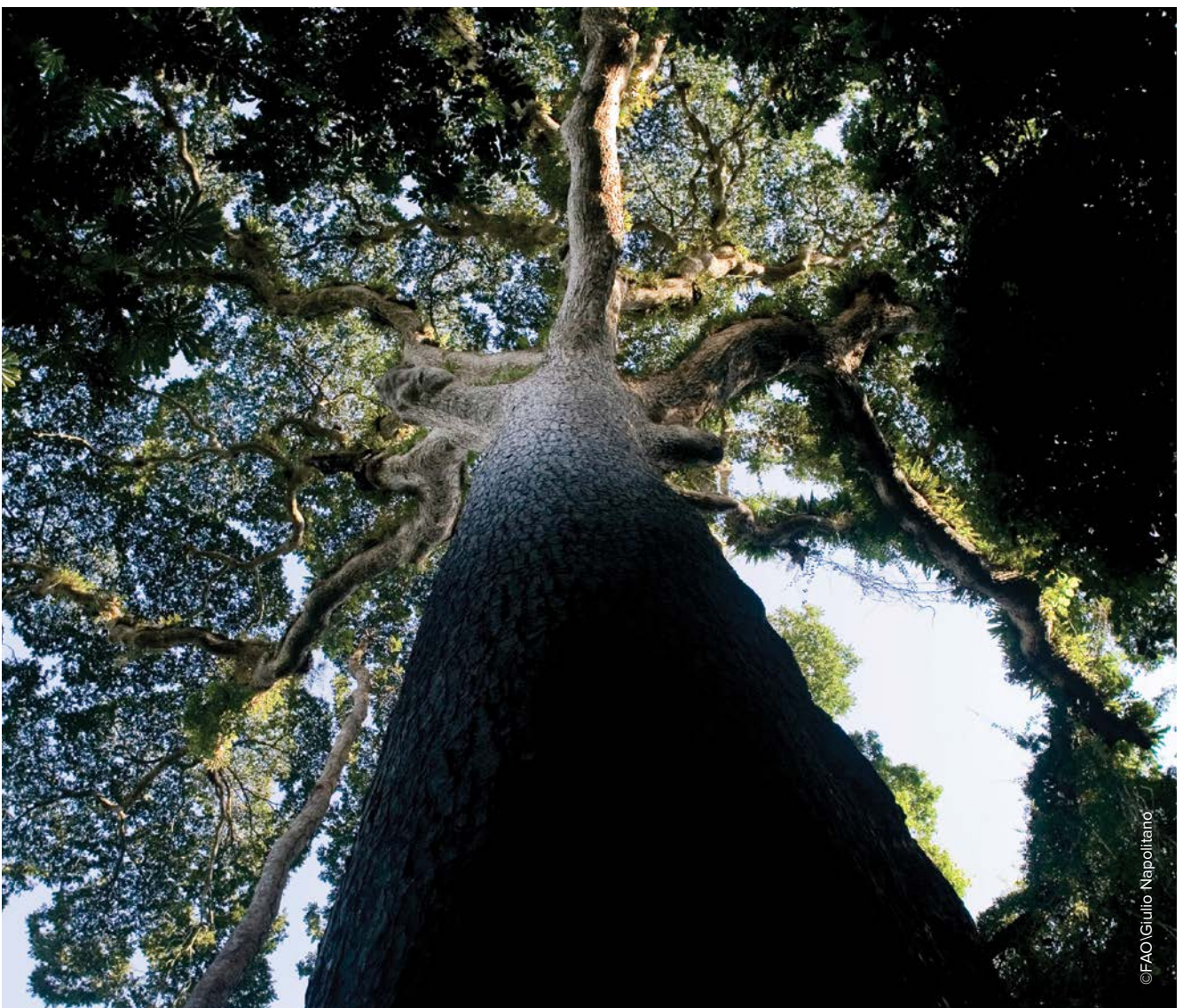
LDN supporting biodiversity conservation in practice

Examining the actual targets and measures announced by countries pursuing LDN adds another dimension to the assessment of LDN's contribution to biodiversity conservation by showing to what extent the potential synergies highlighted above are already being realized, and the scope for further gains and efficiencies that remains.

To this end, the LDN reports of 75 countries with finalized LDN targets at the time of writing were analysed: 39 from Africa; 16 from Asia; 11 from Latin America and the Caribbean; 2 from the Northern Mediterranean; and 7 from Central and Eastern Europe. The targets and measures identified by each country were extracted from their country reports. These commitments were then evaluated for their expected contribution to the 20 ABTs.

The countries' measures as well as their targets were included for two main reasons. Firstly, LDN targets are often tightly focused on the three LDN indicators (land cover, land productivity, and carbon stocks). Looking at LDN targets alone neglects many of the ways in which countries' LDN measures support biodiversity conservation. Secondly, countries have taken varying approaches to presenting their targets and measures. Some, for example, have indicated measures as part of the targets they are designed to achieve. Disentangling targets and measures and analysing them separately would be difficult in such cases and would introduce additional subjectivity to their evaluation.

Individual countries' LDN commitments were scored according to whether at least one LDN target or associated measure was likely to make a direct

tangible contribution to any of the ABTs. As in the previous section of this report, the assessment involves a degree of interpretation and potential error. For these reasons, it was not considered meaningful to grade the strength of the contributions of LDN targets and measures to the ABTs. Further grounds for caution include the fact that outcomes will strongly depend on the widely varying approaches available for implementation and the variety and complexity of the ecosystems in which they would be applied.

The above provisos are also grounds not to publish overall 'scores' for individual countries. While some countries have drafted their targets and measures more narrowly than others, and, thus, scored against fewer ABTs, their brevity does not necessarily translate into low ambition. For example, some countries have listed measures already undertaken under other programmes but which are directly relevant to the pursuit of LDN, while others have included only new measures. Moreover, a wide range of measures is no guarantee of successful implementation.

With these qualifications in mind, the analysis found that the targets and measures already adopted by the 75 countries clearly give direct support to all five Strategic Goals of the Strategic Plan for Biodiversity 2011-2020. They also directly support 17 of the Strategic Plan's 20 ABTs. The extent of that support varies widely, as shown in Figure 5 below.

While four ABTs (ABTs 6, 12, 16 and 17) were considered largely beyond the scope of LDN in the preceding section, two countries with significant inland fisheries (the Philippines and Tanzania) have nevertheless included in their LDN reports measures directly relevant to ABT 6. Examining

Figure 5   Current LDN support for the Strategic Goals and ABTs in the Strategic Plan for Biodiversity 2011-2020
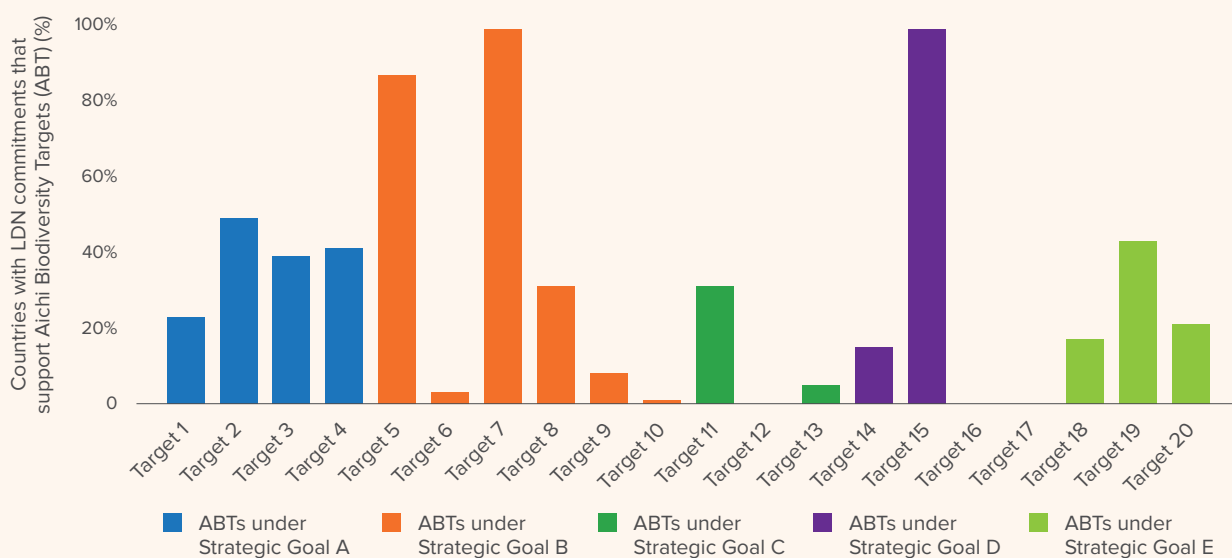
the remaining 16 ABTs provides an indication both of where countries already have LDN targets and measures that contribute to LDN, and where additional synergies can be tapped as countries build and refine their efforts against land degradation. That existing and potential support can be usefully examined under each of the Strategic Goals.

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

A considerable number of LDN country commitments already promise to advance all four of the ABTs under Goal A. As discussed above, LDN can be considered to provide systemic support to both ABTs 1 (awareness-raising) and 4 (sustainable production and consumption). The relatively low levels of support shown in Figure 6 reflect how not all countries have specific commitments relevant to these two goals. Examples of such commitments include Guyana's aim to increase public awareness

around land degradation, and Venezuela's plans to introduce certification schemes for sustainably sourced agricultural products.

About half of the countries have LDN commitments that support ABT 2 (mainstreaming biodiversity values into planning and development processes), showing how LDN encourages integrated land-use planning and the inclusion of environmental concerns into policy processes. For example, Saint Lucia foresees the incorporation of LDN as an innovative land-use planning principle, and Namibia intends to build aspects of LDN into Integrated Regional Land Use Plans. Many countries have also identified LDN measures to incentivize sustainable land use in ways likely to benefit biodiversity (ABT 3). Examples include Zimbabwe, which is looking at incentives including tax rebates for investments in sustainable land management and penalties for land degradation, and Iraq, which aims to provide incentives for sound land and fertility management practices.

Figure 6   **LDN support to Strategic Goal A**

Countries with LDN commitments that support Aichi Biodiversity Targets (ABT) (%)

100% · 80% · 60% · 40% · 20% · 0

Target 1 Awareness · Target 2: Mainstreaming · Target 3 Incentives · Target 4 Sustainable economy

ABTs supported

■ Current support   ■ Potential support

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use

Existing country commitments indicate that LDN will provide wide and substantial support to targets associated with Goal B, as shown in Figure 7.

For most countries, preventing negative land-use change and unsustainable land use, including in forests and wetlands, are at the heart of their plans to achieve LDN. As a result, ABTs 5 (reducing loss and degradation of natural habitats) and 7 (sustainable land and forest management) are among the best-

supported biodiversity targets. Examples for ABT 5 include Colombia, which targets the conservation of 22,000 ha of dry forests; the Gambia's intention to halt the conversion of wetlands into rice fields; and a measure in Belarus to preserve, improve and efficiently manage natural ecological systems. ABT 7 could be advanced by, for example, the promotion of community forests in Uganda; the development of conservation agriculture, organic agriculture and agroforestry in the Comoros; and the conservation of 60,000 ha of highland wetlands through agro-pastoral management and tourism projects in Bolivia.
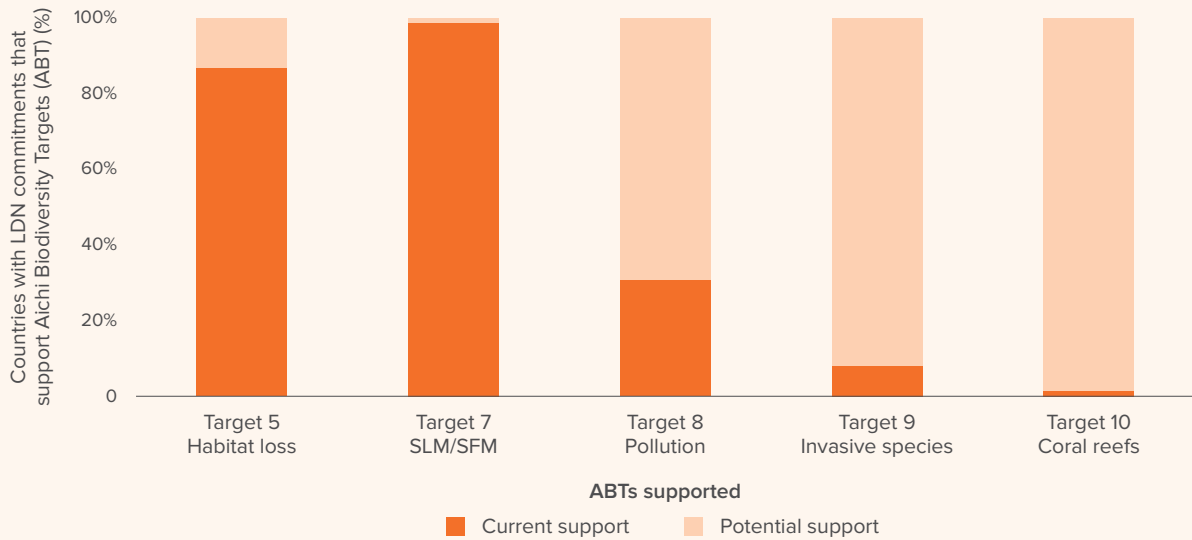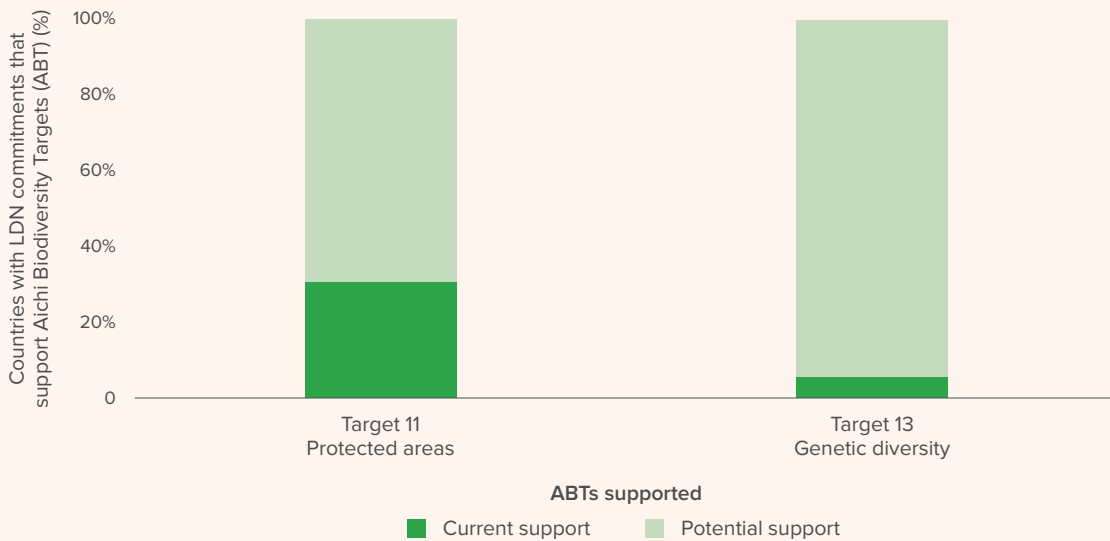
Figure 7 · LDN support to Strategic Goal B

Countries with LDN commitments that support Aichi Biodiversity Targets (ABT) (%)

ABTs supported

■ Current support ■ Potential support

Target 5 Habitat loss · Target 7 SLM/SFM · Target 8 Pollution · Target 9 Invasive species · Target 10 Coral reefs

Figure 8 · LDN support to Strategic Goal C

Countries with LDN commitments that support Aichi Biodiversity Targets (ABT) (%)

ABTs supported

■ Current support ■ Potential support

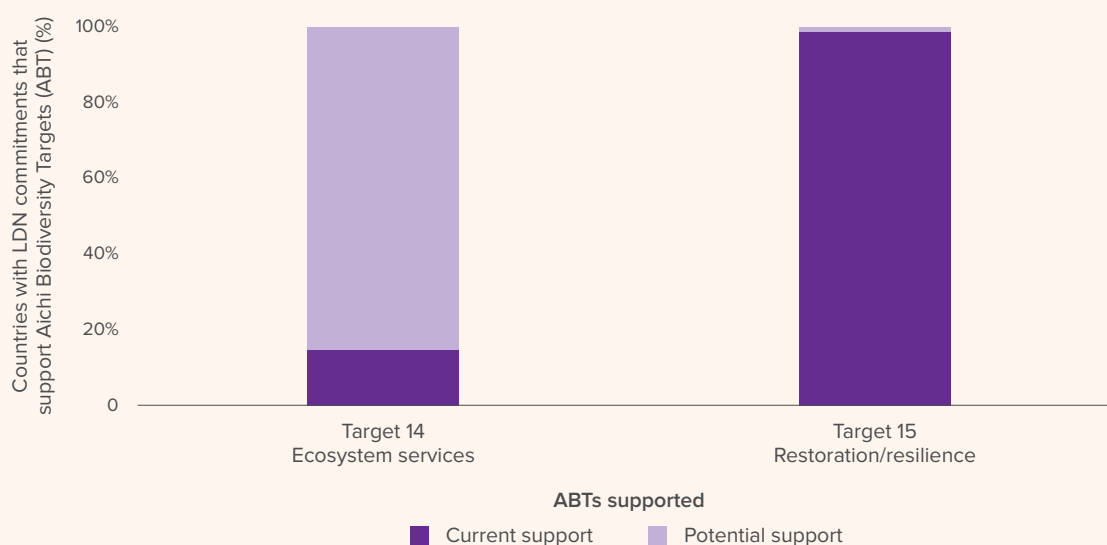Target 11 Protected areas · Target 13 Genetic diversity

ABTs 8 (pollution) and 9 (invasive species) represent areas where many countries with expanded and carefully designed LDN measures could deliver more synergies for biodiversity through their LDN programmes. So far, 29% of countries already have LDN measures that will help counter pollution. Tanzania, for example, is promoting integrated soil fertility management, which should reduce nutrient pollution; while Moldova wants to remediate contaminated sites as well as prevent new accumulations of pesticides and other hazardous substances. Relatively few countries have included action on invasive species into their LDN plans. Exceptions are South Africa, which targets the clearance of alien invasive species from over 1 million ha, and ecological restoration in parts of Chile affected by invasive species.

Figure 9   LDN support to Strategic Goal D

Countries with LDN commitments that support Aichi Biodiversity Targets (ABT) (%)

Target 14
Ecosystem services

Target 15
Restoration/resilience

ABTs supported

■ Current support   ■ Potential support

LDN commitments to combat erosion or reduce pollution could help protect coastal ecosystems that are the focus of ABT 10. While such commitments are widespread, it is difficult to tie them clearly to ABT 10 based on the information analysed here (with the exception of the Philippines). Nevertheless, there is potential for more countries to design targeted interventions in this regard.

Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Actions for LDN directly bolster conservation Goal C, primarily by strengthening protected area networks (ABT 11). About one-third of countries engaged in LDN already identify expanding protected areas or improving their management among their commitments (see Figure 8). For example, the Seychelles plans to restore and expand its protected area networks in key biodiversity areas adjoining native forests, and Eswatini targets an increase in protected area land coverage from 70,000 ha to 113,000 ha. With protected areas covering more than 15% of the Earth's land surface,[43] there is clear potential for greater coordination in policies and programmes. This could be reflected in the inclusion of more commitments related to the extent and effectiveness of protected areas in LDN country reports.

Few countries have designed LDN targets or measures that relate directly to safeguarding genetic diversity in crops and farm animals and their wild relatives (ABT 13). Synergies with LDN in this area are mainly found in LDN's support for diversified farming systems, as highlighted above.

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services

The LDN commitments of countries promise vital support to both of the relevant ABTs under Goal D (see Figure 9). While LDN provides systemic support for ABT 14 (essential ecosystem services), the analysis presented in Figure 9 reflects only those targets and measures that state how they safeguard ecosystem services for the particular benefit of vulnerable groups. The 15% support level of ABT 14 indicates that there is considerable scope for more countries to design targeted LDN measures that unlock additional synergies. Countries that have already done this include Timor-Leste, which plans to provide extension services in agriculture and forestry to local communities so that they can adapt traditional practices to make them more sustainable; and Niger, which has reforestation commitments intended, in part, to safeguard food production for local populations and boost their resilience in the face of climate change.

ABT 15 is among the conservation targets with the strongest backing from LDN. At least one, and often all, of its primary elements – boosting ecosystem resilience, enhancing the contribution of biodiversity to carbon stocks, restoration of degraded ecosystems – are prominent among countries' LDN commitments. For example, Benin targets the restoration of at least half of its 1.25 million ha of degraded land and a 12% net improvement of vegetation cover; Nepal aims to restore 10% of its wetland ecosystems to combat land degradation and biodiversity loss and enhance carbon stocks.

Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building

The scientific conceptual framework for LDN stresses the importance of holistic planning, stakeholder participation and sound decision-making, and this is evident in the significant share of countries with LDN commitments aligned with Strategic Goal E (see Figure 10).

However, there remains considerable space for countries to add or refine LDN commitments to include more elements that will advance each of ABTs 18 (local knowledge and participation), 19 (scientific knowledge) and 20 (financial resources). Those that have already done so include Lesotho, which envisages greater decentralization to ensure the active participation of local communities in the management of their land, and Viet Nam, which plans to have a programme of national forest inventory assessments and monitoring, in part, to help evaluate its implementation of LDN. There are countries with LDN commitments that could also generate financial resources for biodiversity conservation (see Box 4).

NBSAP actions relevant for land degradation

The preceding sections show the many ways in which LDN commitments support the global goals and targets of the Strategic Plan for Biodiversity 2011-2020. Since the Strategic Plan's introduction, Parties to the CBD have updated their NBSAPs to reflect its objectives, mostly before the time that the same country Parties engaged in defining their LDN targets. The synergies identified when looking at how LDN commitments align with the ABTs are also evident when NBSAPs are examined for the support they can give on combating land degradation.

Actions included in NBSAPs support LDN both directly and indirectly. Direct support for LDN is particularly significant and widespread from measures included in NBSAPs that help reduce habitat loss, fragmentation and degradation (ABT 5), manage land and forests sustainably (ABT 7), strengthen protected area networks (ABT 11), secure and restore essential ecosystem services (ABT 14), and enhance ecosystem resilience and carbon stocks through conservation and restoration (ABT 15).

Actions associated with these ABTs are likely to have a positive impact on all three LDN indicators: land cover and land cover change; productivity; and soil carbon. For instance, protection of natural habitats inside and outside of protected area networks can help prevent their conversion for cultivation or settlement; sustainable management can prevent soil erosion and other causes of decreasing productivity in farmlands; and ecosystem restoration is key to enhancing soil carbon, with knock-on benefits for productivity and climate regulation.

Similarly, actions associated with these five ABTs also correspond closely with each of the elements of the LDN response hierarchy, as shown in Figure 11. Avoiding degradation can involve measures to prevent habitat loss and extend protected areas; reductions in the rate of degradation can be achieved through the promotion of more sustainable farming, forestry and wetland management; and degradation can be reversed by efforts to safeguard and restore essential ecosystem services for vulnerable groups, including women, and from measures to enhance biodiversity's contribution to carbon stocks.

While a detailed analysis of countries' current NBSAPs is beyond the scope of this report, illustrative examples of measures for biodiversity conservation that also help combat land degradation are provided below. Measures similar to those listed are commonly found also among the commitments countries have made for LDN.

Figure 10 — **LDN support to Strategic Goal E**

Box 4: Financing LDN and biodiversity conservation

To succeed, efforts to combat land degradation and conserve biodiversity around the world must receive significantly more financial resources. By one estimate, achieving LDN globally would cost USD 4,780 billion, or USD 318 billion per year from 2015–2030.[44] Meanwhile, the annual investment needed to attain the ABTs has been put at between USD 150 billion and USD 440 billion.[45]

The social and economic benefits of meeting LDN and conservation targets are likely to significantly outweigh those costs. Exploiting potential synergies through integrated policymaking and programming can maximize the overall gains by increasing efficiencies and minimizing the financial investment that has to be mobilized.

Governments and international financial bodies will have a key role in scaling up investment. Given the size of the funding gap, engaging private capital – whether as business-oriented, social or impact investors – will also be essential. Transformative projects capable of advancing multiple objectives at scale can help secure funding from several sources.

In their LDN commitments, countries have identified some of the potential sources of funding that would also bring benefits for biodiversity:

- Bolivia wants to fund the restoration of degraded land through certified carbon sequestration projects supported by national credits and international agreements.

- Guinea is considering using tax revenue collected from the mining sector to fund sustainable land management.

- Moldova aims to create a 'recovery fund' for ecological restoration.

- Namibia intends to tap national ministerial budgets, donor agencies and the private sector to fund LDN activities.

- The Philippines wants to enable public-private partnerships and incentivize responsible investments for forest ecosystem conservation.

Figure 11 — **How Aichi Biodiversity Targets in NBSAPs support the three actions in the LDN response hierarchy**

NBSAPs include Aichi Biodiversity Targets that directly support LDN	Avoid	Reduce	Reverse
Target 5 Reduce habitat loss, fragmentation and degradation	●	●	
Target 7 Manage land and forests sustainably	●	●	
Target 11 Strengthen protected area networks	●	●	
Target 14 Secure and restore essential ecosystem services	●	●	●
Target 15 Enhance ecosystem resilience and carbon stocks through conservation and restoration		●	●

LDN reponse measures to achieve neutrality

ABT 5 (habitat loss)

Action to prevent habitat loss and degradation included in Montenegro's NBSAP include the integration of biodiversity protection measures into spatial planning policy to reduce the impact of urban development, for example along its scenic coastline. This would strengthen the land-use planning at the heart of the LDN framework. Montenegro also foresees stricter controls on municipal and industrial waste and wastewater; prevention of the conversion of natural and semi-natural areas for agriculture; and reduced impacts from sand and gravel mining. These and other measures in Montenegro can help prevent harmful land-use change and land degradation from pollution and erosion.

Zimbabwe's NBSAP addresses the loss of natural habitats through measures including strengthening institutional capacity for the implementation of biodiversity and ecosystems conservation – capacity that could also support LDN efforts. The NBSAP also promotes sustainable land use, renewable energy and energy-saving alternatives, and pollution prevention – all initiatives that can reduce land degradation through, for example, reducing the unsustainable harvesting of trees for firewood.

ABT 7 (sustainable land and forest management)

Cambodia's NBSAP describes an array of measures taken to make management of its forests more sustainable, including the designation of an additional 4.5 million ha of new protected areas, conservation area and community-based forests, as well as institutional reforms. The NBSAP mentions Cambodia's plans under both LDN and the UNFCCC as providing further guidance on sustainable management. Successful implementation could further Cambodia's LDN goal by reducing deforestation, and the subsequent loss of productivity and carbon stocks.

In its NBSAP, the Russian Federation set targets for 2020 including targets for at least 20% of all agricultural lands to be managed and used in accordance with biodiversity conservation goals, and no less than 50% of exploited and protected forest to be sustainably managed to ensure the conservation of biodiversity. Achieving these goals would likely reduce land degradation at least in the portion of agricultural lands and forests targeted.

ABT 11 (protected areas)

Lebanon's NBSAP describes how it aims to expand its protected area network and ensure it is representative of the different ecosystems on its territory. It includes the goal of increasing the share of nature reserves from 2.4% of national land area to 5% by 2030. LDN can be advanced through all three indicators from the addition of new protected areas. The country is also working to classify natural and semi-natural ecosystems and identify areas of high biodiversity value. The results could help inform LDN planning processes.

Panama plans to use management agreements, incentives and technical assistance to encourage the establishment of biological corridors, private reserves and community conservation areas to improve the connectivity and representativeness of its protected areas and other area-based conservation measures. These measures would further LDN goals of preventing negative land use change and the risk of falling productivity and carbon stocks. Area-based conservation measures beyond protected areas may also be key to meeting more ambitious area-based targets in the post-2020 biodiversity framework in this country.

ABT 14 (essential ecosystem services)

Guinea's NBSAP describes how the country seeks to preserve the goods and services provided by forest ecosystems (such as lumber and firewood), wildlife (meat and skins) and medicinal plants to poor and vulnerable rural communities. It banks on efforts to support the protection of forests by encouraging the participation of stakeholders in the establishment of a network of protected areas, including Ramsar sites that support sustainable floodplain agriculture and fishing. Protecting forests and wetlands in this way will help prevent any decline in all three LDN indicators.

In another example, Thailand's NBSAP foresees the promotion of urban and local community plans on biodiversity in line with the needs and way of life of communities. It also encourages the establishment of networks of locally managed conservation areas and habitats. Such measures can help limit land degradation by balancing conservation with the sustainable use of natural resources with the support of local stakeholders.

ABT 15 (resilience and restoration)

Malawi's NBSAP describes its efforts to move toward a national target of restoring and protecting at least 50% of degraded terrestrial habitats, including agricultural areas. It has identified geographical areas that can be prioritized for restoration through interventions including forest landscape restoration, improved forest management, soil and water conservation and riparian tree planting. For LDN, successful restoration could result in positive land-use change as well as improved productivity and carbon stocks.

Ukraine's NBSAP labels a series of measures drawn from its National Action Plan on Environmental Protection as supportive of ABT 15. The measures include the rehabilitation of contaminated and disturbed land, reforestation, forest plantations, and the restoration and creation of shelterbelts in farmland. Successful implementation could increase productivity on the reclaimed land while reducing erosion and improving carbon stocks through increased tree cover.

4. CASE STUDIES: LDN IN ACTION FOR BIODIVERSITY

To further illustrate how LDN is supporting biodiversity conservation in practice, this section provides more detailed examples of good practice in countries engaged with LDN. The case studies draw on LDN country reports and project documents as well as NBSAPs. Further details are available in the countries' LDN country reports on the UNCCD website.[46]

The Philippines: implementing the Rio Conventions together

The Philippines has laid out how it intends to integrate its commitments under all three Rio Conventions with its national development strategies, especially those addressing agriculture, natural resource management and climate.[47] The country has drawn on its action plans for biodiversity conservation and climate change to set its LDN targets and measures. It intends to take that process a step further by using an integrated approach to tap into the financial support needed to advance all of these goals simultaneously.

Among its national LDN targets, the Philippines aims to prevent and reverse conversion and degradation in forests, shrublands/grasslands, wetlands and croplands, covering 6.2 million ha by 2030. This will contribute directly to the biodiversity goals of slowing the loss of natural habitat and extending sustainable land management to protect ecosystem services. Moreover, the Philippines intends to achieve these targets by implementing three strategic programmes: the action plans developed under both the CBD and the UNCCD, as well as a plan for climate-resilient forest development.

In its NBSAP, the Philippines has set 20 national targets for 2028, including several that directly support the goals of LDN. These include halting the net loss of natural forest cover, restoring 1 million ha of degraded ecosystems and enhancing the delivery of ecosystem services from key biodiversity areas.[48]

At the sub-national level, the country has an LDN target of strengthening "consensus-based stewardship of protected areas and ancestral domains" and aims to mobilize stakeholders to address degradation and move these areas toward LDN. This target also has the potential to improve the ecological status of protected areas and to support Indigenous Community Conservation Areas in the Philippines, thus furthering biodiversity objectives.

Benin: building LDN around a biosphere reserve

A new transboundary biosphere reserve protecting some 345,000 ha of degradation-threatened land is at the heart of Benin's plans to achieve LDN. The reserve is a result of Benin's stated goal of creating coherent policies for the environment and sustainable development, and exploiting the synergies this approach provides.[49]

The establishment of the Mono Transboundary Biosphere Reserve is part of Benin's response to the rapid conversion of forests, savannas and wetlands to agricultural land and urban areas. The reserve lies in one of the five degradation 'hot spots' identified during the LDN target setting process.

The delta of the Mono River, which marks the boundary between Benin and Togo, is home to endangered flora and fauna as well as about 2 million people. Unsustainable farming, fishing and tree harvesting are placing both wildlife and human livelihoods at risk.

The UNESCO-recognized reserve includes a mosaic of landscapes including forest, savanna, lagoon and mangrove. It has designated 'core areas' of nearly 15,000 ha and another 43,000 ha of designated 'buffer areas' to protect the region's rich biodiversity, which includes animals such as hippos, manatees and red-bellied monkeys. With support from partners, including the German Government, projects are helping to ensure that the biodiversity and ecosystem services secured by the reserve support the livelihoods of the people living there.

At the national level, Benin's LDN targets are aligned with the ABTs and the Ramsar Convention on Wetland Conservation, as well as its commitments under the Paris Agreement.

In its LDN target setting report, the country outlines its aim of slashing the steep 21% fall in forest and savanna cover recorded between 1990 and 2010 to 5% between 2010 and 2030. The residual decline will be offset by reforestation and new plantations. The country also aims to halve the extent of forests with declining productivity and to improve productivity across more than 2.4 million ha of farmland. In addition, the country wants to halt all conversion of wetlands to other land uses.

These aims dovetail with those Benin has pursued under the CBD. For example, under its NBSAP, Benin is aiming for a 20% reduction in the rate of deforestation by 2020, an expansion of its forests and protected areas, and wider use by farmers of integrated soil fertility management techniques.[50]

Chile: reforestation with native species

Chile is pursuing LDN with a focus on biodiversity-friendly native tree species and improving the management of livestock grazing near protected areas.[51]

The South American country is targeting 140,000 ha for replanting and afforestation by 2025. Actions to increase forest cover will be carried out using primarily native species. As well as delivering

multiple valuable ecosystem services (Chile's LDN report emphasizes provisioning, regulation and cultural services), native trees typically support more biodiversity than exotic species.

Another ecological restoration programme targeting 20,000 ha aims for the restoration and sustainable use of forests and other native plant formations that have suffered degradation. Chile also plans to ecologically restore 10,000 ha affected by forest fires.

Another of Chile's nine "action measures" to achieve LDN is establishing buffer zones for livestock production. The objective is to minimize the impact of livestock on land that is valuable for conservation or as a carbon sink. For this, Chile is considering an assistance programme for landowners whose land is adjacent to protected areas, including biosphere reserves. The target is to design and implement buffer zones totalling 800 ha.

Some of these measures match well with activities included in Chile's NBSAP, such as the promotion of good practices in productive activities that impact native species and the quality of their habitats.[52]

Chile also aims to protect its stocks of native trees by establishing programmes for the control and prevention of forest pests, with an emphasis on native resources. The target consists of surveying and monitoring plant resources across 300,000 ha.

Moldova: biodiversity-friendly green infrastructure

With a population of 3.6 million people, Moldova estimates economic losses from land degradation at around US$251 million a year. Land degradation has intensified in the country since land reforms in the 1990s and the subsequent introduction of unsustainable farming methods. In addition, the country suffers from soil and water erosion that have reduced the soil organic carbon content of its agricultural lands.

Moldova's LDN targets and measures, therefore, focus on conserving and improving the fertility of its soils by expanding forests and establishing greenbelts and buffer strips. These measures will provide added benefits in other areas. For example, the green infrastructure foreseen for its degraded agricultural lands will directly favour biodiversity conservation.[53]

Forest cover in Moldova is 13.7%, currently the lowest in Europe, but the country aims to increase that figure to 15%, which will support achievement of LDN by 2030.

Some of this new tree cover will be in the form of greenbelts to protect soil and water around farmlands and natural areas. Moldova also intends to use greenbelts to link fragmented areas of remaining forests, which would improve habitat fragmentation and provide migratory corridors for wildlife, as well as food and shelter for endangered species.

Moldova aims to complement the expansion of greenbelts with the planting or regeneration of farmland buffer strips covering 28,000 to 30,000 ha, or 3.5% of all agricultural land. These buffer strips, which can include non-cultivated field margins, hedgerows, shelterbelts and riparian zones, can protect soils from both wind and water erosion and improve nutrient recycling. They are also often reservoirs of biodiversity, including beneficial insects, in intensively farmed landscapes.

Namibia and Jamaica: transformative projects addressing degradation and biodiversity loss together

The Global Environment Facility (GEF) supports a growing number of multifocal area projects designed to maximize benefits and minimize trade-offs in the pursuit of multiple environmental and social goals. The most common combination of focal areas in these projects is for land degradation and conserving biodiversity,[54] demonstrating an important path for countries seeking to achieve LDN through transformative projects and programmes.

In Namibia, the GEF has approved the concept for a project that aims to strengthen institutional coordination and governance for an integrated landscape-management approach. The project includes the explicit goal of helping Namibia achieve the targets it has set under all three Rio Conventions. These include LDN targets on improving cropland productivity, reducing bush encroachment and restoring forest land. They also include Namibia's NBSAP goals to minimize the loss of natural habitat, and promote sustainable farming and forest and rangeland management.

The project calls for the implementation of integrated landscape management in five forested areas of about 20,000 ha each, with benefits for both livelihoods and biodiversity. Regional land-use plans will help create zoned areas for uses that will contribute to various national targets. The project includes the designation of new regional forest reserves and community forests, as well as the restoration of degraded forests.

In another example of a multifocal area project, the GEF has approved the concept for a project using an integrated landscape approach to conserve biodiversity and reduce land degradation in Jamaica.

This project will implement measures to strengthen governance and land-use planning to improve the management of about 55,000 ha, including Jamaica's three Key Biodiversity Areas. Its aims include reducing soil erosion and native forest loss and increasing protection for dozens of threatened species.

The project supports Jamaica's LDN target of enhancing ecosystem resilience through the conservation and restoration of at least 15% of degraded ecosystems. It will also help strengthen capacity for the implementation of LDN.

The project also includes the development of decision-making tools for land-use planning, including spatial mapping and economic valuation of biodiversity and ecosystem goods and services. It would be supported by a multi-institutional information management and monitoring system.

©Shutterstock/Quick Shot

5. CONCLUSIONS

This assessment highlights how the LDN framework can represent a powerful tool for policymakers seeking to address the urgent and inseparable challenges of land degradation and biodiversity loss, and the wider 2030 Agenda on Sustainable Development.

It shows that, while helping to secure food and water supplies for both human populations and nature today and in the future, and increasing the stock of carbon above and below ground, LDN is vital to protecting, conserving and enriching biodiversity and the critical ecosystem services that it helps to provide. The synergies between LDN and biodiversity conservation are evident at all levels, from the fundamental goals of international agreements to the implementation of programmes and projects at national and sub-national levels.

The overarching objectives of both LDN and the CBD involve halting the loss of natural ecosystems, especially forests, and ensuring the sustainable management of limited natural capital. These objectives strive to ensure that local communities, especially the most vulnerable and disadvantaged, have fair access to natural resources on which they depend and a strong say in how they are managed.

How the LDN and the CBD are operationalized underlines their complementarity. Concepts and approaches central to LDN contribute strongly to realizing biodiversity targets. For example, the integrated land-use planning needed to prioritize LDN measures facilitates the informed decision-making that can also balance the need to conserve biodiversity with spiralling demands on land resources. The LDN response hierarchy's focus on preventing further land degradation helps maintain ecosystems in as natural a state as possible. Good governance and protection of the rights of vulnerable groups and women are further shared approaches.

LDN's actual and potential support for biodiversity conservation and sustainable use are shown in detail by viewing the voluntary LDN commitments that countries have made alongside the CBD's Strategic Plan for Biodiversity 2011-2020. The analysis shows that LDN commitments offer direct support to all five of the Goals of the Strategic Plan and more than three-quarters of the more specific Aichi Biodiversity Targets (ABTs).

Most obviously, the aims of both LDN and biodiversity conservation converge strongly around efforts to prevent further losses of natural habitats, such as forests and wetlands, through conversion to farmland and settlements, and to ensure that ecosystems, including agro-ecosystems, are managed sustainably. Both LDN and biodiversity conservation also encourage ecosystem restoration, with co-benefits for climate change mitigation

and adaptation – a policy option set to receive significant attention during the 2021-2030 UN Decade on Ecosystem Restoration. Potential synergies are also clear in many other areas, including the need to raise awareness among decision-makers and ordinary citizens of the value of biodiversity, the importance of healthy land and its fundamental role in securing human well-being. Reforming taxes and incentives to encourage more sustainable practices is another important example.

So far, the available synergies are only partly reflected in the targets and action plans drawn up under the Rio Conventions. For example, the analysis carried out for this report indicates that a clear majority of the countries pursuing LDN have identified targets and measures that directly support ABTs such as reduced habitat loss, more sustainable land management and ecosystem restoration. A partial survey of NBSAPs shows a strong overlap with LDN objectives in similar areas. However, countries' LDN commitments do not fully reflect actual or potential global action in other areas such as protected area networks, or reducing pollution. Also, few countries spell out in their LDN documents how their targets and measures relate to those made under the CBD.

It is important to remember that LDN is a relatively new policy instrument. The number of countries that have committed to the LDN process has increased steadily to more than 120. Moreover, the setting of targets and measures is an iterative process. The commitments that countries have made may be revised and expanded in the light of experience and as results of monitoring using the LDN indicators. This process presents an opportunity for the design and incorporation of commitments and interventions that acknowledge and tap into more of the available synergies. The revision of countries' NBSAPs to follow the agreement of the post-2020 biodiversity framework provides a similar opening for countries to include interventions that support multiple objectives within and beyond biodiversity conservation.

Using case studies, this report highlights examples of action on the ground in several countries that are already countering land degradation and conserving biodiversity at the same time. Many more interventions are under development with the support of relevant financial and technical partners, including the GEF. However, to make progress at the pace and scale required to address multiple environmental challenges and avert their combined threats to human well-being, these efforts must be urgently ramped up to fully exploit the benefits and potential they provide. To do so will require drastically increased national and international awareness, commitment and investment, from both the public and private sectors, to protect and promote the sustainable use of Earth's limited land resources.

©Shutterstock/Quick Shot

6. RECOMMENDATIONS

⊙ Parties to international agreements, including the UNCCD and the CBD, should develop their instruments, objectives and programmes in ways that recognize and take advantage of the many co-benefits and synergies highlighted in this paper. Doing so will facilitate reaching ambitious global goals and tackling urgent environmental challenges such as land degradation and the loss of biodiversity, in a more effective and impactful manner.

⊙ As the process of defining the post-2020 global biodiversity framework moves forward, country Parties should recognize and harness the potential that LDN and area-based targets offer to address the priorities of both the CBD and the UNCCD in an effective, complementary and mutually supporting manner.

⊙ International organizations should strengthen the technical and capacity-building support provided to governments and other LDN stakeholders. This will help maintain the strong momentum created by LDN to date and optimize its contributions to biodiversity conservation goals.

⊙ Governments should continue to strengthen coordination among ministries and departments with areas of authority relevant to LDN and biodiversity. This will help ensure that policies and strategies build on the synergies and savings available through integrated planning and prioritize prevention as the most cost-effective way of addressing land degradation and biodiversity loss.

⊙ Financial support for governance and capacity building should be used to enhance the ability of countries to craft policies and programmes for LDN, biodiversity conservation and sustainable use and other national priorities that have wide stakeholder support and promote integrated planning and action.

⊙ LDN Transformative Projects and Programmes should be designed and implemented in ways that contribute to LDN and biodiversity goals as well as multiple SDGs, involve all relevant stakeholders, consider gender issues, and reflect a balance between the different social, economic and environmental priorities and interests at stake.[55, 56] Significant financial support should be directed for this purpose, and the 2021-2030 UN Decade on Ecosystem Restoration represents a unique opportunity to mobilize the resources needed.
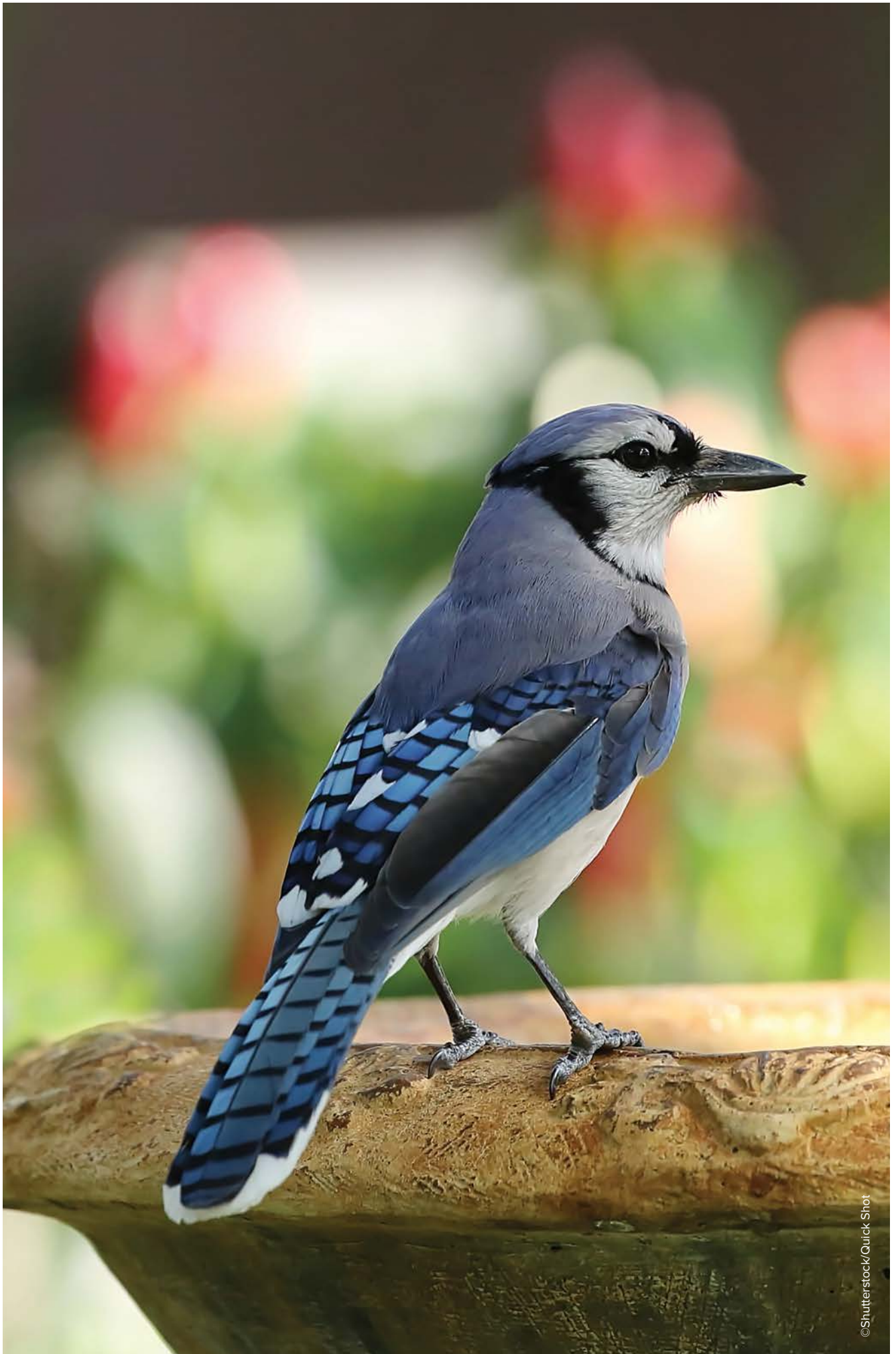
©Shutterstock/Quick Shot

ENDNOTES

1   PBES. 2018. Summary for policymakers of the assessment report on land degradation and restoration of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. R. Scholes et al. (eds.). IPBES secretariat, Bonn, Germany. Available at: https://ipbes.net/assessment-reports/ldr

2   IPCC. 2019. Climate Change and Land. An IPCC Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. Summary for Policymakers. Available at: https://www.ipcc.ch/srccl/

3   IPBES. 2019. Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. S. Díaz et al. IPBES secretariat, Bonn, Germany. Available at: https://ipbes.net/global-assessment

4   Decision 3/COP.14. Full text available at: https://www.unccd.int/sites/default/files/sessions/documents/2019-10/cop23add1%20-%20advance.pdf

5   Ibid.

6   Dinerstein et al. 2019. A Global Deal for Nature: Guiding principles, milestones, and targets. Sci. Adv. 5. Available at: https://advances.sciencemag.org/content/5/4/eaaw2869; Kok, M. et al, 2018. From Paris to Beijing. Insights gained from the UNFCCC Paris Agreement for the post-2020 global biodiversity framework. PBL Netherlands Environmental Assessment Agency, The Hague. Available at: https://www.pbl.nl/sites/default/files/downloads/pbl-2018-from-paris-to-beijing-3412.pdf

7   UNCCD. 2009. Land Degradation Neutrality Target Setting Project - Report of the terminal evaluation. Available at: https://www.unccd.int/about-us/evaluation-office

8   Gichuki, L., Brouwer, R., Davies, J., Vidal, A., Kuzee, M., Magero, C., Walter, S., Lara, P., Oragbade, C. and Gilbey, B. 2019. Reviving land and restoring landscapes: Policy convergence between forest landscape restoration and land degradation neutrality. Gland, Switzerland. Available at: https://portals.iucn.org/library/node/48515

9   Global Mechanism of the UNCCD, Conservation International, DIE. 2019. Land degradation, Poverty and Inequality. Bonn, Germany. Available at: http://catalogue.unccd.int/1230_UNCCD_Poverty_briefing_note.pdf

10 FAO and UNCCD. 2019. Vulnerability to food insecurity in mountain regions: land degradation and other stressors. Bonn, Germany. Available at: http://catalogue.unccd.int/1249_Mountains_GM_CA6015EN.pdf

11 Global Mechanism of the UNCCD. 2019. Land Degradation Neutrality Interventions to Foster Gender Equality. Bonn, Germany. Available at: http://catalogue.unccd.int/1222_UNCCD_gender_briefing_note.pdf

12 Article 1 of the UNCCD. The full text is available at http://www2.unccd.int/sites/default/files/relevant-links/2017-01/UNCCD_Convention_ENG_0.pdf

13 Ibid.

14 IPBES. 2018. Summary for policymakers of the assessment report on land degradation and restoration of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. R. Scholes et al. (eds.). IPBES secretariat, Bonn, Germany. Available at: https://ipbes.net/global-assessment

15 Ecosystem services can be defined as the benefits that people obtain from ecosystems. For the full UNCCD definition, see Orr, B.J. et al. 2017. Scientific Conceptual Framework for Land Degradation Neutrality. A Report of the Science-Policy Interface. United Nations Convention to Combat Desertification (UNCCD), Bonn, Germany, p.13. Available at: https://www.unccd.int/publications/scientific-conceptual-framework-land-degradation-neutrality-report-science-policy

16 IPBES. 2019. Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. S. Díaz et al. IPBES secretariat, Bonn, Germany. Available at: https://ipbes.net/global-assessment

17 IPBES. 2018. Op. cit.

18 The articles of the CBD can be viewed at https://www.cbd.int/convention/text/. Biodiversity is defined in Article 2.

19 Mace et al. 2012. "Biodiversity and ecosystem services: a multi-layered relationship", Trends in Ecology and Evolution, January 2012, 27(1) 19-26. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0169534711002424

20 IPBES. 2019. Op. cit.

21 WWF. 2018. Living Planet Report - 2018: Aiming Higher. Grooten, M. and Almond, R.E.A.(eds). WWF, Gland, Switzerland. Available at: https://wwf.panda.org/knowledge_hub/all_publications/living_planet_report_2018/

22 FAO. 2019. The State of the World's Biodiversity for Food and Agriculture. J. Bélanger & D. Pilling (eds.). FAO Commission on Genetic Resources for Food and Agriculture Assessments. Rome. Available at: http://www.fao.org/3/CA3129EN/ca3129en.pdf

23 UNCCD. 2015. Report of the Conference of the Parties on its twelfth session, held in Ankara from 12 to 23 October 2015. Part two: Actions taken by the Conference of the Parties at its twelfth session. ICCD/COP(12)/20/Add. 1. Bonn: United Nations Convention to Combat Desertification. Available at: https://www.unccd.int/official-documents/cop-12-ankara-2015/iccdcop121add1

24 Orr, B.J. et al. 2017. Op. cit.

25 UNCCD. 2016. Land Degradation Neutrality Target Setting – A Technical Guide. Available at: https://knowledge.unccd.int/sites/default/files/2018-08/LDN%20TS%20Technical%20Guide_Draft_English.pdf

26 https://www.unccd.int/actions/ldn-target-setting-programme

27 https://knowledge.unccd.int/home/country-information/countries-with-voluntary-ldn-targets

28 IPBES. 2018. Op. cit., p.12.

29 IPCC. 2019. Op. cit.

30 UN General Assembly resolutions 71/229 (available at: https://www.un.org/en/ga/71/resolutions.shtml) and 72/220 (available at: https://www.un.org/en/ga/72/resolutions.shtml)

31 The text of the CBD can be viewed at https://www.cbd.int/convention/text/.

32 Decision X/2 of the CBD.

33 Orr, B.J. et al. 2017. Op. cit. Details of all five of the LDN objectives are outlined on pp. 33-34.

34 For example: UNCCD. 2016. Achieving Land Degradation Neutrality at the country level - Building blocks for LDN target setting. Available at: https://knowledge.unccd.int/unccd-content/achieving-land-degradation-neutrality-country-level-building-blocks-ldn-target

35 The conceptual framework is designed to work in concert with the FAO. 2012. Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security. Food and Agriculture Organization of the United Nations, Rome. Available at: http://www.fao.org/3/i2801e/i2801e.pdf

36 Orr, B.J. et al. 2017. Op. cit., p.35.

37 https://naturalcapitalcoalition.org/projects/biodiversity/

38 World Bank. 2018. The Changing Wealth of Nations 2018: Building a Sustainable Future. Lange, G.M., Wodon, Q., and Carey, K. (eds.) Washington, DC. World Bank. Available at: https://openknowledge.worldbank.org/bitstream/handle/10986/29001/9781464810466.pdf

39 See again FAO, 2012. Op. cit.

40 Decision 14/34 of the Convention on Biological Diversity. Available at https://www.cbd.int/doc/decisions/cop-14/cop-14-dec-34-en.pdf

41 "Synthesis of views of parties and observers on the scope and content of the post-2020 global biodiversity framework." Available at: https://www.cbd.int/doc/c/de9c/8c12/7c0cb88a47f9084e5d0b82eb/post2020-prep-01-inf-01-en.pdf

42 "UNCCD Secretariat proposal on the post-2020 global biodiversity framework." Available at: https://www.cbd.int/api/v2013/documents/6E70A3E5-6477-6E6E-E8A1-0DCEF9D8D1E4/attachments/UNCCD.pdf

43 UNEP-WCMC, IUCN and NGS (2019). Protected Planet Live Report 2019. Available at: https://livereport.protectedplanet.net/

44 FAO & Global Mechanism of the UNCCD. 2015. Sustainable financing for forest and landscape restoration: Opportunities, challenges and the way forward. Discussion paper. Rome. Available from: http://www.fao.org/3/a-i5174e.pdf

45 CBD High-Level Panel (2014). Resourcing the Aichi Biodiversity Targets: An Assessment of Benefits, Investments and Resource needs for Implementing the Strategic Plan for Biodiversity 2011-2020. Second Report of the High-Level Panel on Global Assessment of Resources for Implementing the Strategic Plan for Biodiversity 2011-2020. Montreal, Canada. Available from: https://www.cbd.int/financial/hlp/doc/hlp-02-report-en.pdf

46 https://knowledge.unccd.int/home/country-information/countries-with-voluntary-ldn-targets

47 https://knowledge.unccd.int/sites/default/files/ldn_targets/Philippines%20LDN%20TSP%20Country%20Report.pdf

48 https://www.cbd.int/doc/world/ph/ph-nbsap-v3-en.pdf

49 https://knowledge.unccd.int/sites/default/files/ldn_targets/Benin%20LDN%20TSP%20Country%20Report.pdf

50 https://www.cbd.int/doc/world/bj/bj-nbsap-v2-fr.pdf

51 https://knowledge.unccd.int/sites/default/files/ldn_targets/chile-ldn-country-report.pdf

52 https://www.cbd.int/doc/world/cl/cl-nbsap-v2-es.pdf

53 https://knowledge.unccd.int/countries/moldova-republic

54 GEF. 2017. Evaluation of the Multiple Benefits of GEF's Multifocal Area Portfolio. Available at: http://www.gefieo.org/sites/default/files/ieo/council-documents/files/c-53-me-inf-05.pdf

55 https://knowledge.unccd.int/knowledge-products-and-pillars/access-capacity-policy-support-technology-tools/checklist-land

56 http://catalogue.unccd.int/1224_UNCCD_LDN_TPP_technical_guide_GM.pdf