Reviving land and restoring landscapes

Policy convergence between forest landscape restoration and land degradation neutrality

Leah Gichuki, Rens Brouwer, Jonathan Davies, Adriana Vidal, Mirjam Kuzee, Chris Magero, Sven Walter, Pedro Lara, Christiana Oragbade and Ben Gilbey

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THE GLOBAL MECHANISM
United Nations Convention to Combat Desertification

LDN
Land Degradation Neutrality Target Setting Programme

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Foreword

The Sustainable Development Goals will continue to influence global development policy in the coming decade, prompting a need for ever greater financial support and political will to achieve the 17 goals. Among these, Goal 15 on the sustainable use and management of land resources embodies a major shift in the way the international community responds and manages land degradation. Four years after its adoption, Goal 15 continues to inspire positive change in global land and landscape restoration efforts, now embodied by the UN Decade on Ecosystem Restoration 2021–2030, declared by the United Nations General Assembly in March 2019. This is expected to accelerate and further mobilise action and resources to massively scale up restoration, build resilience and reduce vulnerability, while responding to the ever-pressing challenges of sustainable development. This international backing and momentum have the potential to deliver and even surpass global restoration commitments by 2030.

The Rio Conventions (the United Nations Convention to Combat Desertification, UNCCD; the United Nations Framework Convention on Climate Change, UNFCCC; and the Convention on Biological Diversity, CBD) have together championed the political impetus for restoration. Countries have already begun taking the steps towards protecting, sustainably managing and restoring their degraded lands, by committing to national, regional and global initiatives. Country commitments towards the achievement of land degradation neutrality (LDN), a target of Goal 15 and the Bonn Challenge, both by 2030, are two such examples. More than 120 countries have voluntarily engaged in the process of setting national targets to achieve LDN, with the support of the UNCCD, and 56 countries and subnational jurisdictions have made voluntary pledges to the Bonn Challenge.

Countries have publicly announced their commitments to restore degraded forests and lands. This report comes at a time when many countries are fully engaged in the challenging task of implementing their LDN targets and Bonn Challenge pledges with a goal to achieve them by 2030. The connection between the Bonn Challenge commitments and the LDN targets could strengthen synergy and catalyse actions at national level that will help in achieving their goals in a coherent and efficient manner.

The report shows that countries and their international partners need to create a policy environment conducive to supporting restoration, strengthening (inter)sectoral coordination, especially between the focal ministries of the different conventions, improving reporting and aligning investments and actions within the national restoration agendas. The report demonstrates that greater synergies between the LDN targets and Bonn Challenge commitments are possible and urgently required because commitments for landscape restoration under the Bonn Challenge contribute to many of the LDN goals established by countries, and vice versa.

Moreover, the land-based interventions that support the achievement of these two global endeavours could also contribute to biodiversity conservation and the goals of the post-2020 biodiversity agenda, as well as climate change mitigation and adaptation. The report reinforces the need for improved efforts to capture the synergies between LDN and the Bonn Challenge and provides examples of the progress being made at country level. This report should provide inspiration for Country Parties to the Rio Conventions to promote synergies and improve the scale and efficiency of responses to protect, restore and promote the sustainable use of terrestrial ecosystems.

Dr Grethel Aguilar
Acting Director General
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Executive Secretary
United Nations Convention to Combat Desertification

Executive summary

Goal 15 of the Sustainable Development Goals (SDGs) aims to: "Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss." Under SDG15, Target 15.3 calls 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.

Within one month of adopting the SDGs, Parties to the United Nations Convention to Combat Desertification had adopted Target 15.3 and embarked on an ambitious programme of national voluntary target setting. As of May 2019, 122 countries committed to set national voluntary targets for a land degradation-neutral world (LDN) and have received support from the Land Degradation Neutrality Target Setting Programme (LDN TSP), which is implemented by the Global Mechanism and the Secretariat of the United Nations Convention to Combat Desertification (UNCCD) in partnership with 18 international partners including IUCN. According to the UNCCD 'Scientific Conceptual Framework for Land Degradation Neutrality,' LDN should adhere to a 'response hierarchy': avoid degradation, reduce degradation and restore degraded land. All three aspects of this response hierarchy are included in the forest landscape restoration (FLR) approach, which is defined as a long-term process of regaining ecological functionality and enhancing human well-being across deforested and degraded landscapes comprising overlapping ecological, social and economic activities and values.

Many countries have made ambitious pledges to the Bonn Challenge, which is underpinned by the FLR approach. The Bonn Challenge is a voluntary global effort to bring 150 million hectares of the world's deforested and degraded land into restoration by 2020, and 350 million hectares by 2030. It was launched in 2011 by the government of Germany and IUCN, and later endorsed and extended by the New York Declaration on Forests at the 2014 UN Climate Summit. There is obvious synergy between the Bonn Challenge and LDN. While some countries are already taking advantage of this synergy to capture resource efficiencies and develop coherent policies and practices, others have not yet fully identified the links and are not coordinating their approaches. Pursuing restoration agendas in sectoral or geographical isolation can lead to displacement of degradation impacts to other ecosystems, fragmentation of landscapes, detrimental trade-offs between ecosystems and conflict between resource users. As FLR adheres to the response hierarchy of LDN, it is a robust approach to addressing many of these concerns. This is a priority for Parties to the UNCCD and will be a main agenda item at Conference of the Parties (COP) 14 in September 2019. It is also an integral part of the 2021–2030 UN Decade on Ecosystem Restoration declared by the UN General Assembly in March 2019.

Countries that are capturing the synergies between Bonn Challenge and LDN commitments have established effective intersectoral coordination mechanisms and, in several cases, their commitments are managed within the same ministry. National multi-stakeholder platforms are important for enabling synergies, since coordinated responses are needed for sustainable agriculture, forestry, grasslands and other sectors. The Bonn Challenge Barometer is tracking implementation of Bonn Challenge commitments and pledges, while LDN implementation is being monitored at global level through the UNCCD and SDGs reporting processes. However, there is a need for improved monitoring and cross-sectoral reporting to track progress and for lessons to be learned.

Overall, the following observations and recommendations can be made:

1. Countries are making significant progress in target setting and this is creating major new opportunities to catalyse investments to deliver LDN and Bonn Challenge commitments. **Governments and development partners should strengthen cross-sectoral collaboration and reporting in order to improve efficiencies in land and landscape restoration.**

2. LDN targets and Bonn Challenge commitments are highly complementary, and there are many benefits to aligning policies and investments to generate synergy. However, these commitments are not sufficiently prioritised in public policy and hence opportunities for synergy are being overlooked. **All actors should mainstream sustainable land management (SLM) and landscape restoration approaches and targets in development and conservation policies and actions.**

3. Countries are making significant progress in target setting for LDN and the Bonn Challenge, and this is creating major new opportunities to catalyse investments for achieving both commitments. **Governments and development partners are urged to promote consultation and coordination among the leads of the LDN, Bonn Challenge and their respective national focal points in order to sustain momentum for delivering these ambitious goals.**

4. While there has been some progress in mobilising investment for SLM and restoration under LDN and the Bonn Challenge, most countries fall short of what is required to reach the targets. In some cases, finance is available but countries lack critical capacity for building the business case for investment and in using public investment to catalyse private investment in land management. **National governments and development partners should mobilise finance to deliver LDN targets and Bonn Challenge commitments in a synergistic manner and create an enabling environment for private investment.**

Abbreviations

AF	Adaptation Fund
AFR100	African Forest Landscape Restoration Initiative
ASAL	arid and semi-arid lands
BIOFIN	Biodiversity Finance Initiative
CAR	Central African Republic
CBD	Convention on Biological Diversity
COP	Conference of the Parties
DFID	Department for International Development, UK
FCPF	Forest Carbon Partnership Facility
FLR	forest landscape restoration
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	greenhouse gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GM	Global Mechanism
GPFLR	Global Partnership on Forest and Landscape Restoration
IUCN	International Union for Conservation of Nature
LDN	land degradation neutrality
LDN TSP	LDN Target Setting Programme
NDC	Nationally Determined Contribution
NGO	non-governmental organisation
Norad	Norwegian Agency for Development Cooperation
PES	payment for ecosystem services
PPP	public–private partnerships
REDD+	reducing emissions from deforestation and forest degradation in developing countries
ROAM	Restoration Opportunity Assessment Methodology
SDG	Sustainable Development Goal
SLM	sustainable land management
TPP	Transformative Projects and Programmes
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
WRI	World Resources Institute

1 Introduction to land degradation and landscape restoration

1.1 Land degradation and restoration

Land degradation is a global phenomenon that is influenced by natural and socioeconomic factors. It is defined as a "reduction or loss of the biological or economic productivity and complexity of land" (UNCCD, 2016b). Land degradation leads to reduced food production, poor water storage, biodiversity loss, loss of soil organic carbon and loss of ecosystem services (IUCN, 2015; Gilbey et al., 2019).

Land degradation takes place in all climatic zones. It affects an estimated 23% of the world's terrestrial area and is increasing at an annual rate of 5–10 million hectares (Stavi & Lal, 2015). Land degradation through human activities is negatively impacting the well-being of at least 3.2 billion people, pushing the planet towards a sixth mass species extinction and costing more than 10% of the annual global gross domestic product in loss of biodiversity and ecosystem services (IPBES Secretariat, 2018).

The costs of land degradation indirectly affect everyone. The global economic loss of ecosystem services due to land degradation and desertification has been estimated at US$ 6.3–10.6 trillion or US$ 870–1,450 per person per year (ELD Initiative, 2015).

The underlying drivers of land degradation include expansion of crop and grazing lands into native vegetation, unsustainable agricultural and forestry practices, global consumption patterns and climate change (Sutton et al., 2016; UNCCD, 2017b). Other contributory factors to degradation include urbanisation, infrastructure development and extractive industries, which are often associated with landscape alterations (UNCCD, 2017a). Figure 1 illustrates the drivers and pressures of land degradation.

Land degradation results in a decrease in the provision of terrestrial ecosystem services. This has direct economic costs, such as increased food prices, and far-reaching socioeconomic consequences, in terms of food and water insecurity and malnutrition. If unabated, land degradation will continue to impede plans to alleviate poverty and hunger, ensure food security and build resilience to drought and water stress. In the long-term, severe consequences, such as conflicts over scarce resources, are likely to occur; this can escalate forced migration. Decisive action needs to be taken to protect, restore and manage land and soils sustainably to overcome the many challenges countries face and to achieve global climate and biodiversity commitments.

1.1.1 Land degradation neutrality

Land Degradation Neutrality (LDN) refers to "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" (UNCCD, 2015b). LDN is central to Target 15.3 of the Sustainable Development Goals (SDGs) and to the United Nations Convention to Combat Desertification (UNCCD) as a primary target. In simple terms, LDN is a national voluntary target to counterbalance land degradation with sustainable land management and restoration. Section 2.2.1 provides further details.

The LDN concept first attracted international attention in 2012 through the document 'Zero net land degradation: A new SDG for Rio+20' (Lal et al., 2012). The UNCCD secretariat advocated for the inclusion of LDN in the Rio+20 outcome document 'The future we want' (UN, 2012; Chasek et al., 2015). 'The future we want' formed the basis for discussion of the SDG targets. This inclusion steered adoption of LDN under SDG Target 15.3 which states, "By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world" (UN, 2015). This culminated in the development and adoption of the Scientific Conceptual Framework for Land Degradation Neutrality by the Science-Policy Interface of the UNCCD (Orr et al., 2017) and in the development of operational technical guidelines for countries to set LDN targets (UNCCD, 2016b).

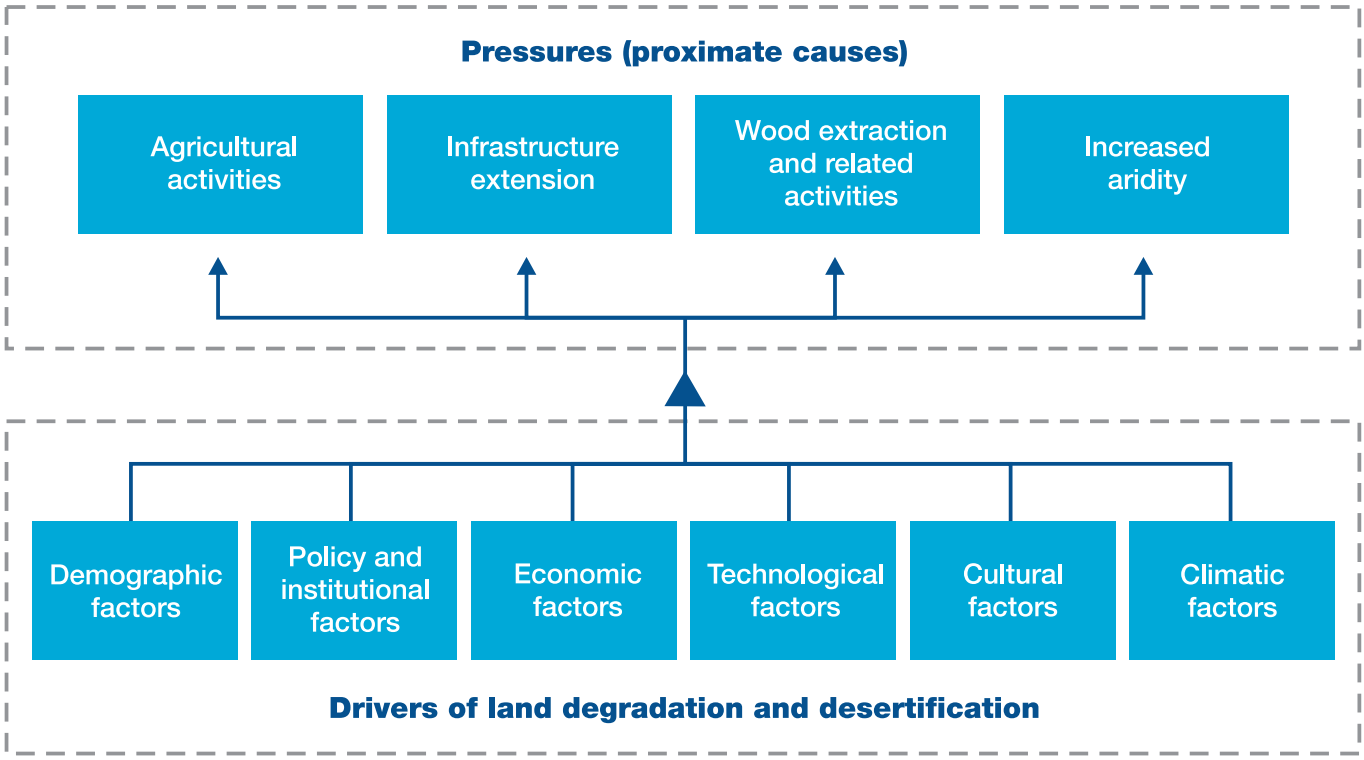

Figure 1 Proximate and underlying driving forces of land degradation (IUCN et al., 2015, modified from Geist & Lambin, 2004)

1.1.2 Forest landscape restoration and the Bonn Challenge

Forest landscape restoration (FLR)[1] is a long-term process of regaining ecological functionality and enhancing human well-being across deforested or degraded landscapes comprising overlapping ecological, social and economic activities and values. FLR focuses on restoring a whole landscape to meet present and future needs, and to offer multiple benefits and land uses over time.

The concept of FLR was developed in the early 2000s, because existing approaches did not capture all aspects of landscape restoration. FLR has many interpretations, and this has led to a range of approaches to suit the objectives of different parties – from conservation non-governmental organisations (NGOs), to UN agencies to governments (see Pistorius & Freiberg, 2014; Sabogal et al., 2015). However, principles have been developed to safeguard the outcomes of FLR (Figure 2).

FLR operates at many levels, watershed, jurisdictional or even country, wherein several land uses interact. It aims to bring back the biological productivity of an area in order to achieve benefits for people and the planet. It is a long-term process requiring a multi-year vision of the ecological functions and benefits it can provide. These include job opportunities, increased income, improved biodiversity conservation, and climate change adaptation and mitigation.

FLR underpins the Bonn Challenge of restoring 150 million hectares by 2020 and 350 million hectares by 2030. Since the Bonn Challenge was launched in 2011, the FLR approach has received wide recognition. Considering the landscape dimension in assessing and planning land restoration has gained momentum in recent years. Rather than focusing on sites, a specific biome or ecosystem, the landscape approach encompasses all, and looks at ecosystem services provisioning at scale, at trade-offs and at optimising different land uses, in order to restore the whole landscape.

[1] In this report, the term forest landscape restoration (FLR) is used for the sake of consistency with the terminology used under the Bonn Challenge.

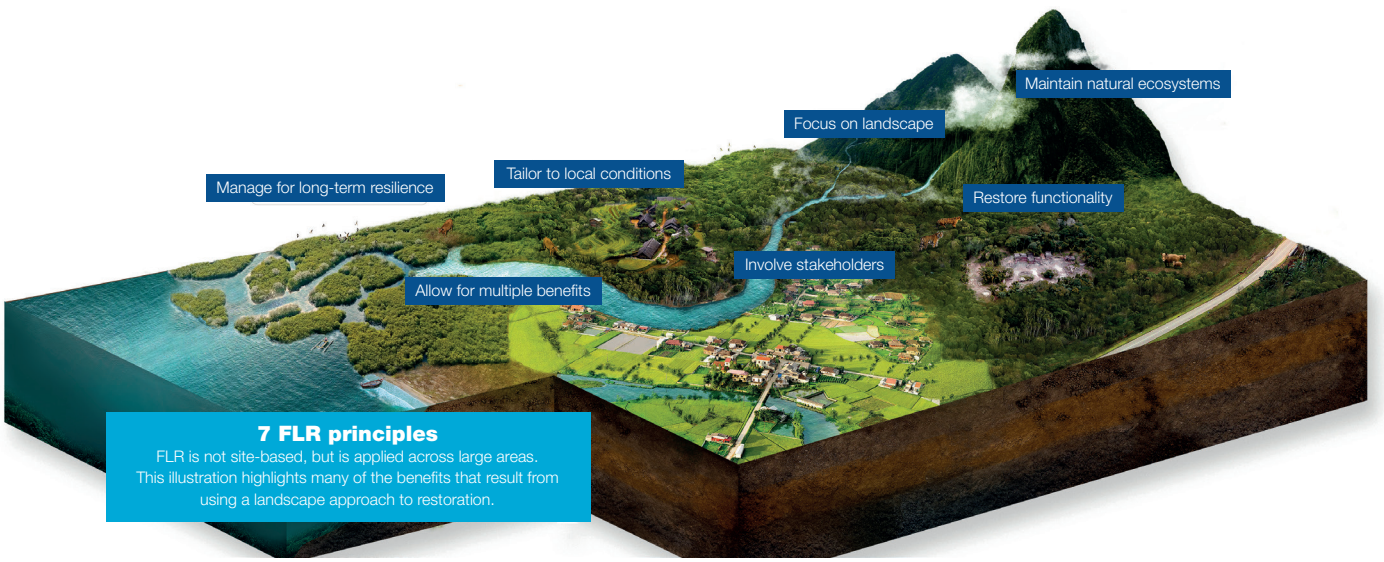

Figure 2 Principles of forest landscape restoration

1.2 A synergistic view of land restoration across the Rio Conventions

The Rio Conventions were an outcome of the United Nations Conference on Environment and Development, informally referred to as the Earth Summit, held in Rio de Janeiro in 1992. World leaders convened to demonstrate their commitment to sustainable development. The three Rio Conventions are legally binding agreements consisting of: the Convention on Biological Diversity (CBD), the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention to Combat Desertification (UNCCD). Due to its far-reaching consequences, land degradation has received global attention through restoration initiatives for more than two decades and is at the core of the three Rio Conventions.

Although each convention has its own objectives and commitments, there are also mutual dependencies and inherent relationships among them (Akhtar-Schuster et al., 2016; see Figure 3). The UNCCD is aiming to achieve LDN by 2030. This provides a foundation for achieving the UNFCCC and the CBD conventions by complementing and catalysing related targets applicable to the land-use sector as explained below (Akhtar-Schuster et al., 2016).

This report focuses on land management and landscape restoration, which are key to the Rio Conventions' mandate and purpose. Land management and restoration are the primary focus of the UNCCD, but are also central to the CBD, addressed for example in Aichi Target 5 (reduce habitat loss and degradation), Target 7 (sustainable farming and forestry) and Target 14 (ecosystem restoration), among others. Land restoration and management are also central to the goals of the UNFCCC, contributing to climate change mitigation, through reduced emissions and increased carbon sequestration, and strengthening climate change adaptation.

The Bonn Challenge was launched as a voluntary implementing vehicle for the three Rio Conventions, to achieve the Aichi Biodiversity Targets of the CBD, the LDN targets, and to mitigate climate change (IUCN, 2019). The FLR approach that underpins the Bonn Challenge can provide a foundation for meeting country targets and agreements in a synergistic manner. Bonn Challenge pledges have been reinforced through regional collaboration platforms, such as the African Forest Landscape Restoration Initiative (AFR100) and Initiative 20x20 in Latin America and the Caribbean, which emerged in 2015 and in 2014 respectively. Furthermore, since 2015, a suite of Bonn Challenge regional processes have been proposed by ministers to drive landscape restoration and thereby achieve the targets of the Rio Conventions in Africa, Asia, Latin America and Caucasus and Central Asia.

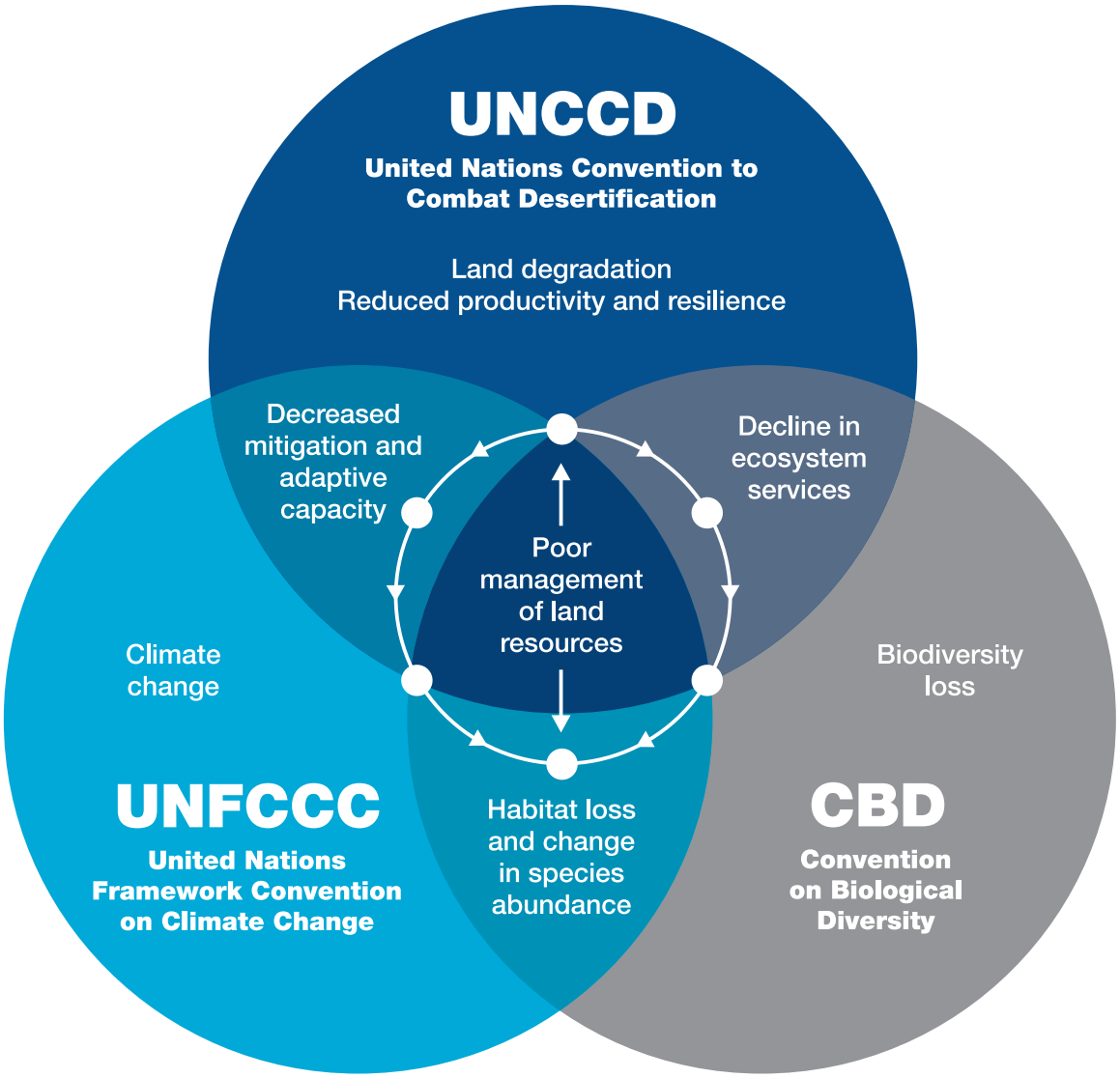

Figure 3 Intertwined challenges and objectives of the Rio Conventions (UNCCD, 2017a).

1.2.1 LDN for combating desertification

The UNCCD is focused on the challenges of desertification, land degradation and drought (UNCCD, 2017d). Key strategic objectives are to improve the condition of affected ecosystems, combat desertification/land degradation, promote sustainable land management and contribute to LDN.

Since 2015, LDN has driven the implementation of the convention, while contributing to achieving the SDGs. UNCCD is helping countries to develop voluntary national targets and define their LDN ambitions. It supports action on the ground to achieve LDN (UNCCD, 2017b). To date, 122 countries have committed to the LDN target-setting process, which is raising the profile of UNCCD and land degradation as a global challenge (UNCCD, 2019), as recently recognised by the IUCN Global Impact Award.

1.2.2 Land degradation in the climate change convention

UNFCCC is a framework for intergovernmental efforts to tackle climate change. The ultimate goal of the UNFCCC is to achieve stabilisation of greenhouse gas (GHG) concentrations in the atmosphere at a level preventing dangerous anthropogenic interference with the climate system (UNFCCC, 2019). Some countries party to the UNFCCC have adopted mechanisms to reduce emissions from land use, land-use change, forestry and agriculture sectors (Iversen et al., 2014). Of particular interest is REDD+. REDD+ was first acknowledged in

2007 as a result-based payments approach to reduce emissions from deforestation and forest degradation. In 2010, concepts of conservation, sustainable management of forests, and enhancement of forest carbon stocks were integrated into REDD+. Safeguards, guidelines for implementation, rules and methodologies were approved in the following years (Cancun 2010 to Warsaw 2013).

Under REDD+, countries use integrative landscape approaches, such as FLR, to design activities that generate robust result-based payments for mitigation actions in the forest and land-use sector (UNFCC, 2019). FLR does this is by addressing the drivers of degradation as part of the process of identifying the best landscape-scale interventions for more sustainable land-use objectives.

With the adoption of the Paris Agreement in 2015, countries have broadly recognised the role of forests in climate change mitigation and adaptation in their Nationally Determined Contributions (NDCs). Many countries' contributions include forest- and land-based targets aligned with the FLR approach. By 2017, 137 of the NDCs submitted mentioned the importance of FLR for mitigation and adaptation, and 127 included mitigation and adaptation targets for FLR implementation. Within this group, roughly 31% of NDCs have quantifiable FLR mitigation targets and 5% have quantifiable FLR adaptation targets. Activities, such as reforestation, afforestation and silviculture, constitute the most prominent land-based mitigation actions, whereas natural regeneration and improved land management practices are commonly mentioned as adaptation objectives. These activities add up to 57 million hectares, but this number doubles if *non-targets* expressed in areas are included for both mitigation and adaptation (*non-targets* are the country's current goals, which are included in the NDC, but are not part of the targets stated) (IUCN & Climate Focus, 2018).

1.2.3 Land degradation and the Convention on Biological Diversity

The CBD aims to advance the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources (CBD, n.d.). The convention advocates for utilisation of ecosystems, species and genetic resources in a way that does not lead to a decline in biodiversity (CBD, n.d.). The ecosystem approach is the primary framework for action under this convention.

Since entering into force, the convention's achievements have been considerable. However, biodiversity challenges, such as species extinction, require more international cooperation and inter-agency collaboration to achieve the convention's objectives, its Aichi Biodiversity Targets and the SDGs (CBD, 2018).

FLR and LDN contribute to biodiversity and the 20 Aichi Biodiversity Targets by supporting process-related activities (including biodiversity mainstreaming and capacity development); and through activity-based restoration interventions (management, rehabilitation and conservation) (CBD & UNEP, 2011). LDN and FLR contributions are strongly linked to Aichi Targets 2, 5, 7, 11, 12, 13, 14 and 15[2] and could strengthen CBD implementation at country level if incorporated into the CBD Post-2020 Biodiversity Framework currently under development.

Many interventions to address climate change and land degradation also contribute to conserving biodiversity. Conservation actions, in turn, contribute to climate change mitigation and adaptation and to addressing land degradation. Ecosystems such as forests and grasslands are biodiversity-rich habitats; conservation and restoration of these ecosystems benefit biodiversity and create carbon sinks that protect biodiversity from adverse impacts of GHG emissions. Restoration combats land degradation and desertification by reducing soil erosion, stabilising soils and maintaining soil-nutrient cycling. In addition, goods and services derived from forest and terrestrial ecosystems can potentially reduce vulnerability of resource-dependent populations to impacts of land degradation and enhance their resilience to climate change. In addition, desertification, and the associated loss of vegetation, causes biodiversity loss and contributes to climate change through reduced carbon sequestration (Joint Liaison Group, 2009).

1.2.4 Achieving synergy between the Rio Conventions through landscape restoration

Synergy between the Rio Conventions will help to address the complexity of environmental and sustainable development challenges, and achieve greater efficiency in plans, policies and investments. Synergies have

[2] https://www.cbd.int/sp/targets/

been discussed at length, but governments sometimes struggle to realise these on the ground. Actors often encounter challenges in developing cross-sectoral goals, developing shared mandates or coordinating between institutions. Yet the wide range of economic, social and environmental benefits that can be generated if synergies are achieved makes overcoming these challenges imperative. This report examines how countries are making progress in building such synergies, and the extent to which plans, policies and investments for FLR and LDN are achieving this.

1.3 Methodology

This report is based on a desk review of country commitments to LDN and the Bonn Challenge. Specifically, the review assessed the adherence of selected countries' targets to LDN and FLR principles, the complementarities and disconnects between country targets, proposed implementation arrangements and investment options. The report also includes key findings from a review of 62 completed LDN Target Reports, publicly available at the UNCCD Knowledge Hub website.

LDN targets and Bonn Challenge commitments were compared for selected countries that had information available on implementation of FLR at the national or subnational level (policy, technical, on-the-ground implementation, finance, etc.) and that had also set LDN targets and have LDN reports available. Thirteen countries were identified and reviewed: Cameroon, Central African Republic, Colombia, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Nicaragua, Rwanda, Sri Lanka and Uganda (Figure 4). The information gathered included the LDN and FLR targets in hectares, activities, institutional and legal framework, investments and monitoring systems. The purpose was to identify areas of overlap between the two types of commitments, including spatial, institutional and investments, as well as gaps and opportunities, in order to draw conclusions on possible areas of synergy between FLR and LDN processes.

In addition, this report includes an analysis of data from previous studies on LDN and FLR, and a review of relevant documentation: the LDN Target Setting Process National Report; the LDN Scientific Conceptual Framework; the LDN Target Setting Technical Guidelines; the IUCN Technical Brief on LDN; and LDN Target Setting Programme (TSP) technical policy and data reports. Key documents on FLR, such as Restoration Opportunity Assessment Methodology (ROAM) reports carried out at the national or subnational level and the Bonn Challenge 2017 and 2018 progress reports were also reviewed (Annex 2). In addition, documents, such as national UNFCCC biennial reports and national reports on the CBD, were consulted for supporting data. The report was also informed by academic and grey literature.

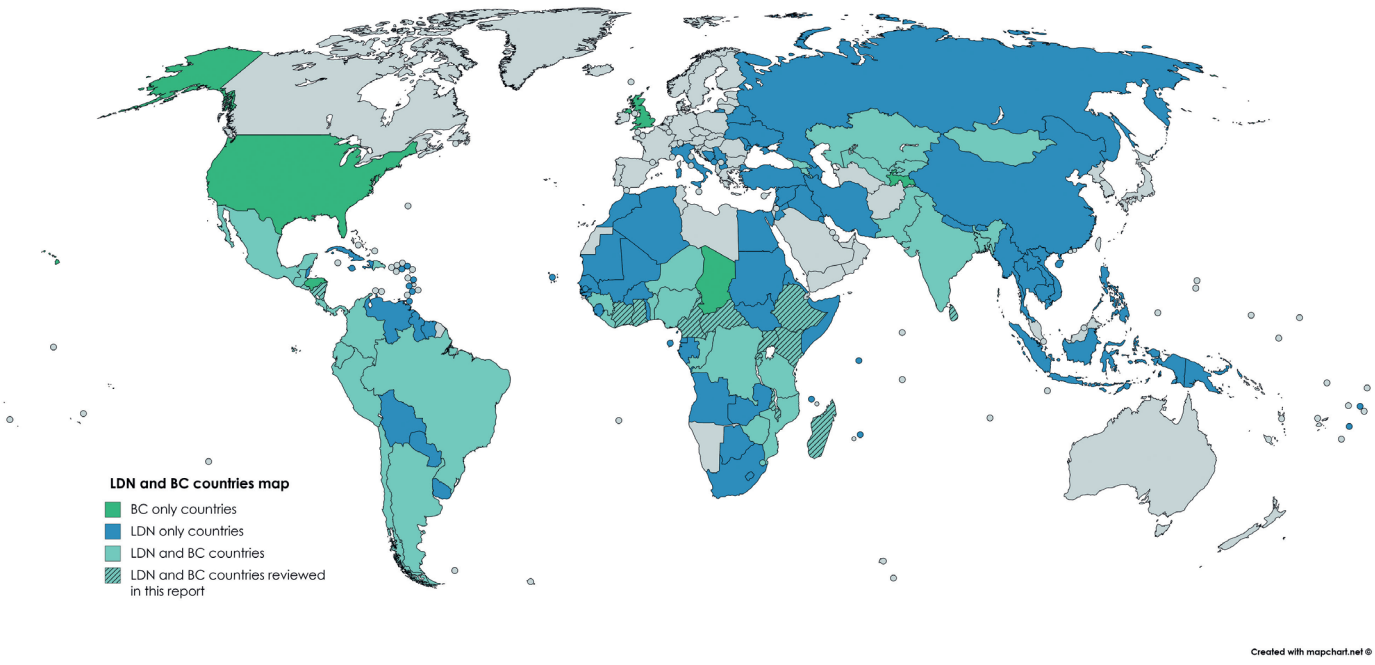

Figure 4 Countries with land degradation neutrality target setting reports, Bonn Challenge commitments or both

2 Restoration as an environmental priority

2.1 Land health as the foundation of sustainable development

Achieving the 17 SDGs depends strongly on approaches such as FLR that harness synergies among different goals and mitigate negative trade-offs. A central goal to achieving SDGs is Goal 15 "Life on land" and Target 15.3 on LDN (Figure 5; UNCCD, 2016a).

Goal 15 promotes sustainable use of land resources to ensure sustainable food production, resilient agricultural practices and efficient use of natural resources, hence

Figure 5 The relationships between SDG targets and Target 15.3 on Land Degradation Neutrality

the achievement of this goal through sustainable land management (SLM) practices supports the achievement of many other SDGs. For instance, implementing SLM can improve water-use efficiency and quality, and restore wetland ecosystems, contributing to SDG 6 "Clean water and sanitation." SLM also involves maintaining healthy lands that can support agricultural productivity, increase food security and develop agricultural economies, directly contributing to SDG 1 "No poverty," SDG 2 "Zero hunger" and SDG 5 "Good health and well-being."

Thriving agriculture- and nature-based economies provide opportunities for rural women to participate in commercial food production and give them access to land, making them agents of economic development. This is a cornerstone of SDG 5 "Gender equality." SLM practices are also rooted in sustainable consumption and production systems, which will influence the success of SDG 12 "Responsible consumption and production."

Demands for energy are expected to drastically increase with increasing human population. It is estimated that three billion people will rely on biomass for cooking and heating by 2030 (UNCCD, 2015a). The projected demand for renewable energy will dramatically increase pressure on the land for biomass production. Managing these demands calls for sustainable management of land and water to ensure affordable and clean energy supply for all, and hence achieve SDG 7 "Affordable and clean energy."

Restoring land resources therefore plays a vital role in tackling climate change and achieving Goal 13 on "Climate action," as climate change continues to be a major threat to sustainable development. Sustainable use of land could store up to 3 billion tonnes of carbon annually (UNCCD, 2013). The land sector represents 25% of total global emissions. Improved land-use and management practices, such as low-emissions agriculture, agroforestry and ecosystem conservation and restoration could close the remaining emissions gap by up to 25%.[3]

Goal 15 is pivotal to achieving SDG 11 on "Sustainable cities and communities." It is estimated that between 2000 and 2030, about 1.6–3.3 million hectares of prime agricultural land per year will be lost to urbanisation as world's population settle in cities (UNCCD, 2017a), thus integrated spatial development planning approaches will become critical in optimising allocation of resources, on which human settlements in urban and peri-urban areas rely. Sustainable land-use planning can, in addition, provide health benefits and disaster prevention in urban areas.

Similar connections can be drawn between FLR and several SDGs, as shown in Figure 6 (IUCN, n.d.).

The achievement of SDG 15 and Target 15.3 through SLM could create long-term connections with other goals and calls for integrated policy approaches, such as FLR, that ensure global sustainability commitments and are coordinated and translated into actions on the ground.

2.2 Responses from LDN and FLR commitments to land degradation

Implementation of LDN targets and Bonn Challenge pledges are gaining momentum globally, with the development of strategies, guiding frameworks and programmes. The Scientific Conceptual Framework for LDN, the LDN Target Setting Programme and LDN Transformative Projects and Programmes has contributed to progress in setting national LDN targets and supporting their implementation. Tools such as IUCN's ROAM, the World Resources Institute's (WRI) Restoration Diagnostic and recently the Bonn Challenge Barometer of Progress, have contributed to advancing and demonstrating progress made under the Bonn Challenge since 2011 (IUCN & WRI, 2014; WRI, 2015; Dave et al., 2019).

2.2.1 The LDN framework

2.2.1.1 Scientific and technical underpinning

The Scientific Conceptual Framework for LDN was developed as the main scientific reference for understanding and implementing LDN and to inform practical guidance and monitoring of progress towards the LDN target (Cowie et al., 2018). The framework was developed following UNCCD Conference of the Parties (COP) 12, where Parties to the Convention were invited to formulate voluntary targets to achieve LDN in accordance with their specific national circumstances and development priorities (Orr et al., 2017).

[3] The emissions gap is the difference between the level of GHG emissions consistent with meeting the 2 °C target set at the Paris Climate Change Conference, and the emissions reductions that governments have committed to in their current policies. The gap that needs to be closed to stay on target is currently estimated at 18 $GtC0_2e$ (gigatonnes carbon dioxide equivalent). This means that from the expected global emissions of 60 $GtC0_2e$, we need to come down to 42 $GtC0_2e$ by 2030.

Figure 6 Contribution of FLR to SDGs (from IUCN brief 'Forest landscape restoration pathways to achieving the SDGs,' 2019)

The framework provides a scientific foundation for understanding, implementing and monitoring LDN. It can be applied to all types of land degradation, and so can be adapted to countries' individual circumstances.

In addition to this, a Technical Guide for Land Degradation Neutrality Target Setting (UNCCD, 2016b) was prepared by the Global Mechanism (GM) and the Secretariat of the UNCCD. It provides operational technical guidance on how to define national baselines, identify voluntary targets and associated measures to achieve LDN by 2030. This allows practical monitoring of progress towards LDN targets. The LDN target setting process based on 10 steps, which can be adapted to the (sub)national context:

Step 1: Engaging stakeholders and government leadership
Step 2: Setting the LDN baseline
Step 3: Assessing land degradation trends
Step 4: Identifying drivers of land degradation
Step 5: Defining national voluntary LDN targets
Step 6: Mainstreaming LDN in land-use planning
Step 7: Identifying measures to achieve LDN
Step 8: Facilitating action towards LDN
Step 9: Monitoring progress towards LDN
Step 10: Reporting on LDN

The UNCCD secretariat and the GM have produced additional guidelines and technical documents, such as 'Good practice guidelines for SDG indicator 15.3' (Sims et al., 2017) and 'Methodological Note to Set National Voluntary LDN Targets using the UNCCD Indicator Framework' (UNCCD, 2017c), as well as metadata technical specifications. UNCCD also made default data from established and reliable international global data sources available to countries to be used in the absence of, or to complement, national data sources for target setting.

2.2.1.2 The LDN target setting process

During UNCCD COP12, the UNCCD secretariat and bodies were asked to develop guidance for formulating national LDN targets and assist countries in defining baseline scenarios for LDN (decision 3/COP.12). The GM of the UNCCD, in coordination with the UNCCD secretariat, developed a practical, country-led approach to setting LDN targets. It also established the LDN Target Setting Programme (LDN TSP) as a global multi-partner initiative to provide assistance to interested countries. The programme helps countries to formulate voluntary targets to achieve LDN, according to their specific national context and development priorities.

The LDN TSP has assisted countries through the following:[4]

1. **Leveraging LDN**, by catalysing its multiple benefits and bringing it to the forefront of national agendas;
2. **Assessing LDN**, by establishing a baseline and identifying land degradation drivers and trends;
3. **Setting voluntary LDN targets** and associated measures, by defining the country's ambitions in terms of combating land degradation; and
4. **Achieving LDN**, by identifying opportunities for transformative projects that can contribute to achieving multiple SDGs and embedding LDN into national development priorities.

2.2.1.3 Review and status of LDN implementation

Since the 2030 agenda was adopted in September 2015, implementation of LDN has made considerable progress. Many countries have committed to set voluntary national LDN targets (122 as of 24 May 2019). The LDN target setting process is based on established environmental and social principles, defined by the LDN SCF (Gilbey et al., 2019):

- **Engaging stakeholders and providing governance**, including establishing national LDN working groups – multi-stakeholder platforms usually coordinated by the national UNCCD Focal Point – and encouraging a gender-responsive approach to LDN;
- **Implementing a "response hierarchy" in land-use planning,** to Avoid > Reduce > Reverse land degradation, which is intended to prioritise cost-effective responses and focus attention on avoidance and reduced land degradation;
- **Counterbalancing responses to land degradation**, to ensure that degradation in a certain biome or land category is balanced with restoration actions in the same biome or land category (e.g. restore forests with forests and grasslands with grasslands);
- **Establishing synergies with other social, economic and environmental objectives**, for example by embedding LDN in integrated land-use planning processes.

By March 2019, 63 countries had submitted their national LDN target setting report to the UNCCD. These reports provide LDN targets and response measures, and highlight clear trends in the way countries are setting LDN targets. A rapid evaluation found that around 75% of the reports included investment plans for both landscape restoration and SLM (47 out of 63), although 17% of countries had not included any specific investment plans (Figure 7). The reports adhere to the principle of achieving a balanced response to land degradation, 42 out of 63 include investment plans

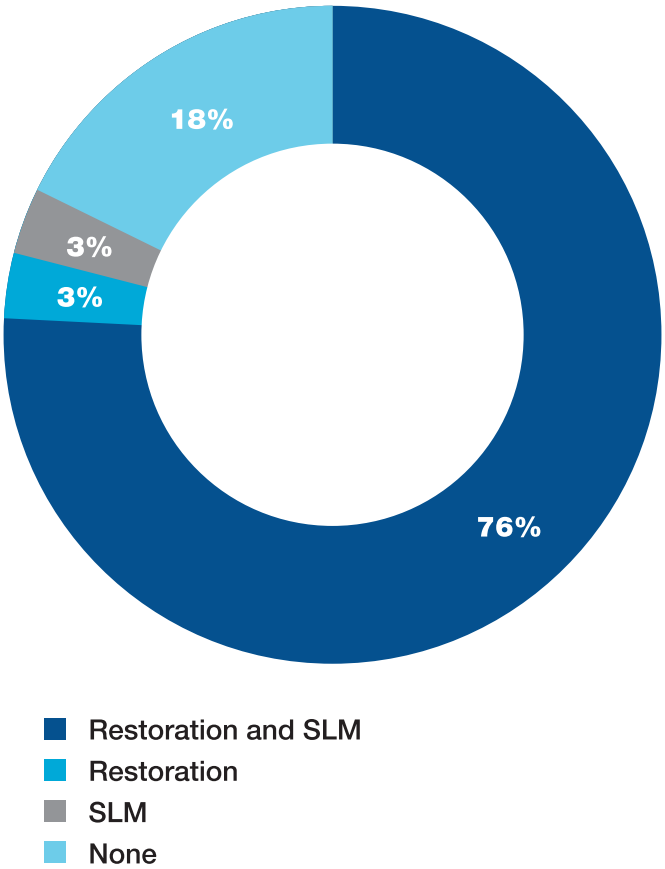

Figure 7 LDN reports that include investments in restoration and sustainable land management

[4] https://www.unccd.int/sites/default/files/documents/18102016_LDN%20country%20level_ENG.pdf

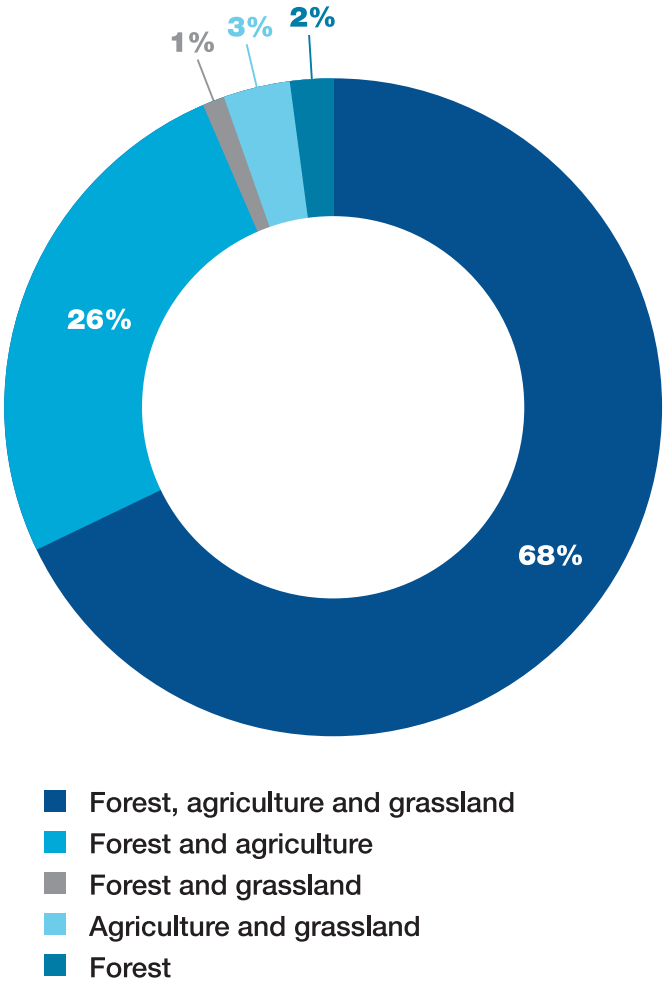

Figure 8 LDN reports that include response actions for forest, agriculture and grassland.

for forests, agriculture and grasslands (Figure 8). Furthermore, two-thirds of LDN reports include agro-ecological approaches such as agro-ecology, agroforestry, conservation agriculture, pasture management and soil–water management (Figure 8).

In 2018, as part of LDN monitoring efforts, IUCN reviewed the LDN implementation process (Gilbey et al., 2019). This reported on how countries have followed the guidelines in the LDN target setting process and provided recommendations on target setting, monitoring and implementation. A key recommendation is the need to capitalise more effectively on synergies between LDN, climate change mitigation and adaptation, and biodiversity conservation (as well as other development goals). Greater efforts are needed to capture the multiple benefits of LDN actions, for stronger socioeconomic outcomes, better value for money and improvements in policy, investment and reporting. We discuss many of the findings here.

In 2018, as part of the official national reporting process to the UNCCD, Country Parties also included information about the adoption and implementation of their voluntary LDN targets in national reports submitted via the UNCCD's PRAIS reporting platform.[5] Reporting on LDN implementation has thus become part of the official information that is regularly reviewed, analysed and discussed by the Committee for the Review of the Implementation of the Convention in order to advance implementation of the UNCCD at national and global levels.

2.2.2 FLR and the Bonn Challenge

FLR is the process of regaining ecological functionality and enhancing human well-being across deforested or degraded landscapes (see Section 1.1.4). This fits with the LDN objective of counterbalancing the expected loss of productive land through the recovery of degraded areas, where FLR specifically targets mosaic landscapes of different ecosystems and land uses. Since the Bonn Challenge was launched in 2011, pledges have been made to restore approximately 170 million hectares (IUCN, 2018), of which 94 million hectares will be brought into restoration by 2020. The Bonn Challenge is underpinned by the FLR approach. Regional initiatives support this global goal, for example, AFR100 in Africa and Initiative 20x20 in Latin American and Caribbean countries.

The global momentum for FLR elicited a need for coordinating platforms. The International Model Forest Network, developed in the 1990s, provides a dynamic 'model' which can be used to advance sustainable forest management goals in forest ecosystems and the surrounding landscape. The Global Partnership on Forest and Landscape Restoration (GPFLR) was initiated in 2003 and spearheaded by IUCN. GPFLR aims to catalyse dynamic, voluntary action through sharing experiences on restoration efforts that deliver benefits to both local communities and nature through a landscape approach, while also fulfilling international commitments on forests. Another initiative supporting FLR efforts is the Forest Ecosystem and Restoration Initiative of the CBD, launched in 2014, which focuses on ecosystem restoration and conservation.

[5] https://prais.unccd.int/unccd/reports

2.2.2.1 Target setting for forest landscape restoration

Countries wishing to contribute to the Bonn Challenge consult IUCN, the Secretariat of the Bonn Challenge, to define a pledge and identify synergies with existing national and subnational restoration programmes. Some contributors assess restoration potential and strategies before confirming their contributions. To guide these assessments, IUCN in collaboration with WRI produced ROAM (IUCN & WRI, 2014). This framework provides a flexible tool that allows countries to identify areas that for FLR and specific priority actions at a national or subnational level. ROAM assessments can complement the LDN target setting process by identifying priority areas for FLR, as well as which FLR interventions are socially, economically and ecologically appropriate. ROAM helps countries and other landscape stakeholders to identify FLR opportunities to meet national and international goals. A ROAM assessment can be undertaken through collaborative engagement with stakeholders, and can deliver the following products:

- Identified priority areas for restoration;
- A shortlist of the most relevant and feasible restoration intervention types across the assessment area;
- Quantified costs and benefits of each intervention type;
- Estimated values of additional carbon sequestered by these intervention types;
- Analysis of the finance and investment options for restoration in the assessment area; and
- A diagnostic of 'restoration readiness' and strategies for addressing major policy and institutional bottlenecks.

When making a commitment to the Bonn Challenge, contributors provide information about the number of hectares to be restored and anticipated restoration strategies. This information is then confirmed and announced at a high profile event. Restoration is initiated through a suite of restoration strategies, often identified through a ROAM assessment, and successful models are scaled up.

The ROAM assessments provide contributing countries with sound information to improve land-use decision making. They support national strategies on FLR, REDD+, climate and disaster risk adaptation and mitigation, and biodiversity conservation and restoration, among others. They also highlight potential synergies between such strategies. This evidence-base allows better allocation of resources within restoration and land-use programmes and stimulates engagement and collaboration among key policy and decision makers from different sectors, as well as other stakeholders. To date, 450 million hectares across 26 countries and 39 jurisdictions have been assessed with the direct support of IUCN, and a total of 160 million hectares of FLR opportunities identified.

2.2.2.2 Review and status of Bonn Challenge implementation progress

Each country pledged to the Bonn Challenge has their own approach towards designing and implementing large-scale FLR activities. Countries, communities and the private sector have many reasons for implementing FLR, for food and water security, job creation and enterprise development, sustainable supply chains and rural development, to name a few. FLR interventions are therefore diverse, ranging from intensified agroforestry and silvopastoral systems, to enrichment planting, restoration of forests, wetlands and lakes, and others within a landscape context.

The Bonn Challenge is creating opportunities to integrate the landscape approach into country strategies to balance restoration. The 2nd Bonn Challenge Progress Report presents results on action from in-depth application of the Barometer in a subset of countries, with some information presented on an additional 12 countries from a desk review and interviews (Dave et al., 2019). To date, 57 governments and private sector entities have pledged over approximately 170 million hectares towards the Bonn Challenge target, with potential climate change mitigation benefit of 15.66 $GtCO_2e$. Progress is variable among countries, and much remains to be done to meet the 2020 goals and the even more ambitious target of 2030.

The need to track restoration efforts led IUCN to launch the Bonn Challenge Barometer of Progress (https://infoflr.org/index.php/bonn-challenge-barometer). The Bonn Challenge Barometer offers pledgers a universally applicable, systematic framework for identifying, assessing and tracking action on Bonn Challenge commitments. The Barometer helps pledgers to evaluate progress and identify the impacts of their restoration efforts, and to assess bottlenecks and opportunities to facilitate continued action. Pilot assessments have been made to test the Barometer protocol in 19 countries (Dave et al., 2019). The Barometer focuses on both the results of restoration interventions such as hectares, jobs generated, carbon sequestered, biodiversity areas enhanced, and the required conditions behind it e.g. policies, financing, etc. The Barometer is being improved in order to allow countries to align reporting on LDN target setting with that on the Bonn Challenge.

2.3 Synergies between the LDN framework and the Bonn Challenge

The LDN TSP has made substantial progress in mapping LDN Transformative Projects and Programmes (TPPs) and innovative financing. TPPs present opportunities for scaling up LDN and building synergy with other global commitments, such as the Bonn Challenge. TPPs seek to generate and sustain fundamental and sustainable positive change in the landscapes where LDN is targeted. Countries have made progress in developing TPPs (UNCCD & IUCN, 2019). Some have reported ongoing projects, either relatively small 'business-as-usual' projects, or sizeable transformative initiatives (e.g. REDD+ Guyana, Cameroon). Others have ongoing regional (AFR 100, Bonn Challenge, Great Green Wall Initiative for the Sahara and the Sahel, etc.) or international initiatives or funds (Green Climate Fund, GCF; Global Environment Facility, GEF; Adaptation Fund). National or local programmes provide opportunities to include and achieve LDN, such as the Mahaweli Development programme in Sri Lanka. Mauritius reports on local value-chain-based initiatives, for example, "Restore abandoned sugar cane land."

2.3.1 LDN principles and FLR principles

Guiding principles have been developed to safeguard the outcomes of FLR (IUCN & WRI, 2014) and LDN activities. Figure 9 shows the relationship between the FLR and LDN principles. There is strong alignment between them, although the LDN principles are more detailed. Some of the LDN principles are more methodological and do not link to specific FLR principles.

2.4 Aligning FLR commitments and LDN

This section has summarised the strong alignment between FLR commitments and LDN in terms of implementation approaches and underlying principles. Commitments and investments to restore landscapes under the Bonn Challenge can contribute to delivering LDN targets. However, there are considerable differences in how countries are aligning their responses.

To achieve synergy between LDN and FLR, it is vital that governments recognise how Bonn Challenge commitments contribute to LDN targets and vice versa. In many countries, these commitments and targets are the responsibility of different institutions and ministries, posing a risk of disconnection.

Section 3 of this report highlights opportunities for complementarity, instead of competition, between restoration ambitions.

Safeguarding sustainable outcomes in landscape restoration

FLR principles	LDN principles
■ Focus on landscapes ■ Recognise that a suite of interventions are possible	■ Apply an integrated land-use planning principle that embeds the neutrality mechanism in land-use planning
■ Restore ecological functionality	■ Maintain or enhance land-based natural capital
■ Allow for multiple benefits	■ Balance economic, social and environmental sustainability
■ Involve stakeholders	■ Apply good governance ■ Apply a participatory process ■ Protect human rights and enhance well-being
■ Tailor to local conditions	■ Apply in-situ validation and apply local knowledge
■ Avoid conversion of natural ecosystems	■ Apply the response hierarchy ■ Counterbalance anticipated losses in land-based natural capital with gains over the same timeframe, to achieve neutrality ■ Manage counterbalancing at the same scale as land-use planning ■ Counterbalance 'like for like'
■ Manage adaptively	■ Monitoring should be viewed as a vehicle for learning
	■ Neutrality is usually the minimum objective ■ Make use of three land-based indicators and associated metrics ■ The integration of results of the three global indicators should be based on a "one out, all out" ■ Make use of additional national and sub-national indicators ■ The LDN target equals (is the same as) the baseline ■ Base land-use decisions on multi-variable assessments ■ Respect national sovereignty

Figure 9 Principles of LDN and FLR

3 Analysis of synergies between LDN and the Bonn Challenge

As outlined in Section 1, this analysis was conducted through a desk review of the published national voluntary targets for LDN and pledges under the Bonn Challenge. LDN target setting is ongoing in 122 countries and 63 of these countries had published their LDN targets by March 2019 – publicly available via the UNCCD Knowledge Hub website.[6] Within these 63 countries, consolidated information on Bonn Challenge pledges design and implementation, coming from ROAM assessments' reports, was available in only 13 countries. As a result, this analysis was limited to the 13 countries where both sets of information were available. The key findings of the analysis are presented in Table 1.

3.1 Opportunities and challenges to achieving landscape restoration

3.1.1 Targets and activities

The analysis of LDN targets and Bonn Challenge commitments provides an insight into how well these agendas are aligned. Table 1 shows that around two-thirds (69%) of the countries analysed (Annex 1) have set LDN smaller targets than their Bonn Challenge commitments, suggesting that either the established Bonn Challenge pledges have not been fully factored into LDN targets, or that the more recently defined LDN targets are new commitments made in addition to existing Bonn Challenge commitments. Where this is the case, the additionality of LDN targets versus Bonn Challenge commitments should be clearly defined in countries' LDN reports to avoid any misunderstanding and ensure complementarity.

Possibly, the lower ambition of LDN targets projects a more realistic expectation of the net gains of restoration efforts versus further deforestation and degradation between now and 2030. In contrast, the net positive restoration efforts under the voluntary Bonn Challenge show political will and commitment to FLR.

The FLR targets and ongoing projects aim to restore degraded and deforested landscapes. FLR interventions include sustainable forest management, watershed management, intensification of agroforestry and silvopastoral systems, restoration of mangroves and wetlands, conservations of natural ecosystems, buffer zone management and the promotion of sustainable land use in mostly mosaic landscapes. LDN targets and projects additionally include restoration of natural grasslands.

In 7 of the 13 countries, LDN and Bonn Challenge engagements are overseen by the same government entity. This includes countries where there is clear alignment between LDN targets and Bonn Challenge commitments. The majority of the countries where LDN targets are significantly lower than Bonn Challenge commitments have separate institutional arrangements for the two initiatives. In the case of countries that use the same government agency to manage both initiatives, but nevertheless have significantly lower LDN targets than Bonn Challenge commitments, it is not clear whether the LDN targets exclude areas covered under Bonn Challenge commitments or whether they are identified as a net-zero target rather than a net positive target under the Bonn Challenge.

LDN is essentially made up of three hierarchical components: avoiding degradation, restoration and/or rehabilitation and SLM (UNCCD, 2016a). Different approaches have been implemented to restore and sustain land resources (i.e. soil, water and biodiversity), such as SLM, landscape restoration and/or rehabilitation, ecosystem-based approaches and area-based conservation (IUCN et al., 2015). FLR activities also encompass ecosystem restoration and other ecosystem-based approaches, SLM and conservation of natural areas. Therefore, FLR can be used to achieve LDN. Côte d'Ivoire, for example, demonstrates a balanced landscape restoration approach in both FLR and LDN

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

Table 1 Comparison of LDN and Bonn Challenge commitments in 13 countries

Country	Targets[a]			Reference to Bonn Challenge/ AFR100/ Initiative 20x20	Institutional coordination for LDN and FLR	Monitoring system in place	
	LDN target (ha)	**Bonn Challenge (ha)**	**LDN ≥ FLR**	**✓ Yes, X No**	**Same coordinating agency**	**✓ Yes, X No LDN**	**FLR**
Cameroon	12,062,786 by 2030	12,060,000 by 2030	✓	✓	✓	x	x
Central African Republic	1,227,415 by 2030	3,500,000 by 2030	x	✓	x	x	x
Colombia	145,200 by 2030	1,000,000 by 2020	x	✓	✓	x	x
Côte d'Ivoire	5,807,200 by 2030	5,000,000 by 2030	x	x	✓	x	✓
Ethiopia[b]	33,193,390 by 2036 52,713,930 by 2040	15,000,000 by 2020	✓	x	✓	✓	x
Ghana	7,502,249 by 2030	2,000,000 by 2030	✓	✓	x	x	✓
Kenya[c]	1,900,000 by 2030	5,100,000 by 2030	x	✓	✓	x	✓
Madagascar	2,600,000 by 2025[d]	4,000,000 by 2030	x	✓	✓	x	✓
Malawi	5,135,671 by 2035	4,500,000 by 2030	x	✓	✓	✓	✓
Nicaragua	2,696,297 by 2030	2,700,000 by 2020	x	✓	x	x	x
Rwanda	145,601 by 2030	2,000,000 by 2020	x	✓	x	x	✓
Sri Lanka	251,500 by 2030	200,000 by 2020	✓	x	x	✓	✓
Uganda	2,185,000 by 2030	2,500,000 by 2020	x	✓	x	✓	✓

[a] Targets have been copied or estimated in hectares based on country voluntary LDN targets https://knowledge.unccd.int/home/country-information/countries-with-voluntary-ldn-targets
[b] https://prais.unccd.int/ldn/reports Report from Ethiopia
[c] https://prais.unccd.int/ldn/reports Report from Kenya
[d] Report was developed in 2018. The country targets to restore 400,000 ha of landscape using green infrastructure by 2025 and practice sustainable agriculture in land parcels totalling at least 200,000 ha by 2025. The total figure assumes 6 years of implementation of green infrastructure and 200,000 ha of SLM.

activities (Box 1), indicative of good coordination between the FLR and LDN processes. Just under a third of the countries evaluated (28%) show good alignment between Bonn Challenge Commitments and LDN targets. Mostly, LDN and FLR targets do overlap and target many of the same degraded landscapes.

Degraded areas in the majority of the selected countries are identified at national level by government institutions.

Box 1 Côte d'Ivoire restoration interventions

LDN

Forest interventions: Increase forest cover by 3 million hectares, limit the conversion of forests to other land uses and improve forest productivity by 2 million hectares

Agricultural approaches: Improve the productivity of 800,000 ha of agricultural land, agroforestry, soil protection and restoration actions (crop rotation and mulching) and recover 7,200 ha of bare land for agricultural production

Soil organic carbon: Sequester 50,000 tonnes of carbon released into the atmosphere

Grasslands: Improve agro-silvopastoral practices

FLR

Production forests: Reforestation/agroforestry/enrichment

Sacred forests: Enrichment reforestation and community forest development

Cocoa/coffee plantations: Training on good agricultural practices

Savannas, woodlands and secondary forests: Enrichment planting, reforestation

Mining zones: Creation of fast-growing tree plantations, measures against bush fires

National parks, reserves, mangroves, coastal zones, gallery and riparian forests: Improved management, monitoring, implement management plans, reduce encroachment, enrichment planting

Other areas: Production/nursery activities and procurement of rare and valuable species, demonstration plots and research programmes on the integration and management of trees in agroforestry systems

Source: LDN report (government of Ivory Coast & UNCCD, 2018) and Bonn Challenge Barometer Report 2018, ROAM report (IUCN, 2016).

They map the extent and location of land degradation and develop strategies to ensure neutral or net positive outcomes through a combination of restoration and SLM interventions. Priority areas and interventions for FLR are identified with the ROAM tool (IUCN & WRI, 2014), using a landscape approach. Some countries used the results of the ROAM assessments directly to set targets for their Bonn Challenge commitments. Using tools, such as ROAM, that contribute towards similar goals can enhance their LDN target setting.

3.1.2 Institutional arrangements and policies

The analysis shows that all 13 countries have adopted legal and institutional frameworks to manage LDN and FLR activities. Of these, only Cameroon has explicitly aligned its LDN and FLR targets and referenced the Bonn Challenge in its LDN report.

All countries analysed have embraced a multisectoral approach for LDN and FLR; this is consistent with the framing of the two concepts as ecosystem restoration approaches. Most countries have already formulated policies and established institutions to support landscape restoration (see Table 1). However, there is risk of limited accountability when working with diverse actors and countries need to monitor progress and address conflicting or overlapping sectoral policies. LDN and FLR are coordinated by the same government agency in 54% of the analysed countries (Table 1). This should make it easier to monitor progress. Challenges remain in implementation and enforcement, as noted in Kenya and Uganda for LDN and FLR processes and the Bonn Challenge Barometer (Dave, 2019). In most countries that have committed to the Bonn Challenge or carried out ROAM assessments, cross-sectoral platforms have been formally established to guide decision making on FLR opportunities and implementation. These platforms must include a UNCCD/LDN focal point to ensure a coherent approach to restoring degraded lands.

When setting LDN targets, countries should establish LDN national working groups with a wide composition of relevant stakeholders (including government representatives from multiple ministries). This will promote institutional coordination, if there are no existing FLR structures to build on, and will guide the process and foster internal coordination among national policies.

Box 2 Institutional coordination in Cameroon, Côte d'Ivoire and Ghana

In Cameroon, the Ministry of Environment, Nature Protection and Sustainable Development acts as the national focal point for the UNCCD and the voluntary definition of LDN targets. Similarly, the Ministry of Forests and Wildlife and the Ministry of Environment, Nature Protection and Sustainable Development are leading implementation of FLR activities. They are jointly committed to restoring over 12 million hectares by 2030.

In Côte d'Ivoire, the Ministry of Environment and Sustainable Development is responsible for related conventions covering landscape restoration, which include both LDN and FLR.

Ghana's FLR efforts have engaged the private sector as a key player through a public–private partnership between a forest plantation company and the African Development Bank. For example, approximately 190,450 ha of forest plantations were established between 2002 and 2015, 142,401 ha of which were supported by the public sector and 48,049 ha by the private sector. Ghana's model of engaging the private sector in landscape restoration provides a lesson for other countries (Foli & CIFOR, 2018).

3.1.3 LDN and FLR monitoring

Since 2018, IUCN has worked with countries and partners to use the Barometer to report on FLR processes and implementation actions. The Barometer includes indicators on land brought into restoration in hectares and carbon sequestration benefits from restoration actions. These two indicators are directly relevant to the LDN's three core indicators: land cover, soil carbon and productivity. The Barometer currently only records aboveground carbon, however, belowground and soil carbon can be calculated using standard methodologies and reported under this indicator (an explicit indicator on soil carbon capture on land area under restoration will be added in the next phase of the Barometer).

Ideally, monitoring, reporting and verification systems for LDN and FLR targets should be established during planning and initiation of the restoration activities. Although the analysis reveals some monitoring gaps for FLR and LDN actions, countries have presented several monitoring options, which could be used for further learning and improving national monitoring systems.

Côte d'Ivoire and Ethiopia are developing national LDN and FLR monitoring systems. Côte d'Ivoire's national level working group on land monitoring is led by the Ministry of the Environment, which has signed Memoranda of Understanding with the national data-producing structures. These have received funding from FAO to develop harmonised land-use Indicators to collect data for monitoring. Ethiopia started to develop a national monitoring, reporting, evaluation and verification system in 2016. The Environment, Forest and Climate Change Commission will use this system in its project implementation processes, including tracking LDN and FLR implementation. Ethiopia also intends to apply the Bonn Challenge Barometer of Progress from 2019.

Default global datasets could be used to monitor LDN. Malawi, for instance, intends to use global databases[7] to monitor the three LDN indicators: land cover, productivity and soil organic carbon. Uganda has gone a step further, reviewing the types of data required to verify global datasets through its Land Degradation Monitoring Project, funded by GEF.

Monitoring frameworks are often guided by existing conservation strategies. Malawi's Department of Forestry focuses on measuring progress towards the FLR/Bonn Challenge goals and interventions using parameters provided by its National Forest Landscape Restoration Strategy 2017. Uganda plans to monitor FLR through its National Biodiversity Strategic Action Plan, which is coordinated by the National Environment Management Authority and produces an annual state of biodiversity report. REDD+ implementation and other conservation programmes also provide some level of monitoring, which LDN and FLR can tap into. Ghana plans to monitor FLR through the REDD+ MRV framework, periodic field surveys, inspection and assessment of areas planted under various FLR approaches, regular reporting and sample field audits to confirm areas planted.

Sri Lanka has adopted a hierarchical model to monitor LDN implementation. The District Development Committee monitors progress through monthly meetings and reports to the national Parliamentary Select Committee. The committee reviews the progress and makes appropriate policy-level interventions.

[7] Time series data (2000–2010)

Countries with a monitoring system for either LDN or FLR can explore options for integrating monitoring, rather than developing parallel systems. Sri Lanka, for example, has a clear monitoring strategy for LDN, but not FLR, at the national level. The ROAM assessment has identified the lack of a national monitoring system as a hindrance to national forest restoration by the Forest Department. Through coordinated effort, the country could integrate FLR aspects into the established LDN monitoring system.

There are other opportunities for joint monitoring. Kenya, for instance, has established a multi-stakeholder Landscape Restoration Technical Working Group, led by the Kenya Forest Service, which was involved in producing the national FLR potential maps and developing restoration commitment priorities. The technical group could design a monitoring framework for FLR and LDN activities in Kenya.

Rwanda has a Forestry Sector Monitoring and Evaluation System and the Ministry of Agriculture and Animal Resources Monitoring Information System. These are national monitoring platforms that could include some aspects of FLR. Although these two systems are not yet operational, IUCN has is supporting the revamping of the Monitoring and Evaluation System with updated FLR indicators. This is also an opportunity to include LDN indicators in the revamping process. Rwanda is one of the first countries to have applied the Bonn Challenge Barometer and is now using the tool to track progress on the implementation of their Bonn Challenge pledge.

Box 3 Tracking FLR progress across the world: The Bonn Challenge Barometer of Progress

The Bonn Challenge Barometer will support jurisdictions that have committed to the Bonn Challenge in evaluating progress toward meeting their commitments by offering a framework to consistently and systematically take stock of hectares brought under restoration. The Bonn Challenge Barometer will also utilise a standardised set of policy, regulatory, financial, and technical components deemed important for achieving successful landscape restoration.

IUCN is leading the design of the Bonn Challenge Barometer and its associated protocol, with the participation and contributions from government and non-government stakeholders in six pilot countries: Brazil, El Salvador, Mexico, Rwanda, Sri Lanka and USA. The main features of the protocol are:

- It offers the ability to customise scale and national circumstances regarding the availability of information on FLR, adapting to the amount and type of data available for reporting and offering a 3-tier structure representing levels of accuracy.
- It minimises the reporting burden by drawing information from existing reporting efforts under existing international commitments (UNFCCC, CBD, LDN, UNFF). The Barometer provides ample guidance and resources, and limits data collection only to indicators for which information can realistically and reliably compiled.
- It assigns institutions or individuals to collect all the necessary information for the Bonn Challenge Barometer reporting. Reporting will likely be undertaken every two years, aligning with other international reporting commitments where possible to ensure consistency and minimise workloads.
- The reporting under the Barometer is done through the Bonn Challenge Barometer online platform available at infoflr.org.

The Bonn Challenge Barometer protocol is structured into two main components. The first assesses key enabling conditions that are crucial to long-term success of FLR efforts. These “Success Factors” include policy and institutional arrangements, and financial and technical planning parameters. The second component focuses on progress and impacts, called “Results and Benefits,” and includes hectares under restoration including climate impacts, biodiversity impacts and socioeconomic impacts, among others.

4 Investing in landscape restoration

Restoring degraded land offers numerous environmental, social and economic benefits, from biodiversity conservation to job creation and improved agricultural productivity.[8] It is estimated that every US$ 1 invested in restoring degraded forests can yield between US$ 7-30 in economic benefits (Verdone & Seidl, 2017). This section provides a brief background on the investors and financial instruments relevant to landscape restoration. It identifies types of investments and finance supporting LDN and FLR-related activities, and then discusses key barriers and challenges to leveraging finance for LDN and FLR. The section ends by addressing the findings of the analysis and how these are linked with the key barriers, challenges and opportunities.

4.1 Investment phases and investors in FLR and LDN

FLR and LDN activities have three investment phases. **Phase 1** is the initial up-front investment or readiness investment. During this phase investments flow towards planning, designing projects, stakeholder participation and engagement, capacity building and developing safeguards. **Phase 2** is the investment for actual implementation, which may encompass implementation of restoration of degraded lands, policy reforms, land-use zoning, educational activities and strengthening of capacities. **Phase 3** focuses on sustained financing for landscape product services and ecosystem services, such as agricultural and food products, timber, REDD+ payments, biodiversity offsets and other certification schemes (FAO & Global Mechanism of the UNCCD, 2015).

Sources of funding for landscape restoration can be divided into three categories:

- Private finance, which is capital managed with the primary goal of earning a financial return for the investor.
- Public finance, which is funding from government bodies. This can be subdivided in domestic public expenditure and international donor support. While there may be a financial return to the government, public investments are largely made to generate social, environmental and economic benefits for the public.
- Philanthropic finance, which is charitable giving by individuals or organisations, typically with no intention of earning a financial return.

Some countries have identified investment funds that can be used for LDN and FLR actions, for example the Ghana Strategic Investment Framework for Sustainable Land Management (2011–2025) and the Forest Investment Program (2012–2020). The LDN Fund, spearheaded by the GM of the UNCCD and managed independently by MIROVA (Natixis Group), can channel finance from the private sector into LDN and FLR interventions. Other alternative financing opportunities for LDN and FLR include: eco-tourism, payment for ecosystem services (PES), carbon trading and payments, environmental taxes including levies, carbon tax, public–private partnerships (PPPs; especially in mining, forestry and agribusiness) and investment by the diaspora (as reported by Eritrea).

Some countries have already identified potential LDN TPPs, following the LDN TSP and with the support of the GM. Some of these TPPs are under development following the LDN TPP Checklist. Many target environment- and climate-related “vertical funds,” like GEF, GCF and Adaptation Fund (AF), with different implementing partners (United Nations Development Programme (UNDP), FAO, World Bank, African Development Bank, IUCN, etc.). FLR projects mainly target the same environment- and climate- related “vertical funds” as LDN, supported by funds from national governments, and with similar implementing partners. This offers further opportunity for operational synergies.

[8] https://infoflr.org/what-flr/benefits-flr

Table 2 Major sources of FLR and LDN finance

Private finance
■ Forestry and agribusiness investment and local entrepreneurs or processers ■ Value or traditional investors that seek a financial return ■ Impact investors (e.g. social investors and conservation investors) ■ Credit cooperatives (e.g. village savings and loans associations, credit unions) ■ Local lenders and microfinance companies ■ National commercial bank initiatives ■ Private funding towards PES schemes that include incentives for restoration activities ■ Funds from other climate-focused finance resources ■ Land Degradation Neutrality Fund
Public finance
■ FLR-supportive extension services/capacity building ■ Public acquisition of restoration services ■ Direct funding for forest restoration and/or monitoring ■ Tax cuts or subsidies (e.g. incentive schemes for private investment in restoration) ■ Public funding towards PES schemes that include incentives for restoration activities ■ Climate Investment Funds, Forest Investment Program ■ World Bank (Forest Carbon Partnership Facility [FCPF] Readiness Fund and Carbon Fund, BioCarbon Fund, Multi-Donor Trust Fund: PROGREEN) ■ Climate finance money (mitigation through REDD+ or others and adaptation) ■ United Nations financing mechanisms through concessional loans (GCF, GEF, Microfinance for Ecosystem-based Adaptation) and grants (GCF, GEF, Microfinance for Ecosystem-based Adaptation, Adaptation Fund) ■ Bilateral support (e.g. USAID, BMZ through Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH [GIZ] and KfW, International Climate Initiative, Norwegian Agency for Development Cooperation [Norad], UK's Department for International Development [DFID])
Philanthropic and non-profit
■ Philanthropists (and philanthropist organisations) ■ Crowd funding ■ Conservation NGOs (e.g. World Wide Fund for Nature, IUCN, Conservation International) ■ Reforestation-specific NGOs (e.g. the Eden Project) ■ Humanitarian aid programmes (e.g. Oxfam) ■ SLM grants and loans for actions that include tree planting for food security or biodiversity

4.2 Analysis of investments in LDN and FLR

Both direct and indirect costs and benefits are entangled on a global and local scale, making it difficult to define where investments in landscape restoration need to be made and who benefits. To achieve large-scale landscape restoration a mix of funding sources should be considered. These could include: climate finance, development cooperation, environmental funds, non-governmental funding, national budgets and resources, the private sector and non-traditional funding (e.g. crowd funding). Financial instruments or mechanisms are required to channel funding from investors to investees. In the private sector, such instruments are equities, loans and bonds; in the public sector, other instruments, such as grants, subsidies, taxes and incentive schemes, are used (Ding et al., 2017). We summarise this variety of funding sources, investments and mechanisms for the 13 countries with LDN and FLR projects analysed in Annex 1.

Public climate finance totalled US$ 128 billion in 2015, however only US$ 7 billion (about 5% of total climate finance) was used for financing land-use projects (Buchner et al., 2015). Funding for restoration-specific

projects was a small fraction of the land-use category. Annual funding needs for conservation and landscape restoration are estimated to range from US$ 300 to US$ 400 billion per year, indicating a massive financing gap (Credit Suisse et al., 2014; FAO & Global Mechanism of the UNCCD, 2015), and 80% of the funds that are available comes from public sources (Parker et al., 2012).

The variety of investors presented in Annex 1 illustrates that landscape restoration is gaining momentum (UN Environment, 2019). **Major donors** in the international policy landscape increasingly recognise the importance of FLR and LDN. Financial support mostly comes from bilateral funds and multilateral institutions, including international development finance institutions, private sector funds and philanthropic donors. These funds have been focused either directly on restoration or they have considered restoration eligible for support under other policy agendas, such as food security, development and climate change. In the analysis, most investments are in the first phase (readiness) and the second phase (implementation), or cover all three phases in an overarching project. Nevertheless, investments for the third phase (sustained financing) are less common, which may be because many LDN and FLR projects and programmes have only started in the last decade.

The link between landscape restoration and **global climate funds** is clear. LDN–FLR projects are largely funded through multilateral public funds, which include the World Bank's Biocarbon Fund for Sustainable Forest Landscapes, the GCF, the Forest Investment Program and similar funding streams from the GEF. However, these funds still have financing available for suitable LDN and FLR projects. Tapping into this potential by aligning LDN and FLR projects with each other and other global goals, such as the SDGs, may help in unlocking this type of funding.

The LDN–FLR country analysis also shows that **PES** are being implemented. For example, investments in carbon sequestration are often made through REDD+ and other PES schemes. However, most of these PES schemes are in their infancy and a better understanding and monetary valuation of ecosystem services is needed to explore how investments can be scaled up.

Private sector investments are being made in both LDN and FLR projects, albeit in relatively small amounts compared to the global public funds. The relatively long duration and often unclear business cases for restoration projects (with lower rates of return on investments or higher investment risks) can make LDN and FLR unattractive to traditional investors. However, impact investment funds, such as green bonds, are increasingly used in global landscape restoration. They aim to trigger private sector investment into agricultural production, while protecting millions of hectares of forests and biodiversity. More recently, large sovereign funds and pension funds are moving towards decarbonising their investments. This offers new opportunities for LDN and FLR projects linked with value-chain products.

Restoration activities and projects could become dependent on single donors, which could threaten the sustainability of projects if the donor withdraws. To avoid this, the activities and funding mechanisms of institutions involved in LDN and FLR could organised at a global level (Pistorius & Freiberg, 2014). The new UN Decade on Ecosystem Restoration may offer an opportunity for increased political and institutional momentum on this.

The LDN Fund aims to improve the connection between public and private investors. This impact investment fund blends resources from the public, private and philanthropic sectors to achieve LDN through SLM and land restoration projects implemented by the private sector.[9] Other platforms, though not necessarily directly related to LDN, may also unlock private funding. Examples are the World Economic Forum, the World Business Council for Sustainable Development, Business Call to Action, Global Green Growth Forum and the Rainforest Alliance. Aligning the objectives of LDN and FLR projects with the objectives of these platforms could increase private sector involvement in landscape restoration.

4.3 Challenges and opportunities for financing LDN and FLR

Scaling up investments and gaining access to finance challenge FLR and LDN implementation on the ground. There are several barriers to accessing finance (Akhtar-Schuster et al., 2016) and building the economic case for investment is crucial. The LDN country profiles[10] present evidence-based arguments for investment in LDN. They showcase the importance of taking action to avoid, reduce and reverse land degradation and

[9] https://www.unccd.int/actions/impact-investment-fund-land-degradation-neutrality
[10] https://www.unccd.int/actionsldn-target-setting-programme/ldn-country-profiles

highlight the multiple economic, social and environmental benefits that come with it. Ways to build the economic case for investment in FLR and LDN activities are shown below. These pathways will contribute to a common understanding of the impact of land degradation, communicating it in a way that inspires and drives action in society.

4.3.1 Economic valuation of ecosystem services

Creating rigorous economic valuation and efficient markets for ecosystem services is critical. Much is still to be done. Net benefits of sustainable, ecologically resilient restoration must be communicated to policy makers and practitioners if longer-term funding opportunities are to be realised. Application of tools such as The Economics of Ecosystem and Biodiversity (TEEB, 2018) can help to value potential ecosystem services in a degraded landscape. Such tools contribute significantly to understanding the financial costs of landscape restoration, but the effort required to achieve positive restoration outcomes at scale requires broader investments.

Designing and improving markets for ecosystem services could create incentives for (private) stakeholders to invest in the sustainability of these services at socially efficient levels, for instance the carbon credit market.

4.3.2 The polluter pays

Those funding restoration are often not those responsible for the damage. A shift is needed towards a global understanding that polluters, and those responsible for environmental degradation, should contribute to landscape restoration. An example of this shift is the carbon credit market, such as the European Union's Emission Trading System. Actors in supply chains are increasingly recognising their responsibility, represented at the international level by collective declarations, such as the Amsterdam Declaration on Deforestation-free Supply Chains and Forest 500.

4.3.3 Innovation

Innovative financing and payment schemes provide alternatives to traditional funding mechanisms. This could bridge the gap between large-scale investments and small-scale projects. Opportunities for innovation could include PPPs, de-risking investments, and financial and insurance services for small-scale land users.

4.3.4 Risk mitigation

Long-term restoration projects are risky investments, more so in degraded landscapes. Risks arise from environmental uncertainty and changing political and socioeconomic conditions during long-term projects. All investors expect a return (financial, social or environmental) on their investments. However, potential benefits of ecosystem services, such as improved carbon sequestration, biodiversity conservation and improved livelihoods and well-being, are either underestimated or not properly valued as part of the opportunity costs. Underestimation of the benefits of a restoration intervention elevates the perceived investment risk, often discouraging investors. This is especially true in more degraded landscapes, where the direct economic benefits are not tangible enough to attract investments. In order to attract investors to landscape restoration, it may be necessary to de-risk investments, at least partially, to an acceptable level (UNCCD, 2015a).

4.3.5 Insurance, guarantees and complementing funding

Most insurance schemes target the agricultural sector, although some cover the forestry sector. Insurance agencies can support restoration projects by providing landowners with a cash flow that allows them to get back in business after a catastrophic event, such as extreme droughts, floods or wildfires. Moreover, guarantees can be extended to the private sector to increase the investment incentive. Not all restoration activities are necessarily profitable and, in many cases, public investments, subsidies and community engagement will need to complement private investments.

5 Capturing synergies to advance landscape restoration

This study shows considerable overlap between LDN targets and Bonn Challenge commitments in many countries. There are overlaps in the targeted degraded areas, investments and in creating an enabling environment through national policies, strategies and key governance elements. Although this indicates a potential duplication of efforts, institutional gaps, competition among initiatives and divergent interpretations of LDN in the countries included in this study, it is also an opportunity to strengthen synergy in LDN and FLR interventions (Baumber, 2019).

Greater effort is needed to capture the synergies between LDN, the Bonn Challenge and other restoration and SLM initiatives at national level. A starting point is to develop consensus over the merits of achieving synergy, particularly in terms of capturing the multiple benefits of landscape restoration for stronger ecological and socioeconomic outcomes, and resource optimisation. Policies, institutional arrangements and investments are needed. These adjustments will facilitate a more coherent and effective approach towards landscape restoration and the goal of achieving LDN by 2030.

5.1 Alignment between the Bonn Challenge and LDN

This report highlights the opportunities for and advantages of achieving synergy between commitments to the Bonn Challenge and national voluntary targets for LDN. There are four main advantages:

1. **Improved resource-use efficiency.** The principles of LDN and FLR are complementary and justify allocating resources where needed, prioritising lower-cost interventions, such as avoidance, over more costly restoration efforts (see the response hierarchy). Aligning FLR outcomes with LDN targets and prioritising landscape restoration approaches will ensure scarce financial resources are invested where they can have the most significant and durable impact.
2. **Reduced risk of contradictory policies and investments.** Ministries frequently risk implementing contradictory actions where their goals are poorly aligned and both LDN and FLR provide a high-level set of targets and safeguards that mitigate this risk. Such risks will be easier to manage if ministries develop shared targets, under LDN, Bonn Challenge and landscape restoration initiatives.
3. **Maximised societal outcomes.** Aligning FLR actions and LDN targets promotes ecological restoration to generate a range of societal benefits or ecosystem services. The principles and practices of FLR offer a major opportunity to achieve optimal outcomes for society, by maintaining a balance in land use and landscape management, aligned with the principles of nature-based solutions.
4. **Reduced risk of inequitable outcomes.** FLR and LDN both aim to achieve socially acceptable and equitable outcomes. Nevertheless, there is a risk of inequitable outcomes when sectoral approaches are not aligned and where different sectors are competing over land and resources. Improved coordination between sectors, through joint action, planning and reporting, can help mitigate these risks.

Countries are demonstrating steady progress in both LDN target setting and FLR actions to achieve Bonn Challenge commitments. This report presents a number of encouraging observations and lessons. The key findings are summarised below, followed by the main recommendations from the analysis.

5.1.1 Principles

A number of guiding principles have been developed to safeguard the outcomes of FLR and LDN activities. The safeguards reveal a strong alignment between LDN and FLR principles, even though LDN principles are more detailed. This underscores the observation that there is no technical reason why FLR actions cannot be counted towards LDN targets, and many LDN actions can contribute towards Bonn Challenge commitments. The main barriers appear to be only of an institutional nature.

5.1.2 Targets

LDN targets and Bonn Challenge commitments indicate an increase in the number of countries taking restoration actions. This assessment identifies several areas of alignment between LDN and the Bonn Challenge. There are strong similarities in terms of proposed restoration targets in several countries. However some countries analysed have not yet aligned their LDN and Bonn Challenge targets. This could lead to duplication of efforts or missed opportunities in implementation processes.

As more countries make commitments to LDN and FLR, greater attention should be placed on integration and acceleration of implementation across restoration-related sectors in each country. This report highlights the urgent need for coordination of actors to tackle the complexity of implementing global commitments to restoration. Greater effort is needed to incorporate civil society, private sector and different government spheres in coordination mechanisms.

5.1.3 Investments

At the project level, it is generally not specified whether a project is an LDN or FLR project. Overall, the activities funded to achieve FLR and LDN appear to be complementary, regardless of the name of the approach. This indicates that LDN and FLR projects and activities can interchangeably count towards both goals to a large extent, and only biomes seem to be the differentiator in some rare cases.

The links between landscape restoration and global climate funds are clear and LDN-FLR projects are largely funded through multilateral public funds, which include the World Bank's Biocarbon Fund for Sustainable Forest Landscapes, the GCF, the Forest Investment Program and similar funding streams from the GEF. However, global climate funds still have large amounts of funding readily available for suitable LDN and FLR projects. Other platforms, not necessarily directly related to LDN or FLR, may help to unlock private funding. Aligning the objectives of LDN and FLR projects could help to increase private sector involvement in landscape restoration.

5.1.4 Inter-sectoral coordination

The increasing number of initiatives involved in landscape restoration is leading to fragmentation of efforts. Synergies are needed among landscape restoration initiatives. Inter-institutional coordination mechanisms will ensure the coherence of LDN and FLR and other landscape restoration initiatives. Impact can then be increased through the alignment of landscape restoration strategies at the global and national scale. Countries differ in their approach, but those with strong coordination between Bonn Challenge and LDN initiatives are generally better capturing synergies.

5.1.5 Monitoring

Although restoration of millions of hectares has been pledged under both LDN and the Bonn Challenge, implementation is still difficult to monitor, several years after making the commitments. Most countries lack a monitoring system. Effective monitoring depends on multi-sector efforts and interagency coordination. Baselines based on good indicators and data are also needed.

The Bonn Challenge Barometer of Progress was designed to monitor the FLR progress at the national level. It is currently being tested and implemented in Bonn Challenge countries. It assesses success factors, results and benefits through nine indicators. The Barometer is a universally applicable, systematic framework for identifying, assessing and tracking action on Bonn Challenge commitments. The Barometer may also indicate progress towards forest-related LDN interventions and better alignment of national monitoring protocols.

The use of innovative LDN monitoring platforms such as Trends.Earth[11] is increasing. Trends.Earth is a user-friendly tool for accessing best available default data from global data sources on LDN indicators and integrating relevant national datasets for LDN baseline assessment and monitoring. This platform can monitor changes in the forest cover, and as data with higher spatial and temporal resolution becomes available and is integrated, it can monitor LDN and FLR both at national and subnational levels. Other monitoring tools that could be used for monitoring include Open Foris/Collect Earth (http://www.openforis.org/) and Global Forest Watch (https://www.globalforestwatch.org/).

[11] http://trends.earth/docs/en/pdfs/Trends.Earth.pdf

5.2 Priority actions for reviving land and restoring landscapes

1. Countries are making significant progress in target setting and this is creating major new opportunities to catalyse investments to deliver LDN and Bonn Challenge commitments. **Governments and development partners should strengthen cross-sectoral collaboration and reporting in order to improve efficiencies in land and landscape restoration.**
2. LDN targets and Bonn Challenge commitments are highly complementary, and there are many benefits to aligning policies and investments to generate synergy. However, these commitments are not sufficiently prioritised in public policy and hence opportunities for synergy are being overlooked. **All actors should mainstream SLM and landscape restoration approaches and targets in development and conservation policies and actions.**
3. Countries are making significant progress in target setting for LDN and the Bonn Challenge, and this is creating major new opportunities to catalyse investments for achieving both commitments. **Governments and development partners are urged to promote consultation and coordination among the leads of the LDN, Bonn Challenge and their respective national focal points in order to sustain momentum for delivering these ambitious goals.**
4. While there has been some progress in mobilising investment for SLM and restoration under LDN and the Bonn Challenge, most countries fall short of what is required to reach the targets. In some cases, finance is available but countries lack critical capacity for building the business case for investment and in using public investment to catalyse private investment in land management. **National governments and development partners should mobilise finance to deliver LDN targets and Bonn Challenge commitments in a synergistic manner and create an enabling environment for private investment.**

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Annex 1: Project investment examples based on review of the 13 countries in this analysis

Country	Project name	Reason for investment	Investment options	Investment source and mechanism	Investment phase*
Cameroon	Removing Barriers to Biodiversity Conservation, Land Restoration and Sustainable Forest Management through Community-based Landscape Management	Enhance the sustainable land and natural resource management by complementing the local and national benefits of SLM with key global benefits	Improve the economic performance of agropastoral commodities and increase the revenues of farmers; improve agricultural production and income of beneficiary communities by creating rural infrastructure and building the actors' capacity	Public funding, GEF Trust Fund project grant of US$ 3,105,023 and an additional US$ 19,000,000 co-financing of both public and private sources	All phases
Central African Republic (CAR)	Lake Chad Basin Regional Program for the Conservation and Sustainable Use of Natural Resources and Energy Efficiency (LCB-NREE) CAR Child Project: Enhancing Agro-ecological Systems in Northern Prefectures of the Central African Republic	Ensure ecosystem protection, services and food security	Enhance agro-silvopastoralism and sustainable natural resources management in CAR's Ouham and Ouham-Pende prefectures	Public funding through the GEF Trust Fund, GEF Project Grant US$ 2.56 million, co-financing by the African Development Agency and GEF Agency (soft loan) US$ 3.40 million	All phases
Colombia	The Regional Integrated Silvopastoral Ecosystem Management Project	Secure ecosystem services; biodiversity and carbon sequestration benefits	PES: Farmers implementing silvopastoral practices received a one-time initial payment followed by annual payments conditional on, and proportional to, changes from the baseline land use	US$ 4.5 million grant from the GEF, implemented by the World Bank	Sustained finance phase

Country	Project name	Reason for investment	Investment options	Investment source and mechanism	Investment phase*
Côte d'Ivoire	The Cocoa & Forests Initiative	Contribute to deforestation-free commodities, reduce the pressure on forests, and improve livelihoods	Public–private collaboration to mobilise new sources of funding for forest protection and restoration, and to incentivise farmers' adoption of environmentally sustainable cocoa production	Public–private partnership; grant finance by the Dutch Ministry of Foreign Affairs catalysed by the Partnerships for Forests to support public–private partnerships	Readiness and Implementation phases
Ethiopia	Ethiopia: Amhar – A Holistic Community Based Approach to Restore Degraded Lands	Tackle deforestation and soil erosion	Plant indigenous trees on community land, gullies and river banks, and plant fruit and timber trees on farms to empower locals in sustainable development; initiatives such as honey production and fuel-efficient cooking stoves are also established	Funding for the planting of 382,222 trees was donated by Brabantia, a private company	Implementation phase
Ghana	Partnership for Productivity Protection and Resilience in Cocoa Landscape (3PRCL)	Deforestation-free cocoa	Reform landscape governance structures in collaboration with the government; develop a landscape standard for assessing climate-smart cocoa	Public–private partnership with support from the DFID-funded Partnerships for Forest, Touton led a six-partner consortium for this project with multi-stakeholder processes that involve public entities	Readiness and implementation phases
Kenya	The Restoration Initiative: Restoration of Arid and Semi-arid lands (ASAL) of Kenya	Restore deforested and degraded lands through the FLR approach and enhance the socioeconomic development of local communities through the development of bio-enterprises of non-timber forest products in ASAL	Enhance the in-country enabling environment for FLR; implement restoration programmes; capacity build and finance mobilisation supporting efforts to unlock and mobilise additional funding for FLR; and knowledge share, develop and strengthen critical partnerships	Public funding, GEF Project Grant of US$ 4,157,340 from the GEF trust fund, and an additional US$ 12,500,000 through co-financing	Readiness and implementation phases

Country	Project name	Reason for investment	Investment options	Investment source and mechanism	Investment phase*
Madagascar	Madagascar Sustainable Landscape Management Project	Increase access to improved irrigation services and agricultural inputs, and strengthen the integrated management of natural resources in the targeted landscapes by local actors and provide immediate and effective response to an eligible crisis or emergency	Activities phased to balance the need for timely investments in priority areas with the need for integrated plans: first component develops the information base for planning and at strengthening the policy framework for implementing the landscape approach at the level of the selected landscapes and of the nation; second component implements the approach in the selected landscapes with an emphasis on productive investments, conservation of key ecosystems and capacity building	Public funding of the International Development Association, French Agency for Development, GEF–International Bank for Reconstruction and Development as implementing agency; totalling US$ 107 million	Readiness and Implementation phases
Malawi	Climate Smart Agriculture in Malawi, Jacoma Estates Group	Transform the productivity of Malawi's agriculture sector and to reduce the vulnerability of smallholder farmers, by investing in large-scale irrigation and linking smallholder farmers to profitable markets	Create at least 350 new jobs and bring about climate-smart agricultural practices that allow local smallholders to manage resources better and protect themselves from extreme climate change	US$ 11.5 million investment in Jacoma Estates by CDC, the UK's development finance institution, and AgDevCo, a social impact investor targeting sub-Saharan Africa; US$ 8 million equity from CDC, and US$ 3.5 million from AgDevCo structured as debt and preference shares	Readiness and Implementation phases
Nicaragua	Nicaragua FCPF Readiness Preparation Grant	Ready Nicaragua for future REDD+ implementation by preparing key elements, systems, and/or policies needed, generally referred to as the "REDD+ Readiness Package," in a socially and environmentally sound manner	The REDD+ Readiness Preparation grant will provide additional funding to support Nicaragua in carrying out REDD preparation activities: strategy development through stakeholder consultations, analytical work, capacity building, a strategic environmental and social assessment, and technical work to establish a national forest reference emission level/reference level and monitoring system	Activities are funded by the FCPF Readiness Preparation Grant of US$ 3.6 million; other support expected from the GIZ-REDD+ Program for Central America and the Dominican Republic (approx. US$ 345,000), and support from the USAID Regional Climate Change Program for Central Americas to support REDD+ (approx. US$ 500,000), in addition to the national government and possibly other donors	Readiness phase

Country	Project name	Reason for investment	Investment options	Investment source and mechanism	Investment phase*
Rwanda	Sustainable Management and Environmental Rehabilitation for Poverty Reduction	Ensure the sustainable management of natural resources and environmental rehabilitation for poverty reduction	Coupled with expert training, households receive livestock as a source of animal protein and income, as well as manure for composting and organic fertiliser; manure from livestock used to produce clean energy through biogas digesters	FONERWA Rwanda's Green Fund, an initiative of the Government of Rwanda; the fund receives contributions from both public and private institutions and has made a grant of US$ 4 million available for this project	Implementation phase
Sri Lanka	The Biodiversity Finance Initiative (BIOFIN): Sri Lanka	Develop a Biodiversity Finance Plan for Sri Lanka, based on the National Biodiversity Strategic Action Plan and other key national documents, to meet financing national biodiversity targets	Conduct detailed national-level assessments to develop a biodiversity finance plan, drawing on quantitative and qualitative data, innovative methodologies and global and national expert input	UNDP provided financial support and capacity building through its BIOFIN to the Central Bank of Sri Lanka	Readiness phase
Uganda	Building community resilience, wetlands ecosystems and associated catchments in Uganda	Part of both the Government Uganda and United Nations efforts to promote SDG 13 on climate action as well as fulfil its obligations to the Paris Agreement on Climate Change which it ratified last year	Restoration of wetlands and associated forests, improved agricultural practices and alternative livelihood options in the wetland catchment areas, and strengthening access to climate and early warning information to farmers	Supported by a US$ 24.14 million grant from the GCF, US$ 2 million from UNDP and US$ 18.12 million in co-financing from the Government of Uganda	Readiness and Implementation phases

*** Phase 1** is the initial up-front investment or readiness investment. During this phase investments flow towards planning, designing projects, stakeholder participation and engagement, capacity building and developing safeguards. **Phase 2** is the investment for actual implementation, which may encompass implementation of restoration of degraded lands, policy reforms, land-use zoning, educational activities and capacity strengthening. **Phase 3** focuses on sustained financing to sustain the landscape (FAO & Global Mechanism of the UNCCD, 2015).

Annex 2: Reviewed documents and sources

Document	Source
LDN Target Setting Process National Report	https://knowledge.unccd.int/home/country-information/countries-with-voluntary-ldn-targets
LDN Scientific Conceptual Framework	Cowie et al. (2018)
LDN Target Setting Technical Guidelines	UNCCD (2016b)
IUCN Technical Brief on LDN	IUCN et al. (2015)
LDN TSP technical policy and data reports	UNCCD (2016a)
Country and subnational level ROAM assessment reports	IUCN & WRI (2014)
Bonn Challenge 2017 and 2018	Dave et al. (2017, 2019)

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