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THE GLOBAL MECHANISM

Sustainable financing for forest and landscape restoration

OPPORTUNITIES, CHALLENGES AND THE WAY FORWARD

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UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, 2015

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Foreword

The degradation of land and forest resources threatens the livelihoods of the millions of people who depend on them. Every year, some 12 million hectares of land are degraded while 7.6 million hectares of forest are converted to other uses or lost through natural causes. Forest and landscape restoration (FLR) points towards reversing the degradation and upscaling the sustainable management of natural resources, including land, soil, forests and water.

The global community has shown strong commitment to FLR by embracing ambitious targets: the Bonn Challenge calls for restoring at least 150 million hectares of degraded land by 2020; Aichi Target 15 of the Convention on Biological Diversity (CBD) aims for restoration of at least 15 percent of degraded ecosystems by 2020; the New York Declaration on Forests targets the restoration of 350 million hectares by 2030. The most ambitious, Target 15.3 of the Sustainable Development Goals, looks to achieve land degradation neutrality by 2030.

To give an idea of the funding required to achieve such commitments, it is estimated that USD 360 billion is required to meet the Bonn Challenge and USD 830 billion to meet the target of the New York Declaration on Forests. The mobilization of these financial resources remains one of the main constraints for the effective implementation of large-scale FLR projects and programmes. It requires an urgent effort from existing public financial instruments (national budgets, development banks), climate financing mechanisms (Adaptation Fund, Green Climate Fund) and the private sector (impact funds and traditional investors such as pension funds and commercial banks).

In this context, FAO and the Global Mechanism of the UNCCD have joined efforts to prepare this discussion paper on sustainable financing for FLR. It provides an overview of existing funding sources and financial instruments that could be used and adapted specifically for implementation of FLR efforts at the national, regional and global levels. It also identifies innovative financing mechanisms such as payment for ecosystem services and crowdfunding which can support achievement of the global targets. The paper presents the main challenges for enhanced financing for FLR. Based on lessons learned through many related initiatives, it proposes solutions to support the enabling conditions needed for sound investment in FLR, including financial alliances for better mobilization of resources for FLR and capacity development efforts at the national level.

FLR finance has many stakeholders. This discussion paper targets a wide audience including FLR project promoters and implementers (international and national institutions, civil society organizations and private companies) and investors of all types (bilateral donor agencies, multilateral financial mechanisms and private investors, to name a few).

We are honoured to present this document, the result of over six months of hard work by a core team from the Global Mechanism of the UNCCD and the FAO Forestry Department. We thank all the authors and peer reviewers involved in this collective effort, and in particular the participants who shared their thoughts and experiences during the workshop "Private Sector Investments for Forest Landscape Restoration", held in Rome in June 2015.

We are convinced that this discussion paper will help stakeholders better understand the financial architecture related to FLR and to identify areas that need further action, including research, policy work or capacity building to unlock the potential of sustainable financing mechanisms for FLR.

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Acronyms

ACoGS	avoided conversion of grasslands and shrublands
AFD	French Development Agency
AfDB	African Development Bank
APFNet	Asia-Pacific Network for Sustainable Forest Management and Rehabilitation
AR	afforestation and reforestation
ARR	afforestation, reforestation and revegetation
BCR	benefit-cost ratio
BMZ	Federal Ministry for Economic Cooperation and Development, Germany
CAF	Development Bank of Latin America
CBA	cost benefit analysis
CBD	United Nations Convention on Biological Diversity
CBR+	Community-based REDD+ Grants
CCBA	Climate Community and Biodiversity Alliance
CCCAF	Climate Change Community Adaptation Fund
CDM	Clean Development Mechanism
CEPF	Critical Ecosystem Partnership Fund
CFLRP	Collaborative Forest Landscape Restoration Program (United States of America)
CGF	Consumer Goods Forum
CI	Conservation International
CIFOR	Center for International Forestry Research
CPMF	Collaborative Partnership on Mediterranean Forests
CSO	civil society organization
CSR	corporate social responsibility
DFI	development finance institution
ELD	The Economics of Land Degradation
EU	European Union
Eurosif	European Sustainable Investment Forum
FAO	Food and Agriculture Organization of the United Nations
FFEM	French Facility for Global Environment
FiM	Finance in Motion
FLR	forest and landscape restoration
FONAFIFO	National Forest Fund, Costa Rica
FONERWA	Environment and Climate Change Fund, Rwanda
FSC	Forest Stewardship Council
GAFSP	Global Agriculture and Food Security Programme (IFC)
GCF	Green Climate Fund
GDP	gross domestic product
GDPRD	Global Donor Platform for Rural Development
GEF	Global Environment Facility
GFFFN	Global Forest Financing Facilitation Network
GGWSSI	Great Green Wall for the Sahara and the Sahel Initiative
GIIN	Global Impact Investing Network
GIZ	German Agency for International Cooperation
GM-UNCCD	Global Mechanism of the UNCCD
GPFG	Norway's Government Pension Fund Global
GPFLR	Global Partnership on Forest and Landscape Restoration
HCTF	Habitat Conservation Trust Foundation
HNWI	high-net-worth individual
IPBES	Intergovernmental Platform on Biodiversity and Ecosystem Services
IFC	International Finance Corporation
IKI	International Climate Initiative (German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety)
IMFN	International Model Forest Network
INBAR	International Network for Bamboo and Rattan
IRR	internal rate of return
IUCN	International Union for Conservation of Nature
JMA	joint mitigation and adaptation
JNR	jurisdictional and nested REDD+
KfW	Kreditanstalt für Wiederaufbau (reconstruction credit institute), Germany
LDC	least-developed country
LDN	land degradation neutrality
LPFN	Landscapes for People, Food and Nature Initiative
MIGA	Multilateral Investment Guarantee Agency
MRV	monitoring, reporting and verification
NAMA	Nationally Appropriate Mitigation Action
NFF	national forest fund
NGO	non-governmental organization
ODA	official development assistance
OECD	Organisation for Economic Co-operation and Development
ODI	Overseas Development Institute
PER	public expenditure review
PES	payment for ecosystem services
PROFOR	Program on Forests (World Bank)

REDD	reducing emissions from deforestation and forest degradation
ROAM	Restoration Opportunity Assessment Methodology
ROI	return on investment
SAGCOT	Southern Agricultural Growth Corridor of Tanzania
SALM	sustainable agricultural land management
SFI	Sustainable Forestry Initiative
SFM	sustainable forest management
SGP	Small Grants Programme
SLM	Sustainable Land Management
TEEB	The Economics of Ecosystems and Biodiversity
TIMO	timber investment management organization
UNCCD	United Nations Convention to Combat Desertification
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
VCS	Verified Carbon Standard
WBCSD	World Business Council for Sustainable Development
WRC	wetland restoration and conservation
WRI	World Resources Institute
WWF	Worldwide Fund for Nature

Executive summary

The international community has set ambitious goals for forest and landscape restoration (FLR), including reaching land degradation neutrality by 2030 (Target 15.3 of the Sustainable Development Goals), restoring 150 million hectares by 2020 in the framework of the Bonn Challenge, and restoring 350 million hectares by 2030 under the New York Declaration on Forests. The technical feasibility of meeting these targets has been proved. However, implementation faces a number of barriers. In addition to unclear tenure rights, lack of implementation capacity and continued incentives for unsustainable land uses, one of the chief barriers is insufficient awareness of financing opportunities and investors' lack of understanding of FLR.

Between USD 36 billion and USD 49 billion are required every year to achieve agreed FLR targets, a limited amount in comparison to climate finance (USD 350 billion to USD 640 billion annually). Where can this money be found? There are many sources for raising these funds, among them: development cooperation resources, climate finance, non-governmental organizations (NGOs), State budgets, environmental funds, crowdfunding and the private sector. With governments facing more and more funding shortages and development cooperation having limited growth margins, long-term financing solutions may increasingly rely on the private sector and on instruments enabling self-sustained financing such as environmental funds.

Private-sector investors – businesses and individuals – are the key to long-term FLR finance, whether as social investors in the framework of corporate social responsibility or as impact investors looking for a mix of social and financial returns. More than ten private equity impact funds (already operational or in design) seek to invest in landscape restoration projects. They are small relative to the needed budget (generally limited to USD 100 million), but even so it is a challenge to find bankable projects. This challenge is what makes traditional investors (pension funds, commercial banks) reluctant to invest in FLR even though they have available capital and interested potential clients.

Beyond addressing the communication and awareness gap between investors and FLR project promoters and implementers, many barriers are to be overcome in order to make the FLR project pipeline attractive. FLR values should be recognized, value chains need to be developed and aligned to a landscape vision, local champions have to be trained and local communities enabled, positive externalities and market opportunities (e.g. carbon) have to be harnessed, and investment risks must be covered.

Building the enabling environment that makes a landscape "ready for investment" in FLR is critical. For this, governments, NGOs and development cooperation institutions have an important role to play in developing capacities of landscape stakeholders (e.g. local decision-makers, NGOs, small farmers, cooperatives), clarifying costs and benefits of FLR investments, establishing marketplaces for FLR and developing risk coverage mechanisms. This initial "readiness phase" can be covered through different forms of investment from development agencies, NGOs and private equity impact funds that have their own technical assistance facilities. Landscape insurance pioneers such as the Latin American Development Bank (CAF) and the United States Agency for International Development (USAID) have demonstrated the design of partial risk guarantee mechanisms for FLR.

Proactive States have developed integrated financing strategies and mechanisms blending different capital sources (national, international, public, private) to invest in FLR in both the readiness and implementation phases. National forest or environmental funds are appropriate for addressing the multiple objectives of FLR, as shown by examples from Costa Rica and Rwanda. FLR finance also shows potential for innovation, as demonstrated by the emergence of non-traditional funding mechanisms such as crowdfunding, based on citizen participation.

FLR can offer substantial internal rates of return (7 to 79 percent, according to The Economics of Ecosystems and Biodiversity [TEEB]), which is a strong indication of the urgency to intensify pragmatic actions towards sustainable finance for FLR. Compiling the business case and supporting the creation of adapted marketplaces could start a snowball effect of investor interest in restoration.

Who can do what?

- Governments can integrate FLR into their budget planning at the national and subnational levels, as is done in Canada and the United States of America. They can support the design of environmental funds, such as national forest funds that channel resources for FLR. They can "green" their investment funds, such as sovereign wealth funds and pension funds, to avoid investing in sectors and activities that harm forests and landscapes.
- Climate finance operators (e.g. the Green Climate Fund and the Adaptation Fund) should acknowledge FLR's joint role in mitigation and adaptation and allocate resources accordingly.
- International development cooperation agencies could adapt their financing instruments to FLR. Since their financing mechanisms address multiple sectors, they should be able to blend their resources for intersectoral landscape restoration projects.
- NGOs (international, national and local) could intensify their collaboration to finance and implement more field restoration projects.
- Private companies can further allocate funds to FLR through corporate social responsibility (CSR) initiatives, insetting and impact marketing approaches. They can integrate FLR in operational funds so as to mainstream it in business operations and value chains as part of a long-term business strategy. Greening of supply chains through deforestation-free procurement will also be vital.
- Private equity impact funds involved in FLR can communicate on their successful investment cases to attract traditional investors to large-scale FLR projects. In general, FLR stakeholders should support these private impact funds because they are at present the only classical investors willing to invest in FLR at scale. Success in engaging them will be critical to the whole FLR finance sphere.
- Traditional and institutional investors should continue innovating for FLR even at a small scale while the FLR project pipeline is developing. Restoration bonds may be part of the solution when large-scale projects enter the pipeline.
- Citizens – individuals and communities – can create, foster and support FLR initiatives such as crowdfunding platforms and green bank cards. As consumers, citizens have a responsibility to purchase goods and services from sustainably managed and restored landscapes.

Alliances and partnerships that bring all these stakeholders together may offer strong opportunities for implementing FLR at scale. Efforts such as Initiative 20×20 in Latin America and the Great Green Wall for the Sahara and the Sahel Initiative are beginning to demonstrate successes in upscaling FLR efforts that could inspire other regions of the world.

A number of innovative approaches show promise, such as the public–private partnership model of the Land Degradation Neutrality Fund, being developed by the Global Mechanism of the UNCCD; and The Landscape Fund, being developed under the leadership of the Center for International Forestry Research (CIFOR), which plans to issue restoration bonds following the model of green bonds.

In a nutshell, many opportunities exist to mobilize funds for FLR. Continuous dialogue among all FLR stakeholders, including investors of all types and FLR project promoters and implementers, must be maintained so that all can benefit from the full range of win–win opportunities that FLR offers.

PART 1
Background

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1

Overview

A landscape can be regarded as the heterogeneous mosaic of different land uses (e.g. agriculture, forestry, soil protection, water supply and distribution, biodiversity conservation, pasture provision) across a large area of land or a watershed. Landscapes provide multiple goods and services to populations everywhere. Forested landscapes, specifically, are sources of both wood and non-wood products, energy, food, shelter, incomes, human well-being and many environmental goods and services (biodiversity conservation, soil and water protection, recreational areas, carbon storage), which are often crucial for many economic sectors (food and agriculture, livestock, drinking water supply, tourism, energy and forest industry). A landscape approach addresses the interactions among various land uses and stakeholders by integrating them in a joint management process.

The Global Partnership on Forest and Landscape Restoration (GPFLR, 2013a) notes that:

> *All these services are interlinked; so if the agricultural area in a landscape expands, it will have repercussions for the area covered by forests. By adopting a landscape approach, we learn how to look at landscapes from a multifunctional perspective, combining natural resources management with environmental and livelihood considerations. People and their institutions are therefore perceived as an integral part of the system rather than as external agents operating within a landscape.*

Land degradation is generally defined as a persistent decline in the provision of goods and services that an ecosystem provides, including biological and water-related goods and services and land-related social and economic goods and services. Forest degradation refers to the reduction of the capacity of a forest to provide goods and services (FAO, 2011). Degraded landscapes, similarly, are landscapes that have experienced a reduction or loss of the biological or economic productivity and complexity of the natural ecosystems, with a consequent reduction or loss in the supply of the ecosystem goods and services they could potentially provide (Biancalani, n.d.). Landscape degradation is usually caused by a combination of biophysical predisposing factors (i.e. topography and climatic conditions) and unsustainable management practices (e.g. deforestation, cultivation on slopes, soil overexploitation). In addition to these factors, poverty, high population density, uncertain land-tenure regimes, detrimental agriculture- and forestry-related policies and restricted access to agricultural infrastructure and markets contribute to the unsustainability of land management and (consequently) to land degradation. Degraded lands include deforested and degraded forest landscapes, overexploited pastures and agricultural lands, and degraded ecosystems in general. Degradation is most frequent in drylands and steep lands, which deserve special attention.

GPFLR (2013b) thus defines forest and landscape restoration (FLR) as "an active process that brings people together to identify, negotiate and implement practices that restore an agreed optimal balance of the ecological, social and economic benefits of forests and trees within a broader pattern of land uses".

GPFLR (2013c) elaborates further:

Forest and landscape restoration turns barren or degraded areas of land into healthy, fertile, working landscapes where local communities, ecosystems and other stakeholders can cohabit, sustainably. To be successful, it needs to involve everyone with a stake in the landscape, to design the right solutions and build lasting relationships. FLR is not just about trees. Trying to put the forest back the way it was is one possible restoration strategy, but there are many others that sometimes have to be woven together to tailor a solution that's right for the setting and for all those with a stake in the forest. The goal, in each case, is to revitalize the landscape so that it can meet the needs of people and the natural environment, sustainably.

Depending on the above-mentioned factors and the aim of the intervention, FLR will typically consist of one or a combination of the following options.

- **Restoring and rehabilitating forests.** This type of intervention is usually implemented in previously forested areas or in areas where environmental and socio-economic pressures have led to the degradation of the forest cover (in terms of either quality or extent). This type of restoration can include planting trees; protecting land from uses that led to deforestation and degradation; and implementing conservation measures to ensure that previously forested land has the time to regenerate naturally. Restoration of forests is usually aimed at increasing carbon storage, conserving local biodiversity through the restoration of natural habitat, increasing watershed protection and enhancing local production of wood and non-wood forest products.
- **Integrating trees in agricultural landscapes.** These interventions can include increasing the number of trees across the landscape; preventing land degradation through improved agricultural practices, such as agroforestry; widespread adoption of resource management practices that limit overgrazing, bush fires, logging or harvesting of trees for fuelwood; and protecting naturally occurring shrubs and trees on farms in order to boost crop yields. Objectives for integrating trees in agricultural landscapes include sustainable enhancement of field productivity, improved community livelihood and incomes and better adaptation to climate change effects. Agroforestry is widely acknowledged as a climate-smart agricultural practice that can increase the productivity, sustainability and resilience of agricultural or pastoral landscapes. As such, it represents a valuable means for restoring overexploited and low-productivity agricultural lands.

BOX 1

Contribution of the key areas of the landscape to an FLR initiative

Forest areas

Intact natural forest (large areas) contain much of the conservation and development values of the initial forest landscape and are often the key building blocks for FLR initiatives. They generally need to be connected with restored and rehabilitated areas of the landscape to strengthen their contribution to FLR objectives.

Intact natural forest (small areas) provide important conservation and development values on-site that can be enhanced by expansion and connection to other key forest patches and areas to be restored and rehabilitated.

Plantations contain some conservation and development attributes that can be enhanced by management. They can also serve as useful buffers around degraded forests and protected areas.

Degraded forest or shrublands (large areas) can be key targets for restoration and rehabilitation and for connecting to other parts of the forest landscape.

Degraded forest or shrublands (small areas) can provide some conservation and development values that can be enhanced by restoration and rehabilitation and by connecting to other key parts of the forest landscape.

Non-forest areas

Farmland management can be modified to contribute to FLR objectives.

Trees on farms can contribute to conservation and development outcomes, particularly if connected with intact forest patches.

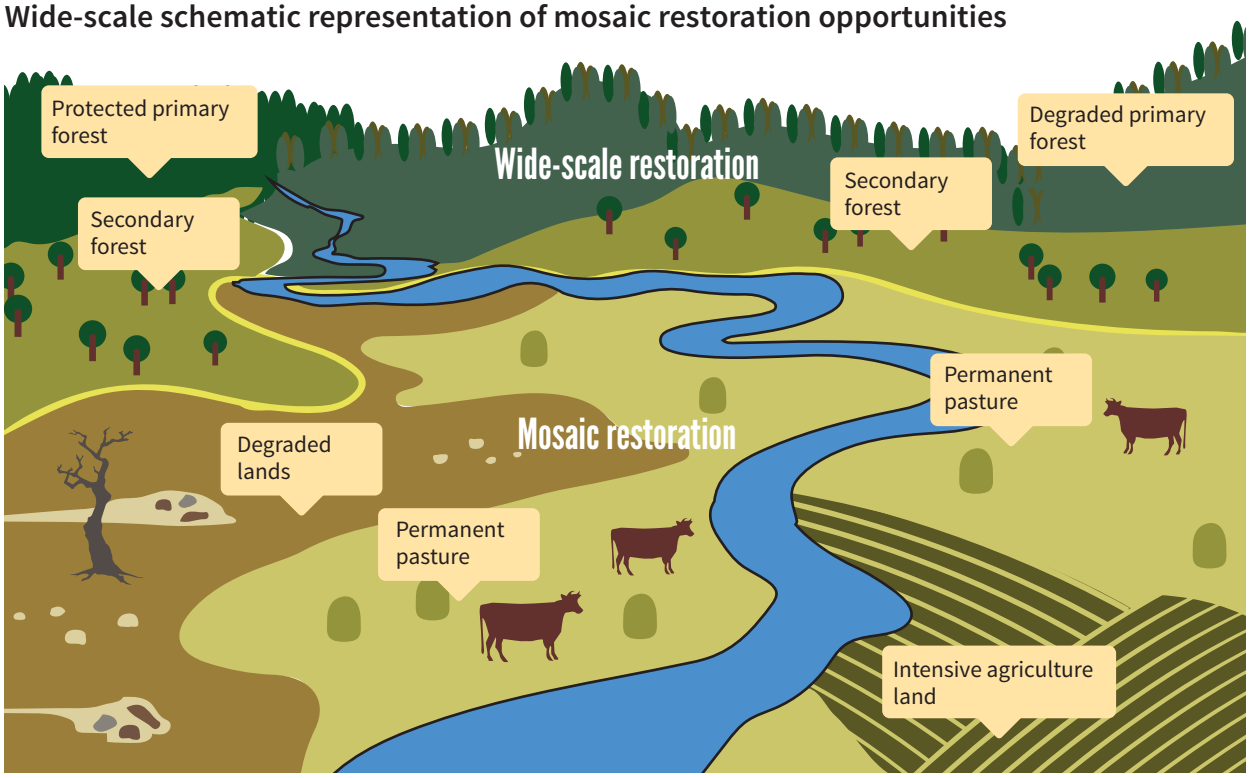
Riverine (riparian) strips are important habitat types and building blocks for connectivity in the landscape. They may require restoration or rehabilitation to protect both on-site and downstream soil and water values.

Degraded areas provide an opportunity for rehabilitation for on-site conservation and development benefits and for improved connectivity between natural forest patches.

Eroded areas and landslips require special treatment to protect both on-site and downstream values.

Source: ITTO and IUCN, 2005

FIGURE 1
Wide-scale schematic representation of mosaic restoration opportunities



Source: Adapted from IUCN and WRI, 2014

- **Rehabilitating protective lands and buffers.** The rehabilitation of protective landscapes involves establishing and enhancing trees and forests that help improve watershed protection and erosion control.
- **Boosting agricultural productivity on degraded lands.** The use of unsustainable agricultural and grazing practices is among the main causes of land degradation and deforestation worldwide. Degraded agricultural lands can be restored either by sustainably intensifying the production of annual crops, tree crops, fruit-tree orchards and other perennials; or by siting agricultural operations on deforested and degraded land rather than clear-cutting forest.

All areas of the landscape have a role in FLR (Box 1, Figure 1).

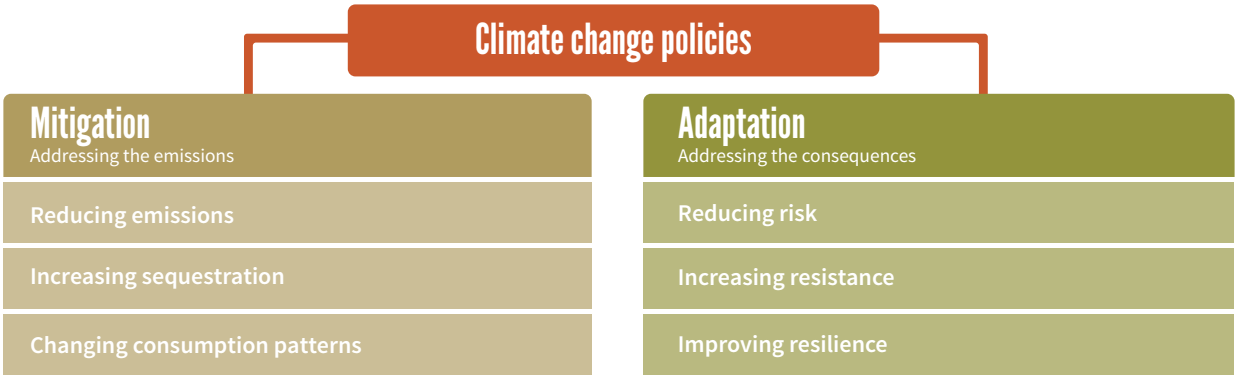
High goals and expectations for FLR

FLR raises many expectations because of its potential to bring positive solutions to socio-economic and environmental challenges. It is believed that FLR can contribute significantly to achieving the Aichi targets, reversing desertification and land degradation, mitigating climate change and enhancing adaptation to its adverse effects, increasing food security, preserving soils and creating jobs. Overall, FLR can be considered an integral part of an inclusive green economy. Accordingly, more and more initiatives are arising to support FLR implementation at the political, operational and financial levels. Because FLR has such diverse objectives, the activities and measures at each level are manifold.

The international community has set ambitious goals for FLR, including reaching land degradation neutrality by 2030 (Target 15.3 of the Sustainable Development Goals [SDGs]), restoring 150 million hectares by 2020 in the framework of the Bonn Challenge, and restoring 350 million hectares by 2030 under the New York Declaration on Forests.

The technical feasibility of meeting these targets has been proved. Researchers and landscape practitioners (from the forest, water and agriculture sectors, among others) have developed solutions to recover degraded lands and habitats. The knowledge is there, but a number of barriers to implementation remain. These include unclear land-tenure rights, lack of capacity for planning and conducting FLR, harmful subsidies to unsustainable land uses, and financial barriers, in particular insufficient awareness of financing opportunities and investors' lack of understanding of FLR. This publication seeks solutions for overcoming these barriers.

FIGURE 2
How FLR contributes to strategies to address climate change impacts



Synergies between FLR and climate-smart landscapes

Based on the above definition of FLR, restoring degraded landscapes would help to reduce poverty and food and water insecurity. Thus it can also counter the negative impacts of climate change by restoring an optimal balance of the ecological, social and economic benefits within a broader pattern of land uses.

Large-scale restoration programmes assist adaptation to climate change, by providing new opportunities for populations to deal with negative impacts of climate change at the landscape level (ecosystem-based adaptation); and they contribute to climate change mitigation, by reducing current degradation of ecosystems (sources of carbon emissions) and/or restoring the provision of multiple goods and environmental services (including carbon storage) within degraded landscapes (with significant changes in the baseline of carbon emissions). By dealing with this optimal balance of the ecological, social and economic benefits within a broader pattern of land uses, any FLR initiative will have an impact on the overall balance of greenhouse gas emissions and removals. By providing new economic opportunities for populations, FLR activities contribute to reducing risks, increasing resistance and improving resilience at the landscape level (Figure 2).

Consequently it is important to integrate climate change policies and the multiple climate financing instruments in the possible funding sources for investment in FLR activities. Climate change related restoration strategies and FLR strategies have a great deal in common, as do climate and FLR finance. Table 1 proposes restoration strategies in the language of climate finance (following the categories of Verified Carbon Standard [VCS] methodologies).

About this discussion paper

This discussion paper is the outcome of a joint investigation carried out by the Global Mechanism of the UNCCD and FAO. This collective effort has been enriched by the input of many colleagues from partner organizations, and in particular the participants who shared their thoughts and experiences during the workshop "Private Sector Investments for Forest Landscape Restoration", held in Rome in June 2015. Quotations from some of these partners are highlighted at key points in the document to emphasize main messages.

The paper addresses the following topics:

- the diversity and specificities of funding sources potentially available for FLR;
- requirements to adapt existing funding sources for FLR and opportunities to design innovative financing mechanisms;
- barriers inhibiting engagement of investors in FLR;
- tools, methodologies and instruments that can be used to create enabling conditions for maximizing the interest of different types of investor;
- opportunities to establish and/or strengthen financial alliances to mobilize resources for FLR at different levels (local, national, subregional, regional, global).

The publication is structured in three parts: a brief introductory section highlighting the rationale for FLR investments; an overview of relevant funding sources and instruments for FLR; and a section on improving investments in FLR, including recommendations for developing synergies among relevant financial instruments and funding sources.

FLR can only be effective in the long term if it is addressed in strong combination with conservation and avoided degradation policies. Accordingly, the discussion paper also highlights considerations related

TABLE 1
Examples of restoration strategies for selected ecosystem types

Ecosystem type	Restoration strategies
Grasslands	Assisted natural regeneration Avoided conversion of grasslands and shrublands
Croplands	Agroforestry Sustainable agricultural land management Conservation agriculture Climate-smart agriculture
Shrublands	Assisted natural regeneration Avoided conversion of grasslands and shrublands
Mangroves	Plantation Assisted natural regeneration Excavation of fill
Inland wetlands	Wetland restoration and conservation
Coastal wetlands	Wetland restoration and conservation
Temperate forests Tropical forests Arid/Mediterranean forests	Rehabilitation (e.g. assisted natural regeneration) Reconstruction Reclamation Replacement (e.g. assisted migration) Afforestation, reforestation and revegetation Improved forest management Reduced emissions from deforestation and forest degradation Jurisdictional and nested REDD+
Freshwater (rivers/lakes)	River and lake restoration Sediment management Pound restoration Integrated watershed management

Source: Based on VCS, n.d.; Stanturf, Palik and Dumroese, 2014

to these objectives, with examples from conservation finance and avoided degradation initiatives provided alongside FLR finance initiatives.

Nota bene

The diversity of funding sources, mechanisms and instruments presented in this paper will have to be considered carefully by landscape project promoters and implementers as well as by investors. They may not apply to every context and will have to be analysed through the prism of the local and national conditions, depending on environmental, social, economic, legal and political situations. Readers should thus not consider this paper as a ready-made guide for FLR finance, but as a support document to aid understanding and critical thinking about the many financing opportunities for FLR and how they can be developed in the future.

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2

Costs and benefits of FLR

In order to attract private investors and intensify public spending in FLR, a precise definition of the costs and benefits to be expected for FLR interventions is critical. This chapter focuses on the available information for the economic assessment of FLR investments and the factors to be taken into account.

The cost of landscape degradation

Land degradation entails significant costs for society as a whole. According to several studies (World Bank, 1989; Berry, Olson and Campbell, 2003; Morales *et al.*, 2011), these costs can range from 3 to 16 percent of agricultural gross domestic product (GDP) in terms of impacts on soil fertility and productivity loss. The Economics of Ecosystems and Biodiversity (TEEB, 2009) estimates the annual cost of forest loss at between USD 2 trillion and USD 5 trillion. These data are alarming considering ongoing landscape degradation trends (about 7.6 million hectares of forests lost every year [FAO, 2015a]). Furthermore, in most cases valuation methodologies do not include the whole range of social and environmental benefits provided by landscapes and therefore overlook the costs of losing these benefits. To avoid these dramatic yet consistently ignored losses for national economies, adequate public and private investments are required.

Funding needed for FLR

Funding requirements for FLR depend on the targets and time frames. Based on a conservative hypothesis of USD 2 390 per hectare (following TEEB, 2009; see Annex 1), the yearly budget required to meet internationally agreed restoration targets may range from USD 36 billion to USD 49 billion (Table 2) – a relatively reasonable amount in comparison to the current annual climate finance flows of USD 350 billion to USD 640 billion estimated by the United Nations Framework Convention on Climate Change (UNFCCC)

TABLE 2
Estimated financing needed to meet internationally agreed restoration targets

Initiative/target	Land area (million ha)	Time frame	Estimated budget required (billion USD)[a]	
			Total	Annual
Bonn Challenge	150	2011–2020	359	36
New York Declaration on Forests	350	2014–2030	837	49
Land degradation neutrality (SDG Target 15.3)	2 000	2015–2030	4 780	318

[a] Based on an estimated cost of USD 2 390 per hectare (following TEEB, 2009)

Standing Committee on Finance (2014). Although these figures may be controversial, the high benefit-cost ratio of ecosystem restoration measures (TEEB, 2009; see Annex 1) suggests that FLR is cost efficient in a sustainable development perspective.

Benefits of FLR

It is a challenge to obtain the robust economic data that decision-makers from private companies and public administrations usually require to support their decision-making process for FLR investments. Broad-scale empirical data are generally lacking on the actual economy generated by ecological restoration activities (i.e. economic outputs and employment resulting from environmental restoration, restoration-related conservation, and mitigation actions – the activities that are part of what is known as the "restoration economy"). Commonland has developed a concept of four returns from landscape restoration as a way of attracting investment (Box 2). The United States of America's Collaborative Forest Landscape Restoration Program (CFLRP) presents its benefits through quantified indicators (Box 3), but this type of *ex post* analysis is more suited to public communication and awareness raising than to justification of FLR investment.

IUCN (2012) estimates that the restoration of 150 million hectares of degraded and deforested lands in biomes around the world – in line with the Bonn Challenge – would create approximately USD 84 billion per year in net benefits that could bring direct additional income opportunities for rural communities (Table 3). About 90 percent of this value is potentially tradable, meaning that it encompasses market-related benefits. This provides an estimate of the bottom-line market size for private investors. Additional analyses would be needed to quantify non-market benefits (e.g. biodiversity, water quality, recreation) as well as the whole potential of underdeveloped landscape value chains.

Based on this overall annual benefit estimate of USD 84 billion and on the yearly budget required for FLR (USD 36 billion; see Table 2), the yearly benefit-cost ratio (BCR) of FLR that could be estimated globally is positive, at 2.3. This figure could be significantly higher if all non-market values of FLR benefits were to be quantified and integrated in the calculation.

However, it is important to note that FLR costs and benefits are highly variable depending on site- and ecosystem-specific conditions. Hence, contextualized studies are needed to define site-specific costs and benefits of FLR interventions, taking also into account management and communication objectives. For example, an economic impact assessment conducted by CFLRP estimated that "for every USD 1 invested in this programme, USD 0.20 is returned to the federal government in tax revenues, USD 1.50 in GDP is created, and USD 2.40 in total economic activity is generated (Southwick Associates and Responsive Management, 2013); this corresponds to a BCR of 4.1 (versus the above global estimate of 2.3).

Data from TEEB (2009) suggest a wide range of positive internal rates of return (IRR) for restoration of different biomes, ranging from 7 to 79 percent (Annex 1). Similarly, De Groot *et al.* (2013) calculated the BCR of implementing ecosystem restoration activities for eight terrestrial biomes (Figure 3), and in all cases found the BCR to be positive, indicating that all biomes offer potential returns to FLR investors. However, perusal of the data used by De Groot *et al.* (2012) suggests that most of the benefits are currently not tradable, meaning they do not have a market value. Indeed, the valuation methodologies of the goods and services provided by FLR are in need of improvement (especially for non-market values). Potential ecosystem and social benefits such as improved carbon sequestration, biodiversity conservation and improved livelihood and well-being of farmers or landowners are either underestimated or not properly valued as part of the opportunity costs of FLR. Underestimation of the benefits of a restoration intervention can discourage investment in FLR.

BOX 2

Four returns from landscape restoration

Commonland (www.commonland.com) – an organization with a mission to create an investable large-scale landscape restoration industry – has developed a concept of four returns from landscape restoration as a marketing tool to attract investment in FLR:

- return of natural capital: fertile soils, carbon storage, water;
- return of social capital: jobs, income, cohesion and engagement;
- return of financial capital: financial performance;
- return of inspiration: beauty, innovation, purpose.

Promotion of these four returns as the foundation for a sustainable business model helps Commonland involve investors, companies and entrepreneurs in long-term restoration partnerships with farmers and land-users.

Source: Ferwerda, 2015

BOX 3

Example of FLR benefits provided by the United States of America's Collaborative Forest Landscape Restoration Program

Socio-economic benefits

- Created and maintained 1 550 jobs
- Produced 107 million board feet of timber (~252 500 m^3)
- Generated nearly USD 59 million of labour income
- Removed fuel for destructive mega-fires on 90 000 acres (36 400 ha) near communities

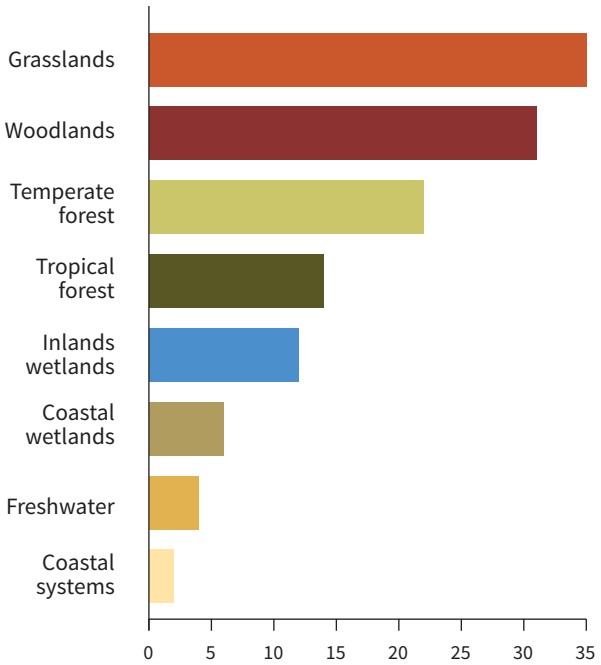
Environmental benefits

- Reduced mega-fire on an additional 64 000 acres (25 900 ha)
- Improved 66 000 acres (26 700 ha) of wildlife habitat
- Restored 28 miles (45 km) of fish habitat
- Enhanced clean water supplies by remediating 163 miles (262 km) of eroding roads

Source: The Wilderness Society, n.d.

FIGURE 3

Possible benefit-cost ratio of restoring natural ecosystems



Source: De Groot *et al.*, 2013

TABLE 3

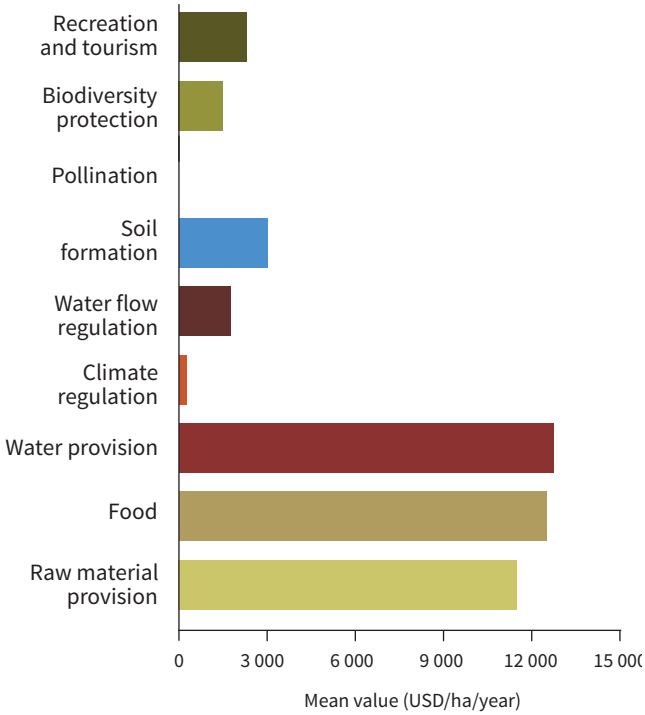
Benefits of FLR investments

Benefits of FLR	Net annual benefits (million USD/year)
Wood products	64 000
Non-wood forest products	8 000
Additional crop yields	6 000
Carbon sequestration	5 000
Cultural benefits	467

Source: Adapted from IUCN, 2012

FIGURE 4

Mean value of drylands



Source: Schild, 2012, cited in Thomas, 2013

Potential FLR benefits in drylands

In drylands in particular, where interventions usually pose more challenges owing to the difficult environmental conditions, significant benefits are to be expected from FLR. Based on mean data for market values (e.g. food, raw materials) and non-market values (e.g. biodiversity, soil formation) of dryland ecosystems, Schild (2012, cited in Thomas, 2013) estimated that their average asset value ranges between USD 1 500 and USD 4 500 per hectare (Figure 4). Some benefits

TABLE 4
Estimated potential annual value of livestock-related and natural products that might be derived from dryland ecosystems in selected east African countries

Country	Livestock (million USD)	Natural products (million USD)	Total (million USD)
Djibouti	40	170	210
Eritrea	600	800	1 400
Ethiopia	3 400	3 400	6 800
Kenya	2 500	3 600	6 100
Somalia	1 900	4 800	6 800
Sudan	5 500	2 000	7 500
Uganda	1 200	500	1 700

Source: IUCN, 2010

such as recreation and tourism could have even higher values through formalization and development of related value chains.

Estimates of the value of livestock and natural products for a set of arid countries in eastern Africa (Table 4) (IUCN, 2010) provide further evidence of the economic importance of dryland goods and services.

Additional benefits of FLR: disaster risk reduction and adaptation to climate change

Other important FLR benefits concern their role in disaster risk reduction and adaptation to climate change. For instance, mangrove restoration can contribute to reducing the impact of tsunamis and create a natural barrier in face of sea level rise due to climate change. In watersheds, forest restoration may contribute to flood prevention and help protect downstream villages and agricultural fields. FLR can thus be considered as a solution for ecosystem-based adaptation in contexts where climate change has adverse effects.

The International Recovery Platform (IRP), in its guidance note on environmental aspects of recovery, provides multiple examples illustrating the importance of protecting and restoring ecosystems as a key for supporting local livelihoods and disaster risk reduction, including the following (IRP, UNISDR and UNDP, 2010):

- Flood prevention benefits provided by wetlands exceed USD 4 million annually in New Zealand.
- The value of mangrove forests for storm protection and flood control in Malaysia has been estimated at USD 300 000 per kilometre, while in Viet Nam, sustainable management of 12 000 ha of mangroves with an annual cost of USD 1 million reduced the costs of dyke maintenance by USD 7.3 million per year and supports the livelihood of 7 750 families.

FAO (2015b) reviewed the critical role of trees and forests in disaster risk reduction and provided additional compelling evidence that FLR activities implemented in this context can generate benefits for local communities.

The Sendai Framework for Disaster Risk Reduction 2015–2030 (UNISDR, 2015) provides guidance to countries on how to design disaster risk reduction strategies, including FLR options.

FLR: a key for an inclusive green economy

Beyond all goods and services provided by FLR, it is critical to acknowledge its triple-win orientation towards economic, environmental and social gains (see example in Box 4). While the green benefits have been described, the inclusiveness of FLR relies in large part on the number of jobs it can generate. An analysis by FAO (2009) highlighted than an investment of

BOX 4
Forest regeneration as contribution to a green economy in the Niger

In the southern part of the Niger, farmer-managed natural regeneration – a practice involving letting native trees and shrubs regrow from underground root systems that survived earlier cutting – and planting of new trees amid crop fields helped stave off the desertification that threatened the area from the late 1960s through the 1980s. Since 1985, more than a million rural households have protected and managed trees across approximately 5 million hectares, increasing their food security and the amount and diversity of household incomes. In many cases, cereal yields per hectare doubled, bringing greater food security to 2.5 million people. The new trees also buffer climate extremes that can affect crops. Households that adopted farmer-managed natural regeneration were found to have gross per capita income of USD 167, compared to USD 122 for those that did not. Extrapolating across all 5 million hectares in the southern Niger, aggregate income benefits from forest restoration could reach USD 900 million annually.

Source: Steer, 2014

USD 40 billion in the forest sector could generate from 10 to 15 million jobs worldwide.

A recent study in the United States of America provides a high-level accounting of the size and scope of the restoration economy in terms of employment, value added and overall economic output on a national scale. BenDor *et al.* (2015) estimated that the domestic ecological restoration sector directly employed 126 000 workers and generated USD 9.5 billion in economic output (sales) annually, supporting an additional 95 000 jobs and USD 15 billion in economic output through indirect (business-to-business) linkages and increased household spending.

IUCN (2014) has compiled cases studies on restoration and gender to explore how restoration can be advanced by better incorporating women into the process, and to ensure that women and men benefit equally from the restoration of degraded land.

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3

Financing for FLR: an introduction

The Third International Conference on Financing for Development (Addis Ababa, July 2015) highlighted the need to reshape strategies for sustainable development finance. While funding opportunities are many and a lot of capital needs to be invested, the question is rather how to orient investment, design mechanisms and channel funds to specific objectives. In this equation, FLR requires specific attention. Given the many benefits (both goods and services) that FLR provides, more financial resources for FLR need to be mobilized.

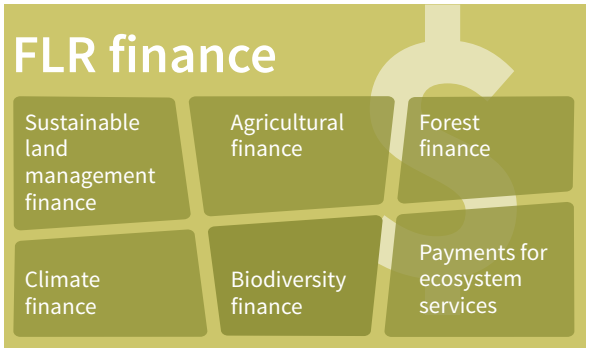
This chapter summarizes the relation between FLR finance and other land-use related finance streams, the specificities of FLR finance, investment steps and types of investors needed for FLR.

Synergies with other land-use and environmental finance streams

The present work highlights financing instruments and mechanisms specifically relevant or adaptable to FLR. The financing stream for FLR could present overlaps with financing streams for other objectives – discussed in other publications and initiatives – e.g. related to forestry, sustainable land management (SLM), biodiversity, agriculture and climate. As mentioned in Chapter 1 in regard to climate change finance, these overlaps represent potential synergies, in that the various finance streams (Figure 5) can be brought together in FLR in a broad, comprehensive framework (Table 5). Based on the definition by GPFLR, the perimeter of FLR finance clearly includes agricultural systems, forest ecosystems and other terrestrial land uses and ecosystems including grasslands, wetlands, steppes and coastal ecosystems (e.g. mangroves); their multifunctionality, i.e. the whole range of goods and services they provide; and populations living in coherence with the landscape.

FLR finance should find its place in the overall environmental finance market.

FIGURE 5
FLR finance: a mosaic of financing streams



Who will pay for FLR?

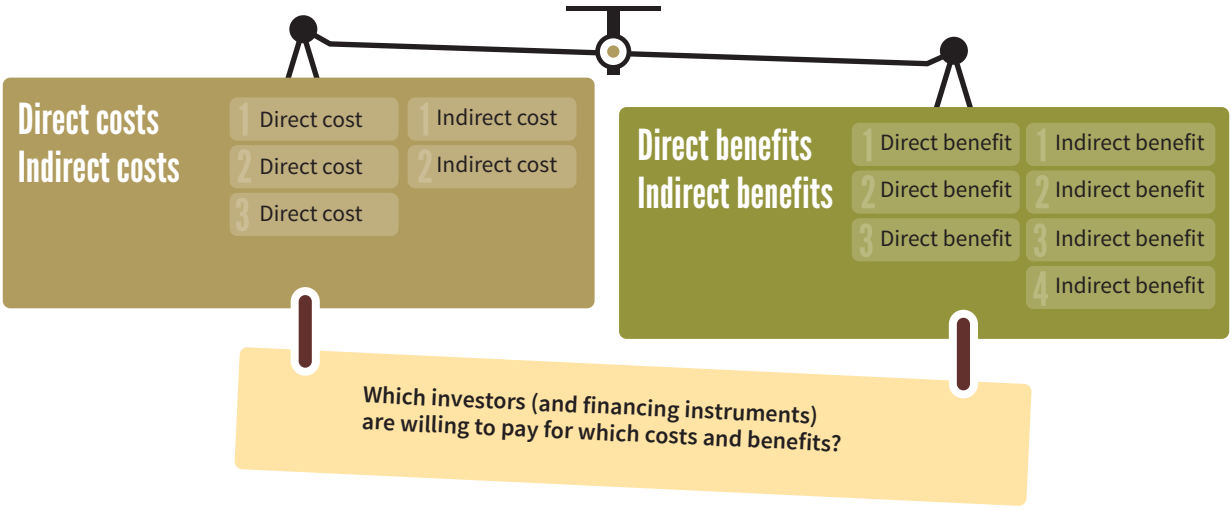
Considering the variety of direct and indirect costs and benefits provided by restoration of mosaic landscapes, a mix of investors and financing instruments will be required for effective FLR. One of the questions addressed by this publication is which investors

TABLE 5
FLR finance versus other land-use and environmental finance streams

Finance stream	Land use	Stakeholders	Benefits
Forestry	Forests	Forest value chain stakeholders	Wood and non-wood forest products Forest ecosystem services
Agriculture	Arable lands	Agricultural value chain stakeholders	Agricultural goods Environmental services from sustainable farming practices
Biodiversity	Protected areas, e.g. natural reserves and national parks	Administration in charge of protected area management and neighbouring population	Natural ecosystem services, in particular global benefits from biodiversity conservation (mostly intangible, option value) Potential benefits from ecotourism
SLM	Arable lands and forests	Wide range of stakeholders from the forest, agriculture and related sectors (water, environment, tourism, economy and trade, land-use planning, etc.)	Forest and agricultural goods and services
Climate	All land-use based sectors	Wide range of stakeholders from the forest, agriculture and related sectors (water, environment, tourism, economy and trade, land-use planning, etc.) concerned with all land uses	Carbon benefits (mitigation) Non-carbon co-benefits (adaptation)
FLR	Coherent combination of terrestrial ecosystems, including forests, arable lands, grasslands, among others	Wide range of stakeholders from the forest, agriculture and related sectors (water, environment, tourism, economy and trade, land-use planning, etc.) concerned with all land uses and related value chains	Larger-scale multiple benefits – wide range of goods and services provided by restored and sustainably managed terrestrial ecosystems

Awareness of both direct and indirect benefits of ecosystems is crucial for successful investment in landscape restoration.

FIGURE 6
Bridging the gap: investors and FLR costs and benefits



(financing instruments) are willing to pay for which costs and benefits (Figure 6). Based on the overview of funding opportunities provided in Part 2 and identification of the indirect and direct costs and benefits of FLR as summarized in Chapter 2, relevant investors and financing instruments can be identified to cover FLR costs and take advantage of FLR benefits.

Productive mosaic landscapes require a mosaic of financing solutions.

Three investment steps

As characterized by Simula (2008), a sustainable investment pattern includes at least three steps:

- initial up-front/readiness investment, covering transaction costs and FLR project design;
- implementation-related investment, covering operational costs for implementation of the project;
- sustained financing, for self-sustaining financing of the project's long-term running costs.

Each step involves different practical measures (Box 5) and potentially different types of investors, donors and financing instruments.

BOX 5

FLR activities covered by the three investment steps

Initial up-front investment/ readiness investment

Analytical work (restoration opportunities assessment, barriers to sustainable forest management [SFM] and sustainable agriculture, market potential for PES, etc.)

Stakeholder participation and engagement

Planning (specific national strategies, e.g. REDD, bioenergy, forest biodiversity, climate-smart agriculture, etc.)

Information base (resource assessment, baselines, reference scenarios)

Monitoring and verification system design

Development of safeguards and SFM guidelines

Initial capacity building

Programme and project design

Assessing application of responsible investment principles

Implementation investment

Implementation of policy reform (including cross-sectoral impacts on forests and landscapes)

Strengthening of institutions

Land-use zoning and planning

Strengthening of land tenure (demarcation, titling)

Strengthening of law enforcement

Restoration of degraded lands and forests

Strengthening of stakeholder constituencies (smallholders, forest communities, civil society, private sector)

Infrastructure development

Scaled-up capacity building

Education, training and extension for smallholders, farmers, communities, small and medium-scale enterprises, forest managers

Research and innovation (silviculture, harvesting, utilization)

Company-community/smallholder partnerships

Implementation of monitoring and verification systems

Sustained financing

Landscape and forest products and services

Agricultural and food products

Timber

Non-wood forest products

Ecotourism

Other services

Payment for ecosystem services (PES) schemes

REDD payments (sink protection)

Sink creation payments (afforestation, reforestation, forest management)

Biodiversity offsets

Landscape offsets

Watershed conservation offsets

Bundled services

Certification schemes (organic agriculture, ethical biotrade, etc.)

Source: Adapted from Simula, 2008

Types of investors and expected returns on investments

Generally speaking, four main categories of investors can be identified, depending on their goals, approaches and expected returns (Dewees *et al.*, 2011) (Table 6):

- **Value or traditional investors that seek a financial return** do not expect to lose the value of their investment over the medium to long term. They usually fall into the "hard investment" category (i.e. the anticipated outcome is a tangible return on the original investment) and could decide to invest in FLR to obtain direct or indirect benefits. For example, they might want to improve their corporate image for marketing purposes, to improve the environment where they work, to meet international commitments on sustainability goals or to earn direct economic benefits from implementing economic activities in the improved landscape.
- **Social investors** have other goals besides earning a return on their investment, whether they expect no return at all or are willing to accept higher risks with lower rates of return. Typically, they want to promote social development in some way or act as pioneer investors in the hope of attracting mainstream capital. Social investors attempt to change the circumstances of poor people through their investments, and they understand that markets often fail to deliver outcomes that are either efficient or equitable. Social investors often fall into the "soft investment" category (i.e. their expected outcomes are not measured in cash terms), but they are increasingly seen as part of commercial banks' social venture fund portfolios.

Investors range from social and conservation investors looking primarily for environmental and social returns to traditional investors looking mainly for financial returns.

- **Conservation investors** use their capital to protect or restore a specific landscape, habitat or species. Like social investors, they are less interested in earning a financial return on their investment than traditional investors. They may view environmental degradation as an example of the market's failure to internalize the value of natural capital and ecosystem goods and services, and thus use their capital investment to correct this market distortion. However, some conservation investors may believe that the market has no place in the natural world. They are usually regarded as soft investors, but may be less interested than social investors in paving the way for hard investment.
- **Impact investors** mix the approaches of the previous categories (see Shah, 2011; GIIN, 2015). These investors aims to solve social or environmental challenges while generating financial profit. Impact investments may range from producing a return of principal capital (capital preservation) to offering market-rate or even market-beating financial returns. Although impact investing could be categorized as a type of "socially responsible" investing, it contrasts with negative screening, which focuses primarily on avoiding investments in companies that cause harm. Impact investors actively seek to place capital in businesses and funds that can harness the positive power of enterprise.

Investors' approaches to impact measurement will vary based on their objectives and capacities; the choice of what to measure usually reflects investor goals and intentions.

Types of capital

FLR finance relies on a variety of assets, capital types and economic instruments (Table 7). Equities, for example, are useful for investing in value-chain champions requiring capital. Equities differ from loans mainly in the level of risk accepted by investors; because they allow for entrepreneurial risk they are highly relevant in the agriculture sector, given its market volatility. Bonds may be issued to raise a large amount of capital to invest in large-scale integrated FLR projects. Payment for ecosystem services (PES) schemes, public subsidies and compensation payments can provide incentives for transformational change of FLR stakeholders, contributing to building an enabling environment for FLR. Guarantees cover investors' risks, thus catalysing investments in more ambitious projects. In many situations, a mix of asset categories will be required to finance FLR projects through effective implementation and long-term impacts.

The three steps of FLR investment require different forms of assets, capital and economic instruments.

TABLE 6
Investor types

Type of investor/ investment model	Example
VALUE INVESTORS	
Debt, bonds and securities	Banks (domestic and international) Pension funds Sovereign wealth funds
Equity in commercial enterprises	Foundation and endowment funds Equity funds (retail or private) Socially responsible investors Venture capital for sustainability Sovereign wealth funds High-net-worth individuals Local entrepreneurs Returning émigrés
Co-investment	Multilateral investment institutions (e.g. International Finance Corporation, Global Environment Facility)
Carbon REDD+	Multilateral financial institutions (e.g. Forest Carbon Partnership Facility) Carbon offset funds and brokers Socially responsible investors High-net-worth individuals Hedge funds
Direct ownership of forests	Real estate investment trusts Timber investment management organizations Carbon offset funds and brokers High-net-worth individuals
Insurance and derivatives	Hedge funds Specialist insurers (e.g. GuarantCo, ForestRe) Multilateral financial institutions (e.g. World Bank Multilateral Investment Guarantee Agency)

Type of investor/ investment model	Example
SOCIAL INVESTORS	
Soft loans, microcredit	NGOs, bilateral and multilateral donors Philanthropists
Grants	NGOs, bilateral and multilateral donors Philanthropists
Equity in commercial enterprises	Foundations and endowment funds Socially responsible investors High-net-worth individuals NGOs, bilateral and multilateral donors
Carbon REDD+	Multilateral financial institutions (e.g. World Bank Forest Investment Programme) Bilateral donors Socially responsible investors High-net-worth individuals
CONSERVATION INVESTORS	
Grants	Conservation NGOs, bilateral and multilateral donors
Equity in commercial enterprises	Foundations and endowment funds Socially responsible investors NGOs, bilateral and multilateral donors Philanthropists
Conservation trust funds	Foundations and endowment funds
Carbon REDD+	Socially responsible investors NGOs, bilateral and multilateral donors Philanthropists

Source: Dewees *et al*., 2011

TABLE 7
Existing assets and economic instruments adapted to FLR

Asset and economic instruments types	Characteristics	Implications	Relevance to FLR	Types of investors
Equity	Share of a given company Gains conditioned over company value growth Dividends received	Shareholder ownership and commitment to success Need for exit strategies	Investment in FLR champions (companies in particular value chains) from the agriculture, forest and agroforestry sectors Relevant for entrepreneurial activities because of higher risk acceptance in comparison to loans (which need guarantees) Particularly relevant in the agriculture sector where markets are volatile	Private equity impact funds Traditional investors (commercial banks, pension funds) Development finance institutions (DFIs) High-net-worth individuals
Loans	Medium to long term Repayment obligation Carry interest	Need for business models with guaranteed returns Strong ownership and management skills required	Provide governments with resources for developing financing mechanisms (e.g. supporting phases of national forest funds) Provide companies and governments with resources for implementing FLR Can be repaid through investment in FLR options based on commodity production Microloans through microfinance to small-scale FLR projects	Traditional investors (commercial banks, pension funds) DFIs National and local banks as intermediaries Microfinance institutions (for small-scale projects)
Bonds	Instrument of indebtedness of the bond issuer to the holder Issuer owes interest to the holder	Attractive for long-term investments Interest must be paid to the bond holder at frequent intervals	Long-term financing opportunity for large-scale projects Refinancing of (running) large-scale projects Adapting green bonds to FLR	Impact funds Traditional investors (commercial banks, pension funds) Governments
Grants	Normally one-time support involving no repayment	Not self-sustaining Limited entrepreneurship/ ownership Can create dependency	Readiness phase of large-scale FLR project preparation Support to small-scale FLR projects Support to least-developed countries	Grant programmes of DFIs Small grant programmes of DFIs State grant programmes NGO-managed grant programmes Private foundations
Subsidies	Selective payments that subsidize particular inputs or practices	Opportunity to support transformational change	Support to agro-environmental measures, supporting functional FLR Incentives to plant forests and manage forests and agrosystems sustainably	States Environmental funds DFI pilot programmes (similar to grants)

Asset and economic instruments types	Characteristics	Implications	Relevance to FLR	Types of investors
Compensation payments/ rewards for ecosystem services	Payments for conservation and management efforts	Can compensate for opportunity costs and loss of income	Can support limitation of economic activities in competition with FLR Provide incentives to conserve FLR perimeters	States Environmental funds Conservation NGOs
Direct payments or incentives for environmental products/ services	Through market transactions for ecosystem services (in some cases serving the same objectives as PES, pro-environment subsidies and compensation payments)	Market-based approach to payments for ecosystem services	REDD+ implementation as an international PES scheme Local PES scheme for forest restoration and sustainable agriculture in the upstream part of watersheds Many PES options to support sustainable long-term transformational change for FLR	States Environmental funds Private companies
Buy-back agreements and outgrower schemes	Binding contracts issued by forest, agroforestry or agriculture companies, guaranteeing viable markets from products	Can stimulate landscape stakeholders to organize Guarantee sales to small producers and cooperatives	Enable small-scale producers to engage more strongly in the landscape vision Enhance interactions among private stakeholders within the value chains	Private companies Governments Private equity impact funds Traditional investors
Guarantees	Cover part of the risk for investors	Mitigate risks for companies along the value chain	Partial risk mitigation in private equity impact funds investing in FLR	Traditional investors DFIs

Source: Adapted from FAO, 2015c

Depending on the investment step (readiness, implementation, sustained financing), different types of assets and economic instruments will be necessary (Figure 7). Grants, for example, are well adapted to finance the readiness phase of FLR projects, including specific feasibility studies, organization of producers and awareness raising activities. Early-stage activities funded by grants and public incentives can help make restoration projects more attractive to other investors.

> ***"Restoration projects often have high up-front costs and long timelines to reach profitability. Using public and/or non-profit finance for the first few years can help them obtain traditional private-sector investment and become competitive on the financial marketplace."***
>
> **–EcoPlanet Bamboo**

A mix of funding sources

In order to design financing strategies for FLR, a mix of funding sources should be addressed, in particular: climate finance, development cooperation, environmental funds, non-governmental funding, national budgets and resources, the private sector and non-traditional funding (e.g. crowdfunding). Figure 8 shows a simplistic breakdown of sources and investors. These are discussed in depth in Part 2.

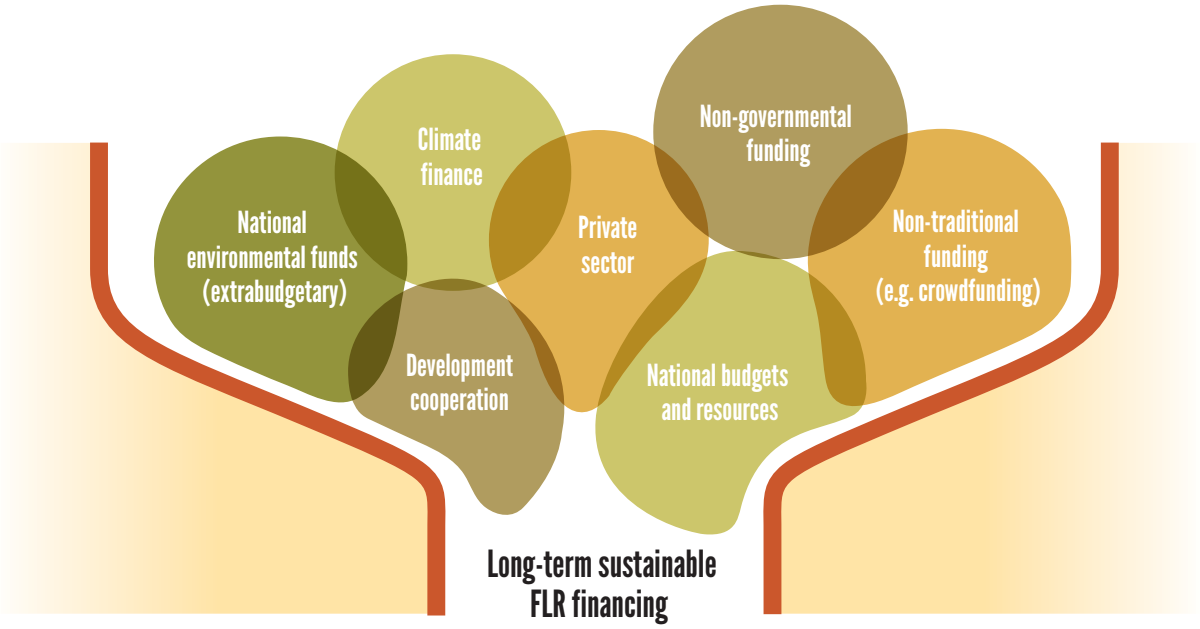
FLR financing strategies could be built on or inspired by approaches for similar activities, such as integrated financing strategies for sustainable land management (GM, 2008); the Country Strategic Investment Frameworks promoted by TerrAfrica (terrafrica.org); or national forest finance strategies (FAO, 2013).

FIGURE 7
Different asset types and economic instruments required for the three steps of FLR investment

Three investment steps	1 Up-front investment = readiness investment	2 Implementation investment/asset investment	3 Self-sustaining financing
Different forms of assets and capital types	Grants, public subsidies, PES schemes, junior shares	Equity (senior shares, notes), bonds, loans, guarantees, buy-back agreements	PES schemes, bonds, buy-back agreements

NOTE: Junior shares, senior shares and notes are subcategories of equities, with different maturity periods and expected returns.

FIGURE 8
Mix of financing sources required for FLR



Like investor goals, *a priori* return expectations from these sources vary, from environmental and social to financial (Figure 9).

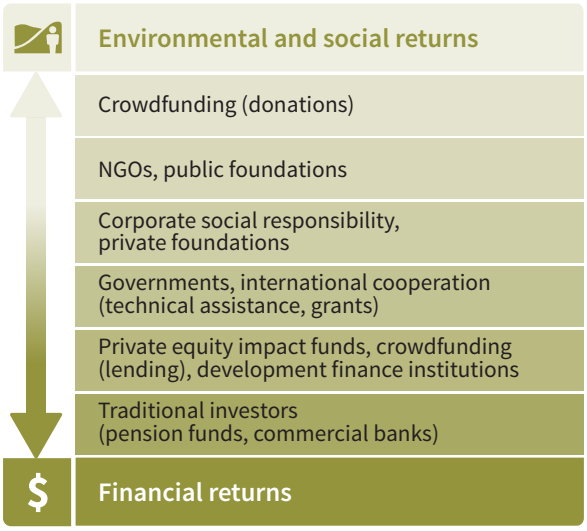
Interconnections among the various financing sources

All of the financing sources discussed in Part 2 interact in the service of FLR finance. Figure 10 shows one example of the complexity of these interactions. The example shown, for finance originating from development cooperation, could be replicated – and would be equally complex – for finance originating from any of the other sources. A fuller matrix of interactions among financing sources is given in Annex 2.

Inclination towards market versus non-market values

In a simplified way, provisioning services can be considered as market values while regulation, habitat and cultural services can be considered as non-market values. In this context, the data of De Groot *et al.*

FIGURE 9
Different investors expect different returns



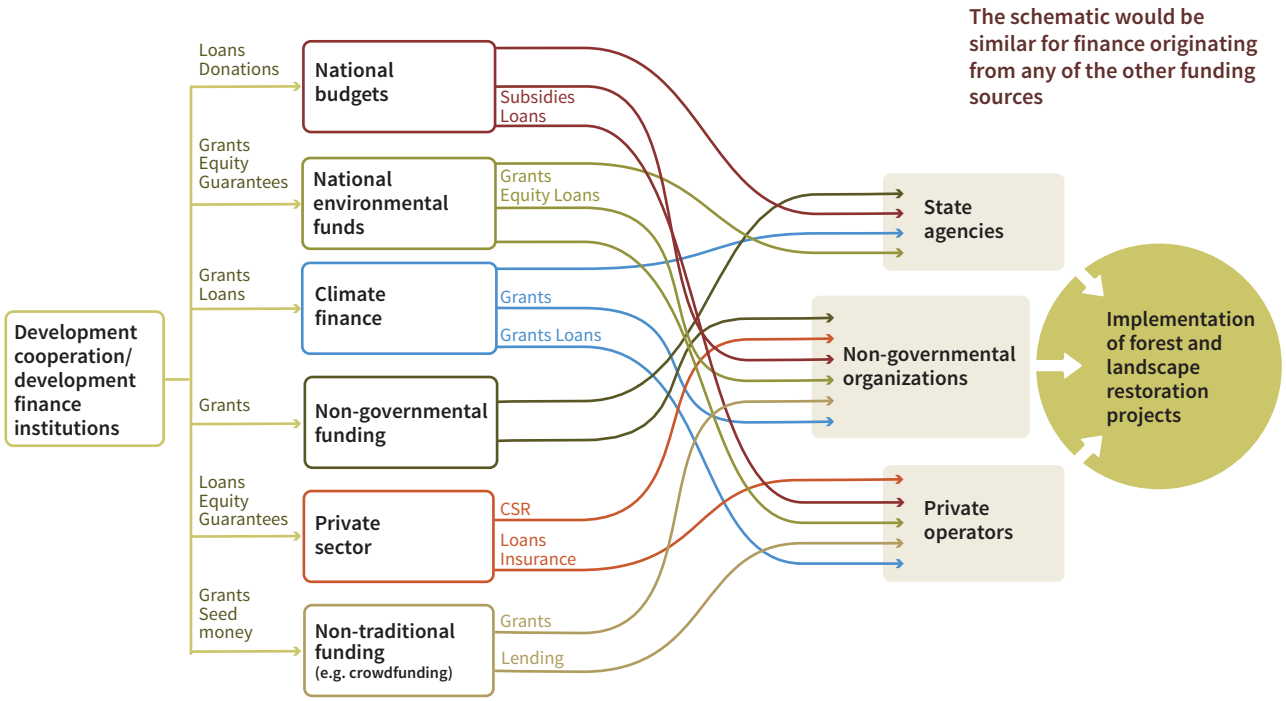
Source: Adapted from Shames, Hill Clarvis and Kissinger, 2014

TABLE 8
Market versus non-market values

Biome	% Market value (provisioning services)	% Non-market value (regulation, habitat and cultural services)
Marine	21	79
Coral reefs	16	84
Coastal wetlands	15	85
Inland wetlands	6	94
Freshwater (rivers /lakes)	45	55
Tropical forest	35	65
Temperate forest	22	78
Woodlands	16	84
Grasslands	45	55

Source: Derived from De Groot, 2012

FIGURE 10
Interconnections among financing sources: the example of finance originating from development cooperation



(2012) show that in all biomes, tradable services (market values) account for a lower share of the total (always less than 50 percent) than non-tradable services (Table 8). Thus, for FLR investment purposes, it is important to combine public sources and philanthropist/impact investors (more inclined to invest in non-market values) with traditional private investors (usually more interested in investing in commodities and value chains). To finance FLR, there is a need to attract more investors with an interest in non-market values, or to create markets for non-market values.

PART 2

Funding sources and instruments for forest and landscape restoration

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4

Climate financing instruments

Multiple climate financing instruments have been established in the context of UNFCCC. Those instruments potentially relevant for supporting FLR initiatives can be classified into three key groups, those based on mitigation, those based on adaptation, and adaptation-based mitigation financing instruments that bridge the gap between adaptation and mitigation. These instruments are summarized in Table 9 and described briefly below.

Mitigation-based financing instruments

Carbon markets potentially of interest for FLR

Compliance markets. The Clean Development Mechanism (CDM) allows projects in developing countries to generate credits that can be used for compliance by Annex 1 Parties towards their emission reduction targets under the Kyoto Protocol. The main limitation of CDM is the high transaction costs, which result in a weak project pipeline. A few FLR-relevant afforestation and reforestation (AR) projects were nonetheless developed under the CDM mechanism, e.g. afforestation on degraded grazing land in Uruguay, a river basin forestry project in Colombia, assisted natural regeneration of degraded lands in Albania and small-scale cooperative afforestation on shifting sand dunes in India, among others (Green Clean Guide, 2011).

Voluntary markets. In the much smaller voluntary market, individuals, companies or governments purchase carbon offsets to mitigate their own greenhouse gas emissions from transportation, electricity use and any other sources. By 2012 forestry and land-use related projects amounted to 32 percent of the volume of voluntary credits sold worldwide (Ecosystem Marketplace and Bloomberg New Energy Finance, 2013).

Voluntary carbon market finance can be used for FLR programmes to promote investments from private companies or individuals that are not subject to mandatory emission reductions and want to offset their own emissions for reasons of ethics (e.g. corporate social and environmental responsibility) or image. Specific rules depend on the type of market:

- On the international voluntary market, the sale of the credits is international in scope (buyers can come from any country and projects can be developed elsewhere than in the buyer's country).
- On the domestic voluntary market (developed, for example, in China, Japan and Switzerland), credits are purchased by national actors, and projects are implemented in the country.
- Bilateral voluntary markets arise from bilateral agreements between an applicant country and a provider country (where emission reduction projects are implemented). Japan has been developing such a market (Bilateral Offset Credit Mechanism).

The Verified Carbon Standard (VCS) (www.v-c-s.org) is the biggest voluntary carbon market operator. Projects from around the world are eligible. Projects in the forest and land-use sector may fall under the following categories: afforestation, reforestation and revegetation (ARR), sustainable agricultural land management (SALM), improved forest management

TABLE 9
Synthesis of climate financing instruments relevant to FLR

Funding source	Examples	Contributions to FLR[a]	Investment type
MITIGATION-BASED OPPORTUNITIES FOR FLR			
Compliance carbon markets	Clean Development Mechanism (CDM)	AR	Result-based payment Mosaic–large scale
Voluntary carbon markets	Verified Carbon Standard (VCS) Gold Standard	ARR, SALM, JNR, WRC	Result-based payment Mosaic–large scale
REDD+ readiness	UN-REDD Programme Forest Carbon Partnership Facility Global Environment Facility Global Environment Facility Climate Change Mitigation Strategy REDD+ Partnership	ARR, SALM, JNR, WRC	Readiness phase Mosaic–large scale
REDD+ at local level	Community-based REDD+ Grants (CBR+)	ARR, SALM, JNR, WRC	Implementation Small scale
Integrated REDD+ financing at landscape level	BioCarbon Fund Initiative for Sustainable Forest Landscapes	ARR, SALM, JNR, WRC	Readiness Implementation Result-based payment Mosaic–large scale
	Governor's Climate and Forest Fund	ARR, JNR	Readiness Implementation
ADAPTATION-BASED OPPORTUNITIES FOR FLR			
International funding mechanisms	Adaptation Fund Special Climate Change Fund GEF Strategy to Combat Land Degradation	WRC, AR, MR	Initial up front Implementation Mosaic–large scale
Ecosystem-based adaptation	International Climate Initiative	WRC, AR, MR	Initial up front Implementation Mosaic–large scale
Local adaptation-based FLR activities	GEF Small Grants Programme for Community-based Adaptation	WRC, AR, MR	Initial up front Implementation Small scale
Local funds	Community Climate Change Adaptation Fund	WRC, AR, MR	Initial up front Implementation Small scale Self-sustaining
INSTRUMENTS BRIDGING ADAPTATION AND MITIGATION			
Green Climate Fund		ARR, SALM, JNR, WRC, MR	Initial up front Implementation Result-based payment Mosaic–large scale
National climate funds		ARR, SALM, JNR, WRC, MR	Initial up front Implementation Mosaic–large scale

[a] AR: afforestation/reforestation; ARR: afforestation, reforestation and revegetation; SALM: sustainable agricultural land management; JNR: jurisdictional and nested REDD+; WRC: wetland restoration and conservation; MR: mangrove restoration

(IFM), reduced emissions from deforestation and forest degradation (REDD), avoided conversion of grasslands and shrublands (ACoGS), wetlands restoration and conservation (WRC) or jurisdictional and nested REDD+ (JNR). The Kenya Sustainable Agricultural Land Management Project (2010–2015) was the first agricultural land management project to issue carbon credits (World Bank, 2014).

Under the Gold Standard (www.goldstandard.org/luf), projects in the forest and land-use sector may fall under these categories: afforestation/reforestation, improved forest management and climate-smart agriculture.

The Climate, Community and Biodiversity Standards of the Climate, Community and Biodiversity Alliance (CCBA) try to identify projects that deliver net positive benefits for climate change mitigation for both local communities and biodiversity. This certification works in combination with other standards (for carbon only) such as VCS. CCBA is an important player for the landscape approach. By looking not only at carbon, but also at a range of co-benefits, CCBA fits well with the multi-benefit approach of FLR projects.

Other examples of voluntary carbon markets are given in Box 6.

BOX 6

Examples of national or subnational voluntary carbon markets relevant for FLR

The **American Carbon Registry (ACR)** in the United States of America operates both in the voluntary carbon market and in California's cap-and-trade programme. Projects from around the world are eligible. Projects in the forest and land-use sector may fall under improved forest management (national forest only), afforestation and reforestation of degraded lands or REDD.

The **Climate Action Reserve (CAR)** is a voluntary carbon market registry that operates in the United States of America and Mexico only. In the forest and land-use sector, projects may fall under reforestation, improved forest management or avoided conversion.

The **Carbon Farming Initiative (CFI)** allows farmers and land managers in Australia to earn carbon credits by storing carbon or reducing greenhouse gas emissions. In the forest and land-use sector, projects may cover reforestation and afforestation, regeneration of a permanent even-aged native forest, native forest from managed regrowth, native forest protection (avoided deforestation), permanent environmental plantings of native species, permanent plantings of native mallee eucalyptus species or reduction of greenhouse gas emissions through early dry season savannah burning.

REDD+

Under the Kyoto Protocol, Reducing Emissions from Deforestation and Forest Degradation (including the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries) (REDD+) is organized, like Land Use, Land-Use Change and Forestry (LULUCF), around the concept of activities that contribute to reducing emissions and/or increasing removals in the forest sector. It is a voluntary scheme and is focused on activities in developing countries only. The Cancun Agreements (UNFCCC Decision 1/CP.16) identified five activities that contribute to this objective:

- reducing emissions from deforestation;
- reducing emissions from forest degradation;
- conservation of forest carbon stocks;
- sustainable management of forests;
- enhancement of forest carbon stocks.

REDD+ is supposed to be results driven, meaning that a country implementing REDD+ should be able to demonstrate by how much it has reduced its emissions compared to an expected path of emissions. Because of the complexity of measuring these results, it was further determined that these activities are to be implemented in three main phases:

- a readiness phase focused on development of national or subnational strategies or action plans, policies, measures and capacity building;
- implementation of national policies and measures and national strategies or action plans, and results-based demonstration activities;
- results-based actions that should be fully measured, reported and verified.

Any non-Annex 1 country may choose to engage in any subset of the five REDD+ activities, at any point in time and at the phase that best corresponds to the level of knowledge of the sector. Results are measured by comparing reported emissions and removals with a reference level – an accounting approach similar to the one used for Forest Management under the Kyoto Protocol.

REDD+ financing opportunities to support readiness phase with synergies for FLR. The United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD), launched in 2008, is a collaborative initiative that builds on the technical expertise of FAO, the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) to support countries' national REDD+ strategies. As of 2015, countries have

committed USD 256 million to this programme and the participating organizations have disbursed USD 164 million (UNDP, 2015).

The Forest Carbon Partnership Facility (www.forestcarbonpartnership.org) is a global partnership of governments, businesses, civil society and indigenous peoples with the World Bank as trustee and secretariat. It has both a Readiness Fund, which supports tropical and subtropical developing countries' preparations to participate in a future large-scale system of positive REDD+ incentives, and a Carbon Fund, which will pilot incentive payments for REDD+ policies and measures in approximately five developing countries.

The Global Environment Facility (GEF) – which has contributed over USD 1.6 billion to forest conservation and management projects and initiatives since 1991 – strengthened its commitment to REDD+ financing for the period 2010–2014. Under Objective 5 of the GEF Climate Change Mitigation Strategy, USD 50 million (in addition to USD 100 million contributed to sustainable forest management [SFM]) have been allocated to "promote conservation and enhancement of carbon stocks through sustainable management of land use, land-use change, and forestry" (GEF, n.d.).

The REDD+ Partnership serves as an interim platform to scale up actions and finance for REDD+ initiatives in developing countries.

REDD+ at the local level. In April 2015 UN-REDD and the GEF Small Grants Programme launched the Community-Based REDD+ (CBR+) programme, which provides grants of up to USD 50 000 to support REDD+ at the local level. The grants are meant to be used by communities to address drivers of deforestation, build capacity for local participation in REDD+ processes and improve land and use rights, benefit sharing and the application of safeguards. In the pilot phase (to 2017), CBR+ is being implemented in Cambodia, Democratic Republic of the Congo, Nigeria, Panama, Paraguay and Sri Lanka (UN-REDD, 2015).

The Governors' Climate and Forests Fund is a non-profit climate finance facility established as a subnational collaboration between 26 jurisdictions from Brazil, Indonesia, Mexico, Nigeria, Peru, Spain and the United States of America. It supports REDD initiatives that demonstrate realistic pathways to achieving low emission rural development.

Integrated financing approaches at the landscape level. The BioCarbon Fund Initiative for Sustainable Forest Landscapes (www.biocarbonfund-isfl.org) is a multilateral fund, supported by donor governments and managed by the World Bank, which promotes reduced greenhouse gas emissions from the land sector, from deforestation and forest degradation in developing countries and from agriculture, as well as smarter land-use planning, policies and practices. It uses results-based finance to incentivize changes at the landscape level, and seeks to engage the private sector to spur innovation and mobilize the capital needed to scale up successful land-use practices and green supply chains. Projects are under way in Ethiopia and Zambia.

Adaptation-based financing instruments

International funding mechanisms

The Special Climate Change Fund (www.thegef.org/gef/SCCF) supports adaptation and technology

BOX 7

Examples of FLR-relevant operations of the Adaptation Fund

Developing Agro-Pastoral Shade Gardens as an Adaptation Strategy for Poor Rural Communities in Djibouti
Budget: USD 4.6 million
Implementing entity: UNDP
Executing entity: Djibouti Ministry of Environment
Components:
- Sustainable access to secured water resources in the face of climate change
- Shade gardens to support diversified and climate-resilient agro-pastoral production systems
- Access to secured finance for climate-resilient agro-pastoral enterprise development

Climate Change Resilient Production Landscapes and Socio-economic Networks Advanced in Guatemala
Budget: USD 5.4 million
Implementing entity: UNDP
Executing entity: Guatemalan Ministry of Environment and Natural Resources
Components:
- Institutional and policy capacity strengthening for mainstreaming climate change risks into national, departmental and municipal planning, public investment, budgeting and decision-making
- Development and implementation of climate-change-resilient ecosystem management and production practices that reduce the vulnerability of communities
- Increased capacity of community-based associations to reduce risks associated with climate-induced socio-economic and ecosystem losses in target municipalities

transfer in all developing country parties to UNFCCC. GEF is the trustee of the fund. Around USD 202 million have already been spent on adaptation projects.

UNFCCC established the Adaptation Fund to finance adaptation projects and programmes in developing country Parties to the Kyoto Protocol that are particularly vulnerable to the adverse effects of climate change. The fund is financed in part by a share (2 percent of certified emission reductions) of the proceeds from CDM project activities. As of December 2012, around USD 340 million had been allocated to this fund, from which USD 198 million had already been assigned to specific adaptation projects (Box 7).

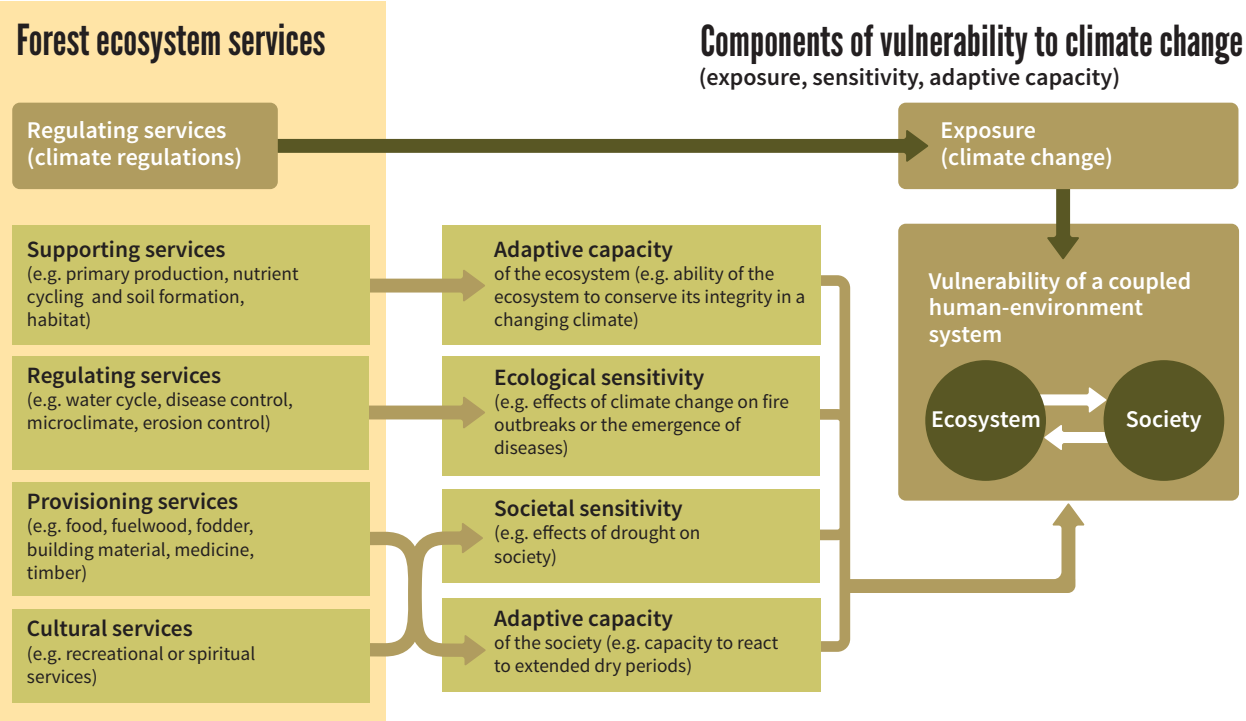
GEF, under its Strategy to Combat Land Degradation, specifically desertification and deforestation, provides funding for emerging issues of SLM in rural production landscapes, such as management of competing land uses and resulting changes to secure ecosystem services; managing the exploitation of natural resources to balance short-term economic gains with the need for ecological and social sustainability; and adaptation to climate change and potential for mitigation through reduced emissions and carbon sequestration.

Ecosystem-based adaptation: an opportunity for FLR

As characterized by IUCN (2009), "Ecosystem-based adaptation integrates the use of biodiversity and ecosystem services into an overall strategy to help people adapt to the adverse impacts of climate change. It includes the sustainable management, conservation and restoration of ecosystems to provide services that help people adapt to both current climate variability, and climate change. Ecosystem-based adaptation contributes to reducing vulnerability and increasing resilience to both climate and non-climate risks and provides multiple benefits to society and the environment." The application of this concept to forest ecosystems is shown in Figure 11.

The International Climate Initiative (IKI) (www.international-climate-initiative.com) – an initiative of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety – makes funds available for implementation of ecosystem-based adaptation, in part through projects testing innovative approaches in forest landscape restoration and developing tools and financing instruments for upscaling them (Box 8).

FIGURE 11
Forest ecosystem-based adaptation



Source: Locatelli *et al.*, 2008b

BOX 8

Ecosystem-based adaptation in mountain ecosystems in Nepal

The first project in Nepal to target ecosystem-based adaptation in the mountains began activities in August 2012 in the Harpan Khola water catchment area in Panchase, Kaski District. Objectives of this IKI flagship ecosystem-based adaptation programme include:

- restoring more than 50 water sources and natural ponds to ensure drinking water supply and irrigation,
- restoring degraded ecosystems on more than 80 ha.

Source: IKI (www.international-climate-initiative.com)

Adaptation-based FLR opportunities at the local level

Several programmes exist for financing adaptation-based FLR projects at the local level. For example, the GEF Small Grants Programme (SGP) delivers funds from other sources to community-based adaptation projects worldwide. An example is the Water Source Protection and Soil Conservation through Reforestation in Batallas project in Bolivia (UNDP, 2012a).

The Community Climate Change Adaptation Fund (CCCAF) in Grenada (with a volume of approximately USD 1.3 million) is another example of an initiative offering small grants to community-based adaptation projects. CCCAF has financed mangrove restoration initiatives, among others (Rothenberger, 2015).

Instruments that bridge the gap between adaptation and mitigation: adaptation-based mitigation

A joint mitigation and adaptation (JMA) mechanism in the forest sector was first proposed by Bolivia in 2012 (Government of Bolivia, 2012). Since then, research organizations and other Parties to UNFCCC have been elaborating on this idea. Windows of opportunity for developing JMA appear clearly in the framework of the Green Climate Fund and in national climate funds.

Green Climate Fund

UNFCCC established the Green Climate Fund (GCF; www.gcfund.org) in 2010 with a view to promote a paradigm shift towards low-emission and climate-resilient development pathways. It provides support to developing countries for both reducing greenhouse gas emissions and adapting to the impacts of climate change. The fund is still being designed, but it may include a specific mitigation and adaptation window. Under the mitigation window, actions on Nationally Appropriate Mitigation Actions (NAMAs) and REDD+ are likely to be eligible.

National climate funds: a tool for mobilizing funds for FLR-relevant adaptation and mitigation projects

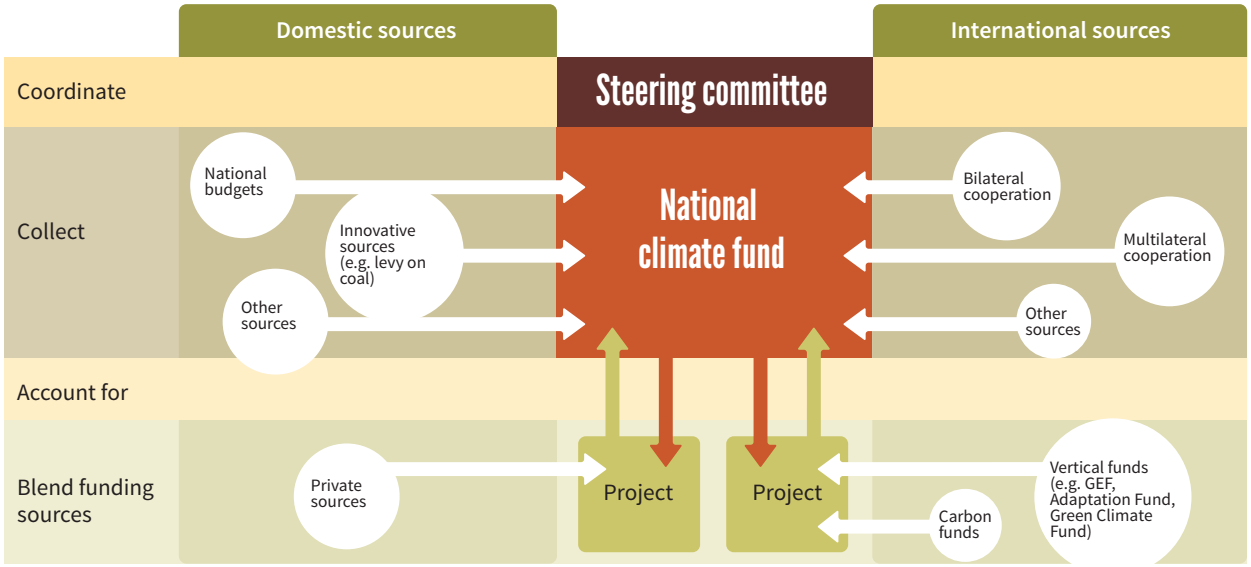
National climate funds are a mechanism for mobilizing funds for FLR addressing both mitigation and adaptation. The schematic view of national climate funds proposed by UNDP (2012b) (Figure 12) highlights the potential for raising a variety of financing sources. Combining adaptation and mitigation funds can then be a positive innovation for FLR.

Towards an optimal use of climate financing instruments for FLR

Climate financing instruments may have a specific added value to foster large-scale management changes in the context of any FLR initiative. Climate finance can be used to:

- provide financial viability to alternative practices (e.g. by replacing harmful practices with climate-friendly ones);
- reduce land cover losses associated with temporary restrictions to current practices (e.g. by excluding grazing until soils or forest densities recover);
- overcome non-financial barriers (e.g. through training and capacity building for national or local stakeholders to cover knowledge and information gaps);
- overcome resistance to innovation (e.g. by providing an incentive to change practices that have been common in a certain place for extensive periods of time);
- finance external and specialized input into the design of better and locally adapted practices (e.g. providing expertise for consistent economic valuation of goods and services or adaptive practices for adaptation of forested landscapes to climate change);
- finance an information and monitoring system for measuring the costs and climate benefits

FIGURE 12
National climate fund model: mobilizing funds for both adaptation and mitigation



Source: UNDP, 2012b

associated with FLR initiatives (e.g. cost-benefit analysis of an FLR initiative in the context of REDD+ or a monitoring, reporting and verification [MRV] system that demonstrates the national- or landscape-level mitigation impact of an FLR initiative, monitors safeguards and measures co-benefits).

As climate finance is currently available in multiple forms and can be mobilized for different purposes (adaptation or mitigation), the use of climate finance instruments in the context of FLR initiatives should be both pragmatic (using existing windows such as adaptation funds and REDD+ initiatives) and proactive (promoting better convergence of those windows for FLR programmes, in particular within new instruments such as the Green Climate Fund) (Box 9).

In FLR initiatives, most of the practices that contribute to climate change mitigation also foster forest and landscape adaptation, with positive impacts on both ecosystems and populations. It is therefore important to understand, for each set of intended practices or actions, which is the best financing instrument to target; it is also important to develop arguments highlighting both carbon and non-carbon benefits, so that the carbon stored or removed through FLR programmes is demonstrated.

Key messages on climate finance instruments and FLR

- FLR contributes significantly to both climate change adaptation and mitigation. FLR is thus eligible for both the mitigation and adaptation windows of climate finance instruments.
- As a cross-sectoral issue, climate change is relevant to the landscape approach, and the climate financing mechanisms can fit with the diverse requirements of vulnerable mosaic landscapes. Some climate financing instruments, such as the BioCarbon Fund, already integrate the landscape approach.
- Many different types of instrument are applicable for the diverse needs of FLR investment: readiness (REDD+ funds); implementation (adaptation funds, result-based payments, mitigation schemes); small-scale projects (CBR+, GEF Small Grants Programme); and mosaic-large-scale projects (BioCarbon Fund, Adaptation Fund).
- Climate finance instruments should assess and recognize non-carbon co-benefits of FLR projects since they can be interpreted as indicators of the landscape approach.

BOX 9

Using climate finance instruments in the context of FLR – pragmatic and proactive approaches

The pragmatic approach: using existing mechanisms

- REDD+ finance can be used to finance capacity building and reward emission reductions in FLR initiatives (non-Annex 1 countries).
- NAMA finance can be used to finance climate mitigation resulting from FLR activities that reduce emissions or increase sequestration in the forest, agriculture and grazing sectors (non-Annex 1 countries).
- Adaptation finance can be used to promote forest and landscape resilience and resistance to climate change (non-Annex 1 countries).
- The Common Agricultural Policy and LIFE Programme finance in the European Union (EU) or other national or regional frameworks such as the EU's Emissions Trading System, the California Cap and Trade System in the United States of America and the Carbon Price Mechanism in Australia (internationally opened) can be used for both mitigation and adaptation (mainly Annex 1 countries).
- Voluntary carbon market finance can also be used for FLR programmes (all countries) to promote investments from private companies or individuals that are not subject to mandatory emission reductions and want to offset their own emissions.

The proactive approach: innovating and adapting existing mechanisms

- In large-scale FLR programmes, attention can be drawn to additional non-carbon co-benefits and the high quality of carbon storage.
- Advocating for a specific window on FLR in new climate financing instruments such as the Green Climate Fund could avoid separation of adaptation and mitigation actions in silos.
- The contributions of FLR measures to adaptation and mitigation should be clearly identified in large-scale programmes and in national FLR strategies, taking into account the wide range of FLR measures and their potential benefits (carbon and non-carbon).
- The cost efficiency and urgency of FLR programmes in comparison with the cost of inaction or of isolated adaptation or mitigation measures should be demonstrated in order to highlight the complex and positive contribution of the forest and land-use sectors and build no-regret adaptation-based mitigation measures.
- The synergistic implementation of the global environmental conventions should be promoted, for example through joint FLR-related targets and indicators as defined by the Sustainable Development Goals (SDGs).

- Approaches for seizing the joint mitigation and adaptation potential of FLR are required. The Green Climate Fund and national climate funds offer opportunities for developing more FLR-relevant adaptation-based mitigation projects.
- Given the large number of concepts and tools in climate finance, there is a need for a common language and an understandable international framework. Without these, farmers, land users, investors, companies and governments will have difficulties in understanding each other and making relevant investment decisions.

5

Development banks and international agencies

Most development banks and key international cooperation agencies (see list in Annex 3) propose similar kinds of financial products and services to their beneficiary partners. They provide low-interest loans (from zero- to low-interest credits) to developing countries and grants to least-developed countries (LDCs) of their respective geographic priority areas. Their projects are sometimes co-financed with local governments, other multilateral or bilateral institutions, commercial banks and private sector investors. The portfolio of projects (including both loans and grants) supported by the main development banks and the international development agencies represents an annual investment of several billion dollars.

Magnitude of potential support to FLR

The development banks and international cooperation agencies publish annual reports on their respective investments, but their sectoral classifications are not harmonized so it is not easy to analyse and compare the investments by sector. Thus it is difficult to identify their respective investment efforts in FLR activities.

A preliminary analysis has been done of investments in land-use sectors based on the most recent reports published by ten development banks and international cooperation agencies with a significant weight within the net official development assistance provided by members of the Organisation for Economic Co-operation and Development (OECD) in 2013. This "top ten" includes the World Bank Group, the European Commission, three regional development banks and five major bilateral development banks/international cooperation agencies, representing a consistent sample of development assistance and a high diversity of geographic areas (Table 10). Together they provide more than 90 percent of global net ODA.

TABLE 10
Rough estimate of official development assistance (ODA) contribution to FLR, based on ODA figures for 2013

Item	Contribution to FLR[a]	
	Million USD	%
Total investments made by "top ten" institutions[b]	140 727	100
Sectors/themes with potential FLR investments (e.g. agriculture, environment, natural resources, biodiversity)	25 486	18.1
Sectors/themes without potential FLR investments (e.g. health, education, public administration, infrastructure)	115 240	81.9
Estimated total budget required to achieve the Bonn Challenge by 2020	359 000	255
Estimated budget required to achieve the target of the New York Declaration on Forests	837 000	594

[a] The estimation has been done only for illustrative purposes and on the basis of an average cost of USD 2 390 per hectare. These amounts are probably underestimated as, for example, the analysis did not take into account the costs of capacity building needs, the high level of degradation in particular landscapes, and the total transaction costs needed to mobilize such a large amount of funds only for FLR activities.

[b] World Bank Group, European Commission, African Development Bank (AfDB), Asian Development Bank (ADB), Latin American Development Bank (CAF), French Development Agency (AFD), United Kingdom's Department for International Development (DFID), Japan International Cooperation Agency (JICA), Germany's KfW Development Bank, United States Agency for International Development (USAID)

Source: OECD, 2014

In order to provide an illustrative estimate of FLR investments (Table 10), it was assumed that most FLR investments are made in the agriculture, rural development, biodiversity and/or environment sectors. This assumption has some limitations, as the World Bank, for instance, integrates "flood protection" under "water and sanitation" and identifies in its classification a category on "public administration, law, and justice" which can include support to a public administration in charge of FLR issues. However, Table 10 can be taken as a rough proxy of the FLR-related investment portfolios of these institutions.

Based on Table 10 it could be argued, for instance, that in order to achieve the Bonn Challenge by 2020 only with resources coming from official development assistance (ODA), it would be necessary to dedicate to FLR more than two years of the total financial resources mobilized via ODA.

A variety of financing tools: loans, grants, guarantees, debt relief

Loans

The development banks and relevant international cooperation agencies usually propose two kinds of loans depending on the destination of the funding: sovereign loans (Box 10) can be allocated to a State or a public entity benefiting from a State guarantee. Non-sovereign loans can be allocated to an actor (business, private or public entity) that does not benefit from a State guarantee. Development finance institutions (DFIs) can also support microfinance schemes.

Grants

DFIs commonly use grants, in particular to LDCs, and have allocated grants for FLR projects (Box 10). Small grants programmes can also support FLR, for example through the GEF Small Grants Programme (www.sgp.undp.org).

Guarantees

Guarantees can be afforded to the private sector. An example of their use in FLR is the guarantee agreement between Ecoplanet Bamboo and the Multilateral Investment Guarantee Agency (MIGA; www.miga.org) of the World Bank Group (see Box 11).

Another guarantee mechanism example is driven by the Latin American Development Bank (CAF; www.caf.com) supporting private capital funds involved in Initiative 20×20.

BOX 10

Examples of loans and grants for FLR: two projects supported by the French Development Agency

Sovereign loan funding: Hunan Sustainable Forestry Management Programme, China

Project objectives

- Promote sustainable forest management practices
- Strengthen local skills and reinforce involvement of the local people to enable them to obtain the environmental, social and economic benefits linked to good forest management
- Investigate the potential for commercialization of forest carbon credits on the domestic and international voluntary markets

Components

- Rehabilitation of 10 100 ha of existing bamboo forests degraded by heavy storms and snowfall at the beginning of 2008
- Plantation of 6 600 ha of resinous and hardwood trees on uncultivated and degraded forest land
- Institutional support and capacity building, e.g. research and demonstration activities, training, seminars

Funding

Sovereign loan of USD 34.3 million provided by the French Development Agency

Grants: Sustainable Management of Badaguichiri Watershed, the Niger, 2009–2014

Main goal

Improve food security and increase revenues of populations through the sustainable management of the natural resources of the watershed

Activities

- Support to land planning and management at the municipal level
- Support to land security and equitable management of natural resources
- Restoration of degraded land (e.g. tree plantation, erosion control, restoration of grazing areas)
- Capacity building for management of water and other natural resources
- High profitability of restoration of degraded land (e.g. 13 to 37 percent for tree plantation, 30 percent for natural resources management)

Funding

Grant of EUR 11 million (~USD 12.5 million) from the French Development Agency

BOX 11

Example of a guarantee mechanism: the Multilateral Investment Guarantee Agency and EcoPlanet Bamboo

In Central America and Southern and West Africa, EcoPlanet Bamboo has undertaken the restoration of degraded land into commercial bamboo plantations using a landscape-scale approach. The projects undergo rigorous certification (Forest Stewardship Council [FSC], Verified Carbon Standard [VCS], Climate Community and Biodiversity Alliance [CCBA]). Projects occur in countries with a high perceived risk from an investment perspective.

The Multilateral Investment Guarantee Agency (MIGA):

- provides a USD 48.8 million guarantee against EcoPlanet Bamboo's current investment in Nicaragua;
- provides a USD 8.6 million guarantee against one of EcoPlanet Bamboo's current investments in South Africa.

The 15-year policy covers the project against political risk including expropriation, war and civil disturbance.

MIGA has showcased EcoPlanet Bamboo's Nicaraguan restoration projects as an example of the private sector having positive impact on the environment every year since 2013.

Debt relief

Examples of debt relief in exchange for investment in FLR have already occurred. In 2007, for instance, the French Government approved a debt conversion of EUR 60 million (~USD 85 million) for sustainable forest management in Gabon for the period 2008–2019. The funds reimbursed by the Government of Gabon are transferred annually to a debt conversion fund managed jointly by the French and Gabonese Governments to support sustainable forest management in Gabon. A joint parity committee was established to approve project proposals from key stakeholders of Gabon's forest sector.

Innovative development cooperation approaches: South–South and triangular cooperation

Bilateral (South–South), trilateral (triangular) and other innovative cooperation programmes enable transfer of experience and knowledge, including expertise in obtaining FLR finance and developing self-sustaining financing mechanisms, as solutions from one developing country context may be adaptable to another (see Box 12). Through the Costa Rica Green Hub initiative, for example, Costa Rica will be able to transfer its long experience in PES (among other SFM topics) to other interested countries (Carazo, 2015).

Measures to promote development cooperation funding for FLR

Development banks and international cooperation agencies could undertake the following measures to increase financing for FLR:

- improving and harmonizing reporting on investments related to FLR in their annual reports to allow for consistent follow-up of FLR efforts in the context of ODA, in line with SDG Target 15.3 on land degradation neutrality;

BOX 12

Triangular cooperation between Costa Rica, Morocco and Germany: Improving the Sustainable Management and Use of Forest, Protected Areas and Watersheds in the Context of Climate Change

Costa Rica, Morocco and Germany signed a Memorandum of Understanding for a triangular cooperation programme (2013–2015) with the following components and expected results:

- Watershed management: To initiate two pilot projects in watershed areas of Costa Rica, based on Moroccan experience
- Forest fire prevention: To consolidate and promote ongoing initiatives for preventing and combating forest fire in Costa Rica, based on Moroccan experience
- Valorization of protected areas: To initiate two pilot projects on valorization of biodiversity in protected areas of Morocco, through sustainable tourism and development of value chains for the socio-economic benefit of the local communities, based on Costa Rican experience
- Payments for Ecosystem Services (PES): To consolidate and promote ongoing initiatives relating to partnerships for forests in Morocco and the development of PES, based on Costa Rican experience

The programme is financed by the German Federal Ministry for Economic Cooperation and Development (BMZ). The German Agency for International Cooperation (GIZ) facilitates the arrangement, ensuring smooth transfer of knowledge and experience.

Source: GIZ, 2014

- increasing FLR investments through all their existing tools and revising their current approaches for risk assessment to take into account the positive benefits of long-term investments in natural capital as a basis for the sustainable development of rural populations;
- developing specific innovative grants for FLR in LDCs as an option for promoting sustainable development and for creating opportunities for joint adaptation and mitigation of climate change and win–win situations for building resilient landscapes;
- developing loans targeting FLR activities in other countries, taking into consideration more holistic approaches for cost-benefit analysis and financial risk assessment that acknowledge the long-term positive impacts of FLR investments on the creation of financial returns and other environmental benefits at the local, national and global levels;
- promoting public–private partnerships within equity or impact funds that can allow the private sector to mitigate the risks of long-term investments and address the high transaction costs of the initial phases of their FLR investments;
- developing eco-labels and certification schemes that would support enabling conditions for responsible investments in land-use sectors and in sustainable management of public goods, at the national and global levels;
- promoting the development of financial instruments at the local level (e.g. local development funds, microfinance instruments, credit lines in local private banks), including positive incentives for local stakeholders to promote sustainable FLR investments;
- supporting the coverage of transaction costs derived from the development of schemes that promote positive incentives for the provision of ecosystem goods and services at the landscape level, to promote the engagement of institutional private investors (e.g. pension funds, banks) in sustainable value chains, particularly in scenarios with higher investment risk;
- investing in the enabling environment for FLR: capacity building, landscape governance reforms, land-use planning, tenure security, FLR-based value-chain development;
- promoting South–South and triangular cooperation to facilitate exchange of good practices in FLR finance.

6

Environmental funds

Environmental funds are diverse instruments, differing in funding sources, objectives, allocation modalities, governance and monitoring approaches, among others. They also have different geographical scope, ranging from the global to the local level. This chapter highlights some of the environmental funds that are relevant to FLR investment. It addresses only those environmental funds that are mainly capitalized through public sources and public–private schemes; environmental funds based purely on private capital are addressed in Chapter 9. Only environmental funds operating as separate institutions with a specific governance and management structure are considered here.

The table in Annex 4 summarizes some FLR-relevant environmental funds with different geographical scopes.

Global scope

Multilateral public funding

The Global Environment Facility (GEF) (www.thegef.org) is administered by the World Bank and is capitalized through a replenishment process with countries that wish to contribute to the GEF Trust Fund. Although FLR is not mentioned explicitly in the three GEF focal areas (land degradation, climate change mitigation, biodiversity conservation), it contributes to their objectives, particularly when multiple focal areas are addressed. FLR is key to the SFM funding window – which aims to achieve multiple environmental benefits from improved management of all types of forests – and corresponds to one of its four objectives, i.e. to restore forest ecosystems (the others are to maintain forest resources, to enhance forest management and to increase regional and global cooperation). The GEF-6 SFM Strategy (GEF, 2014) supports the shift from a single-sector focus towards management across institutional, sectoral and commercial boundaries. A project applying to the SFM funding window can leverage an additional 50 percent beyond allocated GEF funds.

The Green Climate Fund (GCF), mentioned in Chapter 4, is currently in the development phase. It is aimed at financing mitigation and adaptation activities in all sectors, and a significant funding window for the forest and land-use sectors is planned. The initial mitigation and adaptation performance measurement frameworks of the GCF clearly state expected results and indicators related to FLR:

- For mitigation, expected results include "Reduced emissions from land use, deforestation, forest degradation, and through sustainable forest management and conservation and enhancement of forest carbon stocks".
- For adaptation, results include "Improved resilience of ecosystems and ecosystem services" and indicators include "Coverage/scale of ecosystems protected/rehabilitated in response to climate variability and change" and "Value of ecosystem services generated or protected in response to climate change".

GCF will proceed to result-based payments and is thus expected to finance large-scale projects implementing FLR approaches.

Bilateral public funding

The French Facility for Global Environment (FFEM; www.ffem.fr) is capitalized by French public funds and has the same orientations as GEF. In this sense FFEM also offers opportunities for FLR financing. The new FFEM strategy emphasizes support to innovative financing mechanisms for biodiversity. This may open financing opportunities for the "sustained financing" segment of FLR financing needs.

Public–private partnership funding

The Land Degradation Neutrality (LDN) Fund, initiated by the Global Mechanism of the UNCCD, is currently under development and expected to be launched in December 2015. The Fund is "a coordination investment platform established as a Public–private Partnership among private institutional investors, international finance institutions and donors to support the transition to land degradation neutrality through land rehabilitation while generating revenues for investors from sustainable production on rehabilitated land" (GM-UNCCD, 2015).

As the first step of the LDN Fund investment model (Figure 13), the fund will secure for investors the user rights to degraded land through leasing or concession licence. As the second step, the fund will facilitate the rehabilitation of the degraded land and prepare it for sustainable use before, as step three, leasing the upgraded land out for sustainable production or use. After a certain period (five to ten years depending on the financial instrument), the land will be released to the original owner or as a new concession for sustainable land use. Different kinds of capital with different risk profiles can be leveraged, from public institutions (junior equity) to senior impact investors (senior equity) to institutional investors (debt/notes) (Figure 14).

Regional scope

Environmental funds with a regional perspective are key financing tools for supporting regional cooperation processes. Among other financing targets, some of these funds already invest in FLR. For most of the projects with FLR relevance the support can be qualified as up-front investment. The projects are often large in scale, targeting several countries and a significant population. To a smaller extent, some resources are also allocated to implementation of afforestation and reforestation projects.

One example of an environmental fund investing in FLR is the Congo Basin Forest Fund (www.cbf-fund.org). Hosted by the African Development Bank (AfDB), the fund supports the ten member States of the Central African Forests Commission (COMIFAC) in implementing its convergence plan. Several organizations of international and regional cooperation also participate. Key achievements relevant to FLR include:

- over 59 000 ha planted by local communities since 2012;
- REDD+ readiness proposals prepared and validated for Burundi, Chad, Equatorial Guinea, Rwanda and São Tomé and Príncipe;
- over 1 million hectares mapped out with primary use.

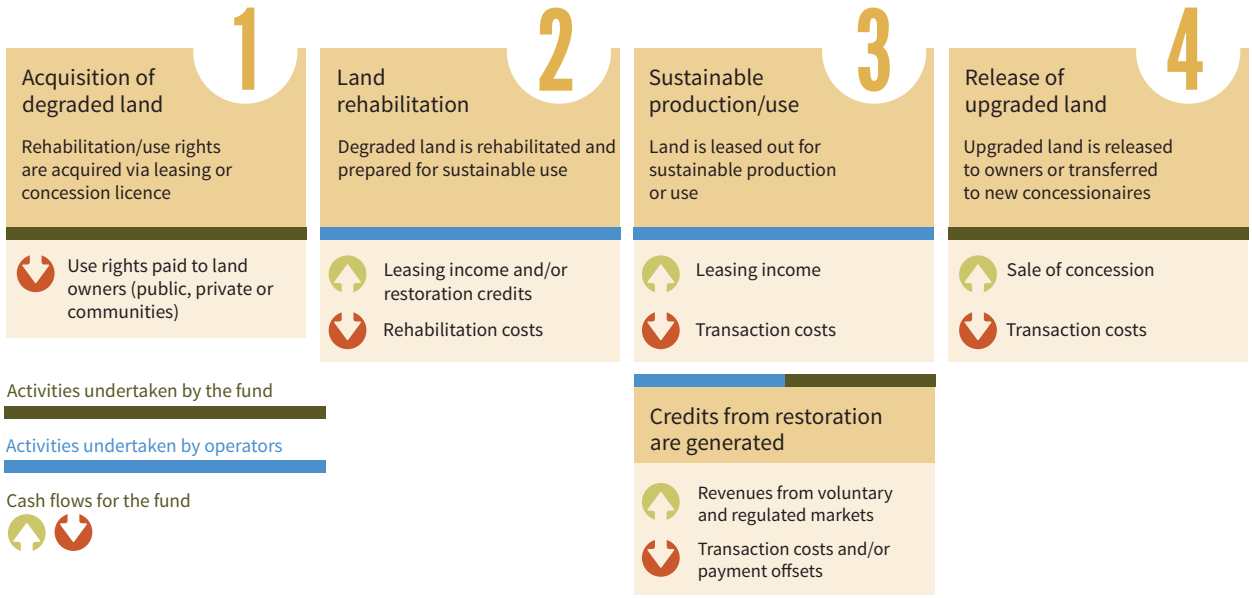
Another example is the Amazon Fund (www.amazonfund.gov.br), which is aimed at raising donations for non-reimbursable investments in efforts to prevent, monitor and combat deforestation as well as to promote the conservation and sustainable use of forests in the Amazon biome. The Amazon Fund is managed by the Brazilian Development Bank (BNDES), which also undertakes to raise funds, facilitate contracts and monitor support projects. Among key FLR investments, the Amazon Fund supports awareness raising activities, territorial and environmental management of indigenous land in the Amazon and rural environmental registration. The support can be qualified as up-front investments relevant to FLR.

National scope

National environmental funds channel funds from various sources to environmental projects. National forest funds (NFFs), for example, make direct investments in FLR projects and programmes possible. A significant literature on how to use NFFs is available (e.g. FAO, 2013, 2015c; FAO and GIZ, 2013). The following are operational examples of NFF investment in FLR.

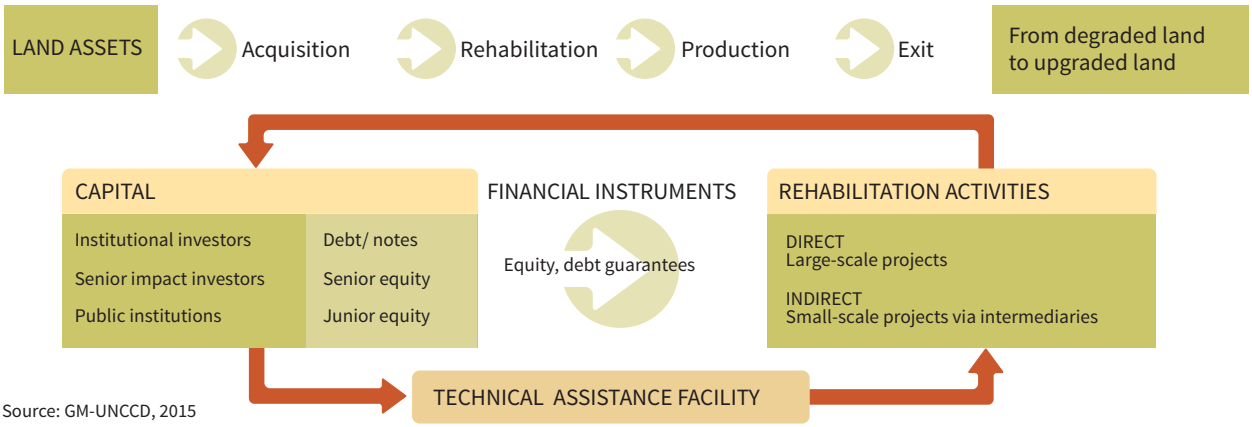
In Costa Rica, the National Forest Financing Fund (FONAFIFO), established under the national forestry law, enables small- and medium-scale landowners to benefit from monetary incentives to conserve and restore forests. Through credits or other promotion mechanisms, FONAFIFO finances the management of forests (with or without human intervention), afforestation and reforestation processes, forest

FIGURE 13
Land Degradation Neutrality Fund investment model



Source: GM-UNCCD, 2015

FIGURE 14
Land Degradation Neutrality Fund structure



Source: GM-UNCCD, 2015

plantations, recovery of denuded areas and technology for the use and industrialization of forest resources. It also procures financing for payment of environmental services provided by forests, forest plantations and other activities necessary to strengthen development of the natural resources sector. Among key contributions to FLR, FONAFIFO invests in afforestation projects and in payment for ecosystem services (PES) schemes enabling the production of multiple benefits (water security, carbon sequestration, biodiversity, landscape values).

In Rwanda, the Environment and Climate Change Fund (FONERWA) is the financing facility for implementation of the national Green Growth and Climate Resilience Strategy, established in 2011 to guide and drive the performance of all sectors of

the Rwandan economy towards a climate-resilient and low-carbon development pathway. The fund is supervised by the Ministry of Natural Resources (MINIRENA), which is in charge of environment and climate change, and funds projects and programmes in both the public and private sectors. FONERWA allocates resources in the agriculture, energy and forestry sectors, among others; this intersectoral approach is particularly well adapted to FLR. Among key contributions to FLR, FONERWA has invested in afforestation in flood-prone zones and ecosystem rehabilitation for climate change resilience.

Local scope

Local environmental funds at the district or provincial level are relevant drivers for targeted investment schemes. For example, in Viet Nam, the Forest Protection and Development Fund (vnff.mard.gov.vn) channels REDD+ financial resources to local forest funds and provincial REDD+ funds, guaranteeing a targeted spending of resources for local landowners and ensuring fair benefit sharing of REDD+ funds.

In the United States of America, the Northern Arizona Forest Fund (NAFF; www.nationalforests.org/azforestfund), developed by the Salt River Project and the National Forest Foundation, provides an easy way for businesses and residents of Arizona to invest in the lands and watersheds they depend on. Its projects reduce wildfire risk, improve streams and wetlands, enhance wildlife habitat, restore native plants, and limit erosion and sediment into streams, rivers and reservoirs. The projects also create jobs and encourage local stewardship.

In British Columbia, Canada, the Columbia Valley Local Conservation Fund, operating in the Regional District of East Kootenay, is funded by local property taxes and invests in a wide range of environmental initiatives, including FLR measures. The fund has financed over 30 stewardship projects including ecosystem restoration, invasive species control, lake management and water quality monitoring. One of the ecosystem restoration projects focuses on restoring open forest and grassland communities in areas of forest ingrowth and encroachment.

In Morocco, the Argan Agency, in partnership with the United Nations Development Programme (UNDP), is conducting feasibility studies for the design and implementation of a regional fund for the regeneration of the argan ecosystem. Foreseen as a PES-like mechanism, this initiative will enable the collection and local redistribution of financial resources to support communities (especially women's cooperatives) in developing the argan value chain.

Key messages on environmental funds and FLR

- Environmental funds are key financing instruments for FLR. They are diverse, with different geographical scopes and investment targets. Their capital can be composed of a wide range of sources (private, public, national, international or any combination of these).
- When investments in several sectors are targeted to support green economy strategies, environmental funds fit well with the landscape approach.
- Environmental funds with global scope operating in the framework of international cooperation (e.g. GEF, FFEM) are particularly appropriate for financing up-front investments (stakeholder consultations, readiness programmes).
- To finance implementation of FLR projects, national and local funds are particularly suitable (e.g. national and local forest funds).
- Innovative public–private models (e.g. the LDN Fund) offer additional sources for financing FLR activities.

7

Non-governmental organizations

Non-State actors constitute key stakeholders for FLR financing. In general, they play a catalytic role in fundraising and also contribute to project implementation in the field, directly supporting tangible impacts of FLR interventions. They vary greatly in objectives, size and geographical scope. This chapter draws attention to the different kinds of non-State actors that can have a significant role in raising and allocating financial resources for FLR. It presents the work and approaches of a non-exhaustive selection of civil society organizations (CSOs) working on FLR financing as illustrative examples. Connections with other funding instruments mentioned in Part 2 are highlighted, and observed challenges are noted.

International civil society organizations

A number of non-governmental organizations (NGOs) involved in resource mobilization for FLR have an international scope. Benefiting from international trust, they partner with a wide range of stakeholders in many different countries. Their strategies for financial resources mobilization follow different approaches.

Independent international institutes

The World Resources Institute (WRI; www.wri.org) aims at developing innovative research and project concepts in all fields of sustainable development. One of the WRI work areas focuses on forests including FLR. WRI's Global Restoration Initiative aims at "inspiring, supporting, and mobilizing action to initiate restoration across 150 million hectares of degraded forests landscapes by 2020 and 350 million hectares by 2030", in line with the targets of the Bonn Challenge and the New York Declaration on Forests.

As part of this initiative WRI undertakes work on regreening, for example by working in partnership with the African Re-Greening Initiatives (africa-regreening.blogspot.fr) to support local partners in developing a strategy for scaling up regreening successes that have already taken place in many parts of Africa (WRI, 2015). WRI is also active in Latin America, being one of the key partners behind Initiative 20×20, which is mobilizing substantial financial resources from national governments, the private sector and a number of partner programmes for the restoration of degraded land using an FLR approach. WRI's Forests and Landscapes in Indonesia project, formerly known as the POTICO project, involves work with all stakeholders in Indonesia's forests to support decisions and management that is profitable and sustainable. In seeking to prevent deforestation by shifting oil-palm plantation to degraded land, the project emphasizes generation and dissemination of data relevant to forest and natural resource governance; interpretation of these data in the Indonesian policy context; working with government and civil society to improve forest monitoring; working with industry to enable sustainable expansion of key commodities; and capacity building to catalyse on-the-ground change.

WRI financing sources are diverse, including a long list of private foundations, governments, international institutions, corporations, individuals and NGOs. Thus, besides knowledge, information and awareness raising activities, WRI may also be an excellent partner for supporting national and local CSOs to raise funds for implementing practical projects on the ground.

International NGOs

International NGOs such as Conservation International (CI), the International Union for the Conservation of Nature (IUCN) and the World Wide Fund for Nature (WWF) (Box 13) – all three GEF implementing agencies – have a strong ability to mobilize financial resources from a wide range of sources. Another good example is The Nature Conservancy and its Collaborative Forest Landscape Restoration Coalition, created to support the United States Department of Agriculture (USDA) Forest Service's Collaborative Forest Landscape Restoration Program (The Nature Conservancy, 2015).

International NGOs can also support the development of self-sustaining financing mechanisms. For instance, WWF delivers assistance for the establishment of conservation trust funds which provide sustainable financing that can be used to fund conservation programme costs through debt swaps, grants, donations or other financing mechanisms such as earmarked taxes and fees. The structure, funding sources and objectives of conservation trust funds are diverse and require adaptation to national and local specificities (CFA, 2008). In the Green Heart of Cork project under its Mediterranean Program, WWF also promotes sustainable forest management through a PES scheme in which the Coca Cola bottling company provides financial incentives to encourage cork oak landholders to obtain FSC certification in areas important for the conservation of water and biodiversity (Bugalho and Silva, 2014).

The Global Conservation Fund operated by CI (www.conservation.org/projects/Pages/global-conservation-fund.aspx) also offers opportunities for financing FLR projects. Since 2001, the fund has supported the protection of more than 80 million hectares around the world, investing USD 66 million and generating more than USD 1 million in wages for local economies (see example in Box 14). Made possible by a grant from the Gordon and Betty Moore Foundation, the fund has catalysed more than USD 200 million for conservation and has developed significant partnerships with corporations and other donors.

NatureVest (www.naturevesttnc.org) is the impact investment unit of The Nature Conservancy. NatureVest's mission is to create and transact investable deals that deliver conservation results and financial returns for investors, based on the conviction that capital markets, businesses and governments must invest in nature as the long-term capital stock of a sustainable, equitable and more efficient economy.

The International Model Forest Network (IMFN; www.imfn.net), financed by the Government of Canada, is another international NGO very much engaged in developing and applying the landscape approach through activities targeting a wide range of sectors and stakeholders. Through local model forest associations, IMFN provides FLR investments for both design and implementation of self-sustaining financing mechanisms, such as PES schemes, including compensation mechanisms and green funds (Table 11).

International foundations

International foundations are valuable partners for mobilizing FLR resources. The Gordon and Betty Moore Foundation (www.moore.org), for instance, invests in REDD+ projects and wildlife conservation programmes, among others. Examples include:

- the Andes-Amazon Initiative, which has helped conserve over 150 million hectares in the Amazon since 2001;

BOX 13

Examples of WWF work on the ground for forest and landscape restoration

WWF–Nokia FLR project in Indonesia

WWF, through its offices in Singapore and Indonesia, has partnered with Nokia and Equinox Publishing to launch a tree planting campaign in Sebangau National Park, Borneo, Indonesia. This innovative initiative, known as NEWtrees, will enable participants to plant trees and monitor their growth through geotags (labelling the trees with precise latitude and longitude coordinates) that are viewable via Google Earth and Yahoo Maps. In the first stage of the project Nokia will support the planting of 100 000 individually geotagged seedlings of jelutung (*Dyera costulata*), a native tree species that is a favourite of the orangutans that live in this habitat.

Reforestation for sustainable fuelwood production in Madagascar

A WWF initiative in Madagascar is replanting 3 000 ha of deforested or degraded areas, mainly near urban settlements, for sustainable fuelwood production to reduce pressure on natural forests. The activities include:

- increasing awareness and knowledge of people at different levels on sustainable use of all types of energy;
- identifying potential zones suitable for reforestation activities to provide fuelwood for cities;
- developing a reforestation plan, together with the State departments involved (Environment, Forests and Tourism, Energy and Mines);
- piloting the training of farmers in tree nursery establishment and maintenance;
- developing and implementing a management plan for the forests involved in the reforestation.

BOX 14

Example of a project funded by Conservation International's Global Conservation Fund

Brazil's Kayapó, Stewards of the Forest

In Brazil, CI has been working with the Kayapó people since 1992 to help them protect their land and cultural traditions by strengthening institutional and surveillance capacities of indigenous associations and providing economic alternatives to logging. To assist the Kayapó in monitoring the borders of their vast territory, CI has supplied boats, radios, flights, fuel, border patrol training and aerial survey data. To help them establish small sustainable businesses and generate income, CI focuses on non-wood forest products such as nuts, copaiba oil, fruit and honey, which are abundant in the Kayapó forests and easily harvested.

- the project Consolidating High Biodiversity Mosaics in the Andean Amazon, launched in January 2015 with the Wildlife Conservation Society for an approximate budget of USD 6 million, which aims at conserving 18.6 million hectares of outstanding biodiversity mosaics in Bolivia, Ecuador and Peru, including 14 individual protected areas and indigenous territories.

Another FLR-relevant international foundation is MAVA (en.mava-foundation.org), which supports a wide range of conservation activities around the world, favouring regional projects and programmes.

While most international foundations still work with a conservation mindset, other initiatives are already putting emphasis on restoration issues. The Ecosystem Return Foundation (www.ecosystemreturn.wordpress.com), for instance, facilitates partnerships for ecosystem restoration among landowners, companies, investors and local organizations; it develops strong messages to contributors based on the returns on different types of capital investment.

National civil society organizations

National CSOs are heavily engaged in FLR initiatives at the national and local levels. Success stories driven by national CSOs highlight their unique ability to mobilize a wide range of stakeholders, to engage local communities and to harness existing capacities for operational FLR implementation. Lessons learned from these experiences deserve special attention, especially those that could be transferred to other contexts or countries.

Some examples of FLR initiatives financed by or through national CSOs are presented in Annex 5.

Sources of financing for local civil society organizations

Local CSOs implementing FLR projects can obtain financing from a variety of grants and funds. An example is the Critical Ecosystem Partnership Fund (CEPF; www.cepf.net), which supports projects for the conservation and sustainable management of vulnerable ecosystems in biodiversity hotspots. The

TABLE 11

Examples of IMFN-supported FLR finance activities in selected model forests

Country	Model forest	Activity	Type of FLR investment
Canada	Fundy Model Forest	Implementation of projects exploring models for compensation for ecological goods and services from private woodlots with various land tenure arrangements Development of models for quantifying and aggregating land bases for the delivery of ecological goods and services	Self-sustaining investment
Chile	Cachapoal Model Forest	Protection of watersheds with native forest cover for improved water quality, maintenance of soil fertility and reduction of soil erosion	Implementation-related investment
Honduras	Atlántida Model Forest	Pilot project establishing a green fund to finance the reforestation and rehabilitation of degraded private lands in the upper reaches of the Tierra Firme watershed	Self-sustaining investment
Thailand	Ngao Model Forest	Sustainable management of wild bamboo forests and production of bamboo products	Implementation investment Valorization of non-wood forest products

Source: www.imfn.net

GEF Small Grants Programme (SGP; sgp.undp.org) also provides opportunities for FLR at the local level (see example in Box 15). SGP grants are limited to USD 50 000 and enable local NGOs to develop pilot projects that can be scaled up later.

Some international development agencies develop tailor-made grant programmes to support local CSOs, sometimes as financing tools for decentralization of large national projects. For instance, in the framework of an FAO project for reforestation in Lebanon carried out in partnership with the Ministry of Environment and the Association for Forests, Development and Conservation (AFDC) (a Lebanese NGO), small grants of USD 40 000 were allocated to local associations, clubs and municipalities to undertake local activities for forest fire protection, forest management and ecotourism.

More small grants programmes are needed, and existing experiences need to be scaled up.

Local initiatives with proper financing mechanisms (e.g. a trust fund) include, in the United States of America, the Grand Canyon Trust

BOX 15

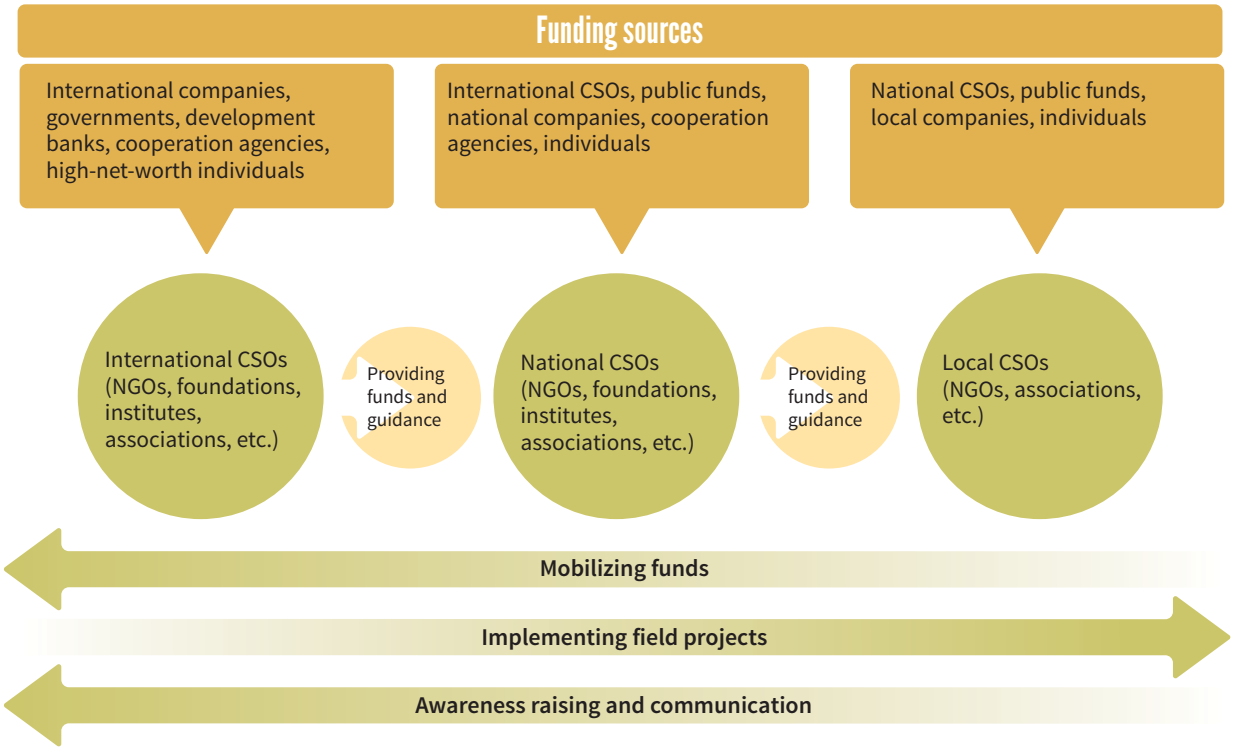
High Atlas Foundation, Morocco: a local project supported by the GEF Small Grants Programme

Starting in 2012, a project supported by the GEF Small Grants Programme (SGP) targeted five rural towns in the centre of the protected area of Toubkal National Park, which has around 20 000 inhabitants. With a grant from SGP, the High Atlas Foundation created a community nursery which in its first two years produced 150 000 tree seedlings. These trees help reverse soil erosion and will absorb an estimated 100 tonnes of carbon dioxide over five years. The project has also achieved organic certification of fruit and trained community members in orchard management and the production of organic walnut and almond products for export, reducing the impact of pesticides and other chemicals often used in agricultural production. This model has empowered women and youth associations, entire villages and towns, helping them with partnership-building along the way. Eventually, the project is intended to create a new revenue stream for community investments in irrigation, clean drinking water, schools and business cooperatives.

Source: SGP, 2013

FIGURE 15

Different uses of financing for fruitful collaboration among the three levels of civil society organizations



(www.grandcanyontrust.org) and the Four Forest Restoration Initiative (www.fs.usda.gov/4fri), part of the national Collaborative Forest Landscape Restoration Program.

Key messages on non-governmental funding and FLR

- All three levels of CSOs (international, national, local) collaborate to make tangible FLR results happen on the ground. While international CSOs seem to be more efficient in terms of outreach and fundraising, national and local NGOs are key for the implementation of projects and programmes (Figure 15).
- International CSOs such as WRI, CI, WWF and IUCN dispose of impressive lists of donors and contributors. Besides producing knowledge and information and raising awareness, they have a key role in partnering with national and local initiatives for practical FLR implementation.
- With demonstrated success is developing partnerships with private companies (e.g. WWF's Green Heart of Cork project with Coca Cola), international CSOs could support national and local CSOs to develop their fundraising skills, enabling more direct impact at the local level.
- National NGOs and foundations have proved their ability to produce tangible impacts and implement field projects, in particular by delegating operations and supervising implementation by local CSOs. The ability of CSOs to work in synergy across levels (international, national and local) is a key success factor for reaching tangible impacts.
- Some CSOs already dispose of their own funding mechanisms for long-term sustained financing, e.g. CI and its Global Conservation Fund.

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8

National budgets and resources

Few countries currently budget explicitly for FLR. This chapter identifies some promising approaches to integrating FLR in national budgeting systems. These include identifying national contributions to FLR, which are not currently assessed in public expenditure reviews, and raising awareness on the contribution of FLR to national economies, which is key to unlocking further expenditures for FLR. Next, the chapter presents elements that contribute to the development of an enabling environment for increased public finance for FLR, specifically the design of environmental fiscal reforms, creation of public incentive schemes and revision of public investment schemes.

Governments have a double role to play for sustainable FLR finance: as promoters of enabling environments and as sources of finance and co-finance to leverage private investments.

In the context of public financing approaches, it is important to consider that some aspects of FLR, especially in the readiness phase of FLR projects, can be achieved through policies that limit further land conversion and promote the use of degraded land. Clear land tenure, benefit sharing, public participation and safeguard policies will facilitate the implementation of such policies and thus make it possible, at low cost, to achieve more impacts in FLR.

Raising awareness of FLR at the national level

Public expenditure review for FLR

Public expenditure reviews (PERs) for FLR do not exist as such. They usually address either the forest and agriculture sectors separately or sustainable land management including forests.

In general, PERs for the forest sector are infrequent, and much more effort is required to assess the financial flows reaching the forest sector at the country level, including flows for FLR. Overall, a review conducted by PROFOR (2011) showed that little work had been undertaken on analysing expenditure in the forest sector (see Box 16). Of the 61 PERs reviewed, only 14 focused to any degree on forests, and 11 of these were carried out under an FAO programme for sustainable forest development where the principal focus of the PERs was on aspects of forest revenue, with only limited analysis of expenditure in the sector (PROFOR, 2011).

Green accounting: integrating FLR in national statistics

Assessing the contribution of FLR to the national economy through its integration in national accounts can drive the awareness of decision-makers (in particular from the Ministry of Finance) about the importance of increasing budgets for FLR. National green accounting practices for FLR do not yet exist, but first attempts have been conducted for the forest sector. Methodological issues have been a barrier

BOX 16

Example of public expenditure review: main findings for the agriculture and forestry sectors in Honduras, 2008

- Honduras has low levels of spending for agriculture and forestry (less than 5 percent of the budget) relative to its economic importance (about 40 percent of GDP).
- Disbursement of the agriculture and forestry budget has been relatively low, averaging about 60 percent since 2000 (sectoral expenditures measured as a percentage of the expenditure levels approved by the National Congress).
- Honduras underinvests in "public good" activities, especially agricultural research and development, phytosanitary services, property rights and land access, rural infrastructure, forestry regulation and protected areas.
- Dependency on external donor funding (in the form of grants and loans) is relatively high, at 50 to 70 percent of the agriculture/forestry budget. There is significant scope to improve the consistency of donor-funded projects to better support the government's sectoral strategies and targets.
- The overall conclusion was that Honduras was at a turning point in formulating, adopting and effectively implementing improved expenditure strategies and programmes for the agriculture and forestry sectors.

Source: Anson and Zegarra, 2008, cited in PROFOR, 2011

for complete integration of both market and non-market forest goods and services (FAO, 1998), but accounting frameworks have improved in recent years (EFIMED, 2013). Simplified approaches based on total economic valuation (TEV) have proved to be efficient for convincing Ministry of Finance stakeholders to increase State budgets allocated to forestry, for example in Tunisia (DGF, FAO and National Forest Programme Facility, 2011).

National and subnational budgets for FLR

At present there are not many examples of States defining budgets for ecosystem restoration.

In the United States of America, the Integrated Resource Restoration budget was introduced in 2011 as a single funding stream to support integrated restoration work. The work is implemented through a single national restoration programme, the Collaborative Forest Landscape Restoration Program (Box 17). The United States Government Accountability Office (GAO, 2015) noted that more information sharing among agencies implicated in landscape restoration could support mainstreaming of restoration good practices and increase efficiency of budget spending.

Canada is investing in habitat and ecosystem restoration through the National Conservation Plan (Government of Canada, 2015), which includes funding over a five-year period (2014–2019) for two restoration initiatives: USD 37 million to restore wetlands and USD 37 million to support voluntary actions to restore and conserve species and their habitats.

The Australian Government spent USD 1 billion to restore 18 million hectares of degraded lands (Menz, Dixon and Hobbs, 2013).

In 2000, Lebanon launched a National Reforestation Plan to restore 18 000 ha of threatened land, allocating some USD 16 million from the State budget for the first five years of implementation (2001–2006), with a long-term vision of attaining 20 percent forest cover over 30 years. The plan achieved, among others, strategic environmental assessment, the development of a framework for reforestation, capacity building for private companies, establishment of a system for monitoring activities and improvements in the choice of reforestation species (Ministry of Agriculture, Lebanon and GM-UNCCD, 2008).

At the district and local levels, decentralized national budgets enable support of local initiatives through grant schemes. For example, the state of Vermont in the United States proposes opportunities for Water Quality Grants as part of its Ecosystem Restoration Program (Watershed Management Division, 2015).

> ***"Local authorities have the role of stimulating and coordinating local answers to global challenges. In many developing countries, a dramatic change in the last 20 years has placed local governments in the driver's seat and made them responsible for defining local policies and actions to better manage local natural resources. But the main issue remains the availability of stable funds to handle those needs. Fiscal decentralization cannot be the only driver for mobilizing additional resources. Global funds, private sector funds and domestic public finance are critical to leverage local potential in a sustainable way in many countries."***
>
> **–Christel Alvergne, United Nations Capital Development Fund**

BOX 17

Integrated Resource Restoration budget in the United States of America

"In the United States of America, the central focus of national forest management today is promoting landscape restoration and ecological resilience. These goals are highlighted in the Forest Service's 2012 land management planning regulations, which emphasize the importance of forest planning for promoting integrated forest restoration, climate resilience, watershed and wildlife protection, and economic opportunities for local communities. Accomplishing this requires institutional and programmatic changes to successfully meet these objectives. Programs such as the Collaborative Forest Landscape Restoration Program, and tools such as the Watershed Condition Framework and stewardship contracting authority, are key components of the Forest Service's strategy for accelerating forest and watershed restoration. They are designed to support integrated restoration work across functional areas. To effectively implement integrated restoration projects, the President's budget proposal for Fiscal Year 2011 introduced the IRR [Integrated Resource Restoration] line item, collapsing multiple line items into a single funding stream to support integrated work across resource areas. For Fiscal Year 2012, Congress approved the IRR budget line item on a pilot basis for three years in several regions of the National Forest System."

Source: USDA, 2014

Budgetary aid

Budgetary aid from international financial cooperation programmes can support developing countries in raising necessary funds for landscape-scale restoration. In this sense the success of Ghana in securing funds from the Forest Investment Program of the Climate Investments Funds is promising (Box 18). Restoration analysis was one of the key success factors in obtaining the budgetary aid. Similar assessments are ongoing in Brazil and Rwanda.

Budgetary aid can also support local initiatives through grant schemes. The EU Sectoral Policy Support Programme for the Forest Sector in Morocco (2015–2018), with a budget of more than USD 30 million, includes a component for allocating grants to civil society organizations developing sustainable forest management projects.

Creating an enabling environment for increased public finance for FLR

Environmental fiscal reforms for FLR

Fiscal policy can sometimes have a negative impact on FLR, for example through harmful subsidies. The Overseas Development Institute (ODI, 2015) has identified 48 different domestic subsidies that support the leading causes of deforestation, e.g. palm oil and timber industries in Indonesia and beef and soy industries in Brazil, by influencing private investment decisions (even if the subsidies sprang from good intentions such as encouraging rural development and assisting smallholders). In such cases, environmental fiscal reforms can drive improved FLR investment. REDD+ funds could be used to guide these reforms. Solutions should be developed to compensate small-scale landowners for potential losses caused by environmental fiscal reforms.

National public incentive schemes for FLR

National public incentive schemes for supporting FLR vary according to the context. The spectrum of initiatives ranges from regulated to voluntary, including mandatory offsets and emissions trading, direct payments for ecosystem services (PES), certification and marketing labels. Table 12 and Box 19 highlight a few examples. Beneficiaries are always local actors, either individuals or associations of land users.

BOX 18

Forest Investment Plan, based on restoration analysis (Ghana)

"The World Bank endorsed Ghana's Forest Investment Plan in November 2012, approving a USD 50 million package that can restore forests, improve the country's water supply, and provide better quality-of-life for communities. An analysis by IUCN, the Centre for Remote Sensing and Geographic Information Services (CERSGIS), WRI and other partners was instrumental in making this breakthrough program come to fruition. The USD 50 million investment will not only make Ghana a pioneer in restoring degraded lands to mitigate climate change, it can significantly improve the lives of the country's rural populations. Restoring landscapes for agriculture, conservation, and other purposes can yield better harvests, improved water supplies, ecosystem services, jobs, among other benefits."

Source: WRI, 2013

TABLE 12
Examples of national public incentive schemes for FLR

Country	Scheme	Contribution to FLR	Beneficiaries	Land tenure	Incentive type
China	Conversion of Croplands to Forests and Grasslands, (Sloping Lands Conversion Programme)	Watershed protection (including reducing flood risks and limiting dam siltation) and forest landscape restoration	Rural landowners	Mixed	Eco-compensation, with a PES-like approach
European Union	Agro-environmental measures from the Common Agricultural Policy (CAP)	Integration of biodiversity and ecosystem services in agricultural practices	Farmers	Private	PES mechanism (direct monetary payment conditional on meeting certain environmental indicators)
Morocco	Compensation mechanism for forest regeneration, based on the Moroccan National Forest Fund	Forest regeneration; opportunities for communities to develop alternative rural development projects	Associations of local land users	Public land with user rights	Direct monetary payment in the association account
Algeria	Proximity Projects for Integrated Rural Development	Development of local projects following an intersectoral and landscape approach	Local landowners, rural actors	Mixed	Direct monetary payment for implementing agreed project measures

Whatever the form of land tenure, legal arrangements can be found to address incentives to actors that drive change.

A significant challenge with incentive initiatives mainly financed by public funds is their long-term sustainability. For instance, the incentives from the EU agro-environmental policy are defined for short-term contracts with landowners, but no long-term financing is planned. Thus, to be sustainable, these approaches should be coupled with productive measures that ensure local landowners a long-term income beyond the contract agreement.

Revising national investment schemes

Following the zero deforestation approach, some governments are now scrutinizing acquisitions made by their sovereign wealth funds to ensure that they do not invest in assets from companies that have negative impact on landscapes. For example, Norway's Government Pension Fund Global (GPFG) – the world's largest sovereign wealth fund – is adopting standards to avoid investing in companies linked to tropical deforestation, sending a strong signal that forest destruction is not an acceptable practice for

BOX 19
An eco-compensation programme in China: Sloping Lands Conversion Programme

China's most successful eco-compensation programme so far has been the Conversion of Croplands to Forests and Grasslands, also known as the Sloping Lands Conversion Programme, implemented after flooding across China in the 1990s displaced millions of people and killed thousands. The aim of the programme was to convert 14.7 million hectares of cropland and a similar amount of wastelands to forests to prevent further siltation of the Yangtze and Yellow Rivers. To achieve this aim, the programme used innovative approaches such as contracting rural landowners as direct stewards of ecological services. By 2003 the programme was being implemented in more than 2 000 counties in 25 provinces, and by 2007 it had afforested over 9 million hectares. In 2011, it was the largest land reforestation programme in the world and was responsible for 47 percent of China's investments in watershed services. The programme helped generate widespread momentum for eco-compensation in China.

Source: Barrett, 2013

responsible businesses (Butler, 2015). Similar initiatives in Denmark, Norway and Sweden concern the decarbonization of pension funds (Bauerova, 2015).

Denmark's Pensionskassernes Administration A/S (PKA) pension fund, one of the largest administration companies for occupational retirement schemes in Denmark, has a policy not to invest in companies that violate the United Nations environmental conventions. Forestry (mainly investment in forest plantations around the world) constitutes a particularly large portion of the fund's total assets, i.e. about USD 600 million of the total USD 23 billion in assets under management (PRI, 2012).

The Swedish National Pension Funds, similarly, are currently reviewing their investment portfolio after a recent external evaluation identified areas for improving the environmental performance of their investments (Fair Trade Center, 2014).

In order to assist developing countries in this regard, the GEF has recently launched a USD 45 million pilot programme called Taking Deforestation out of Commodity Supply Chains (www.thegef.org/gef/IAP-commodities). This programme builds on the significant commitments made by governments, companies and industry groups to scale up the elimination of negative externalities from agricultural production. Working with governments, the private sector, local communities, civil society and consumers, the programme intends to tackle a set of key drivers of deforestation at the national level.

Key messages on state funding and FLR

- Conducting public expenditure reviews for FLR and integrating FLR into national accounting practices may be beneficial to highlight the return on investments of State budgets spent on FLR.
- Integration of ecosystem and landscape restoration in national budgeting systems is an effective tool used by several countries for channelling national financial resources into FLR activities.
- Budgetary aid in developing countries can be a driver to initiate ambitious large-scale landscape restoration policies and programmes.
- Conditions that can help create an enabling environment for increased public finance for FLR include environmental fiscal reforms, the design of national public incentive schemes (including compensation mechanisms and payments for ecosystem services) and the appropriate allocation of State investments (e.g. sovereign wealth funds)

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9

Private sector engagement

The private sector, for example national and multinational companies, already engages in FLR in a number of ways, either with an orientation towards sustainability returns (CSR approaches) or seeking financial returns (traditional investors), or desiring a mix of both (impact investors). The potential to raise finance from the private sector is very great (Credit Suisse, WWF and McKinsey & Company, 2014).

Landscapes and corporate social responsibility: no direct financial returns expected

CSR is a strong driver for FLR finance. As framed by the International Organization for Standardization (ISO) international standard ISO 26000, CSR relies on seven central fields, monitored by 24 indicators. FLR can contribute to five of these fields and seven related indicators (Figure 16).

Several rationales underlie investment in FLR when no direct financial return on investment (ROI) is expected; the following are all related to corporate social responsibility (CSR) schemes:

- green philanthropy and sponsoring,
- insetting: integrating business value chain,
- impact marketing: involving end customers.

While philanthropy and sponsoring have been significant providers of FLR funds so far, the trend for sustainability of financing schemes is likely to entail greater reliance on insetting and impact marketing in the future. The first of these three approaches is embedded in the company's communication department (or a foundation), while the other

FIGURE 16
FLR: relevant to five fields of CSR and seven related indicators

Source: Derived from Doosan Heavy Industries and Construction, 2015

two depend directly on operations and marketing departments and benefit from larger budget allocations. The three strategies offer progressively more potential for resource mobilization as more fields and indicators of CSR are addressed (Figure 17).

Green philanthropy and sponsoring

Stand-alone projects. To build a green image and attract customer segments concerned with environmental and social issues, some companies invest in green projects even if they are decoupled from their core business and value chains. Supporting stand-alone innovative projects is a way for companies to distinguish themselves from competitors. Companies searching for relevant green projects in which to invest may find a good match in FLR. PSA Peugeot Citroen and Nokia, for example, have seized the opportunity to support the development of FLR projects on the ground. In general, companies partner with recognized and trusted NGOs, consulting firms or State institutions in order to guarantee the quality of project results. Such initiatives can support the readiness of companies for forthcoming environmental legislation and related opportunities; for example, PSA Peugeot Citroen has embarked on carbon trading, selling carbon credits produced in its Amazonian carbon sink project with certification by VCS (see Box 20). Investing in innovative FLR projects can also offer companies opportunities to test new technologies, as Nokia has done with the adaptation of geospatial monitoring systems in Indonesia (see Box 13 in Chapter 7).

Other examples of green philanthropy include Volkswagen's Think Blue programme, with FLR-related projects in Mexico, Greece and Spain (http://thinkblue.volkswagen.com/com/en/blue-projects.html) and Citibank's collaboration with WWF to plant cedar forest for leopard habitat in the Russian Federation (Citigroup, 2011).

BOX 20

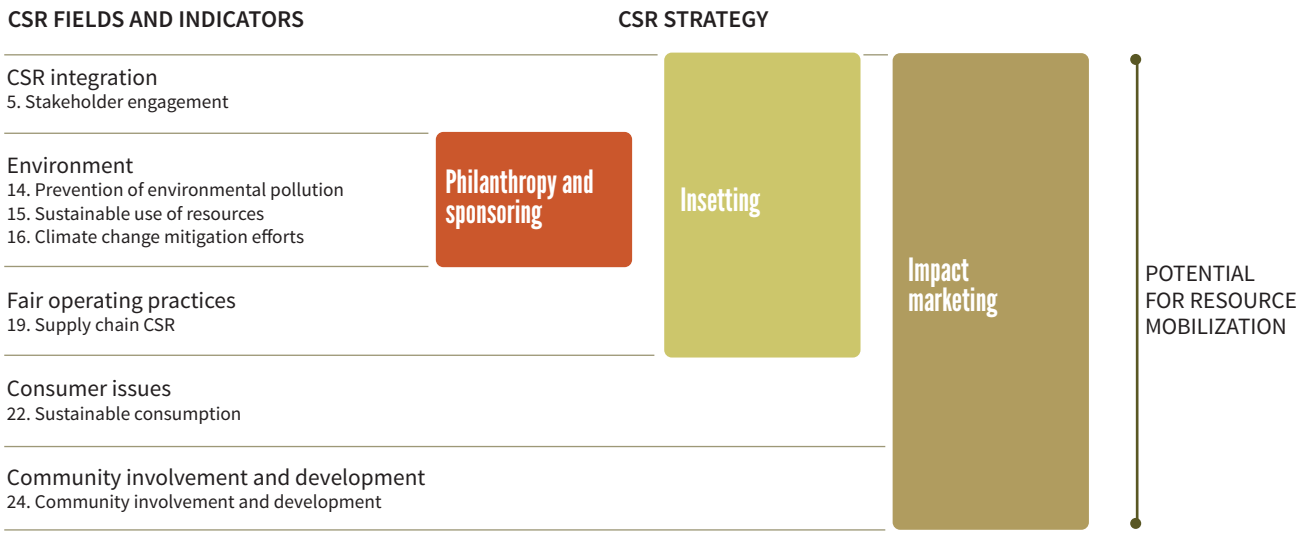
Example of a stand-alone green philanthropy project: PSA Peugeot Citroën's Carbon Sink in the Amazon

The Carbon sink in the Amazon project, organized in cooperation with France's Office National des Forêts (1998–2038) has as its objectives extensive reforestation of degraded land, carbon sequestration and restoration of biodiversity (maintaining native plant species to restore ecosystem balance) in the state of Mato Grosso in Brazil. More than 2 million trees of around 50 species have been reintroduced over some 2 000 ha. In the carbon sink's first ten years it sequestered an estimated 53 000 tonnes of CO_2, or 5.1 tonnes of CO_2 per hectare per year on average

Source: PSA Peugeot Citroën, n.d.

FIGURE 17

Potential for resource mobilization among different types of CSR strategies for support to FLR where no direct financial return is expected



CSR platforms for FLR. Catalytic platforms for mobilizing corporate finance rely on a strong coordination structure aiming at attracting new contributors driven by a common objective, e.g. restoring degraded landscapes. This kind of initiative, not based on a direct financial ROI, attracts in particular companies engaged in CSR that want to create a positive impact on their external environment and related communities. Platforms are managed either by public organizations or social companies. Examples of such initiatives for FLR include the Partnership for Moroccan Forests, managed by the Moroccan forest administration, and Reforest'Action, managed by a social enterprise (Box 21). On a similar model, Mirlo Positive Nature, which aims at reforesting degraded lands in the Canary Islands, Spain, mobilizes responsible companies through a "business club" (mirlo.co/community/club).

Business leagues have a crucial role helping CSR platforms find relevant partners for communication and mainstreaming. The Confederation of Tunisian Citizen Enterprises (CONECT; www.conect.org.tn), for example, is one of the signatories of the Pact for a Green Tunisia, a national CSR platform supporting forestry projects (Box 21).

BOX 21

Some CSR platforms mobilizing support for FLR

Reforest'Action (www.reforestaction.com) marshals companies to support plantations in France, India, Peru and Senegal, or other areas through the programme 1 000 Businesses for 1 Million Trees. Supported projects are overseen over time by specialized organizations. In addition, all the trees planted during the programme are registered in the UN's Plant for the Planet programme.

The Pact for a Green Tunisia, coordinated by the Tunisian forest administration and launched in 2014, is a national CSR platform that acts as a project broker for companies wanting to offer voluntary support for forest-based development. Possible projects to be financed include, among others, reforestation activities, management of protected areas and development of peri-urban forests. The Pact for a Green Tunisia is envisioned as a catalytic platform that will welcome new partners along the way (Ministère de l'Agriculture and Direction Générale des Forêts, 2014).

Insetting: integrating business value chains

Another approach for attracting private companies' financial resources is to make a clear link between the environmental and social impacts of the companies' procurement chain and FLR projects, which is referred to as "insetting". Insetting "is a strategy that enables firms to generate positive climate and social impacts by supporting schemes that benefit the company's stakeholders. Companies may fund projects within their supply chain and offset their carbon footprint within the business ecosystem of suppliers, partners and the local community. For businesses, insetting brings social co-benefits that work to strengthen the long-term business strategy, and helps businesses understand and potentially improve their supply chain, which in turn can generate competitive advantage" (Gutierrez and Keijzer, 2015). Business actors are already active in this field. One example is the Pur Project (www.purprojet.com/en), a social enterprise attracting private companies' donations for forest plantations and restoration relevant to the companies' value chains (Box 22).

Beyond philanthropy, insetting may attract more attention from the core business departments of those companies already involved in FLR. In this case, the participation of the production, operation and logistics departments may guarantee direct interest and benefits for the company's value chain and related stakeholders.

BOX 22

Example of insetting: offsetting carbon emissions through cacao tree plantation in Peru

In 2011 the British retailer Marks & Spencer launched a fair trade organic and carbon-neutral certified chocolate brand, developed in conjunction with the Swiss chocolate-maker Halba, already a producer of carbon-neutral certified chocolates. CO_2 emissions are offset via tree plantation within the Acopagro cocoa producers' cooperative in Peru. Offsetting within the production sector makes it possible to improve farming techniques and therefore cocoa quality, while reducing the environmental impact throughout the supply chain.

Source: www.purprojet.com/en/partners-initiatives

Impact marketing

Impact marketing or so called "cause marketing" addresses Indicator 22 – sustainable consumption – within the CSR field of consumer issues (see Figures 16 and 17 above). In the case of FLR, impact marketing "involves packaging a product or service with a specific

FLR project and consequent impact (e.g. planting trees with the purchase of product items). Trees planted can be shared on social media, boosting visibility and brand awareness, shifting from traditional marketing towards crowd marketing" (Gutierrez and Keijzer, 2015).

Marketing is a priority for companies, and budgets allocated to it are very large; advertisers worldwide were expected to spend USD 545.4 billion on paid media in 2014 and as much as USD 667.7 billion by 2018 (eMarketer, 2014, cited in Gutierrez and Keijzer, 2015). The rationale of impact marketing is to mobilize the marketing department to develop a marketing strategy based on FLR that addresses specific customer segments and contributes overall to an increase in sales. By addressing the end customer directly, impact marketing has a huge outreach and communication potential for raising awareness on a large scale. Box 23 illustrates some examples of companies developing such "impact marketing".

Landscapes for sustainable business: direct financial returns expected

Impact investment for financing large-scale restoration

Private equity impact funds. Private equity impact funds are promising investment vehicles for FLR. They have varying orientations and financial return expectations, but they all integrate strong commitments towards sustainability objectives. While their size is limited (averaging about USD 100 million in general, with a few up to USD 200 million), they represent the first asset investment models for FLR at large scale. Their success is critical for demonstrating the relevance of FLR investments and supporting the future engagement of traditional investors (e.g. commercial banks and pension funds). For the time being most private equity impact funds rely mainly on specific funding sources: development finance institutions (e.g. development banks), private foundations (e.g. Danone, Mars, SAP software) and family offices (e.g. Rothschild, Colruyt).

Private equity impact funds already integrate risk mitigation strategies, for example through the involvement of development finance institutions ready to finance risk guarantee mechanisms. They also provide enabling investments (e.g. Moringa Fund and its Technical Assistance Facility, EcoBusiness Fund and its Development Facility) or establish relevant partnerships (e.g. with NGOs) for raising the necessary funds for the readiness phase.

New fund concepts like the Arbaro Forest Fund (a joint venture between Finance in Motion and Unique Forestry and Land Use) integrate the need to attract a wide range of investors and related risk/return profiles through a multilayered structure allowing the issuance of shares in different categories (Notes, A-share, B-share, C-share).

BOX 23

Impact marketing for FLR – some examples

Tentree: reforestation and ecosystem restoration, worldwide

Tentree (www.tentree.com) sells clothes online and promotes marketing based on forests and trees. The clothes are designed to depict nature and tree-based figures. "Ten trees are planted for every item purchased" is the motto of the brand.

Restoration projects supported by Tentree include operations in Madagascar, "where mangrove forests have been devastated, leaving locals with infertile farm land and completely wiping out thriving ecosystems" and in Ethiopia, "where entire forests have been cut down, which has left the population subject to the effects of flooding, resulting in much of the remaining farmland washing away". About 5 million trees have been planted through Tentree projects.

WeWOOD: "You buy a watch, we plant a tree"

WeWOOD is an Italian company specializing in watches and glasses made from wood. Through partnerships with reforestation initiatives in all continents (http://we-wood.us/pages/reforestation-projects), over 300 000 trees have been planted, with an objective of 1 million trees planted by 2020.

In the United States of America, WeWOOD, American Forests and the United States Forest Service are reforesting 485 acres (196 ha) that were damaged by wildfire in Arizona's Kaibab National Forest with 106 000 Ponderosa pine for wildlife habitat and outdoor recreation.

In Ghana, WeWOOD and Trees for the Future Ghana partnered to help restore the forests in areas that have the highest rate of deforestation and poverty throughout the country. The TREES project works to merge food security and environmental rehabilitation by helping the community adopt and manage sustainable agroforestry systems.

Existing (or in design) private equity impact funds that are involved in FLR are described in more detail in Annex 6.

> *"Building a track record of successful FLR investments is critical to mobilize 'conventional' finance players, such as pension funds and insurance companies."*
>
> **–Clément Chenost, Moringa Partnership**

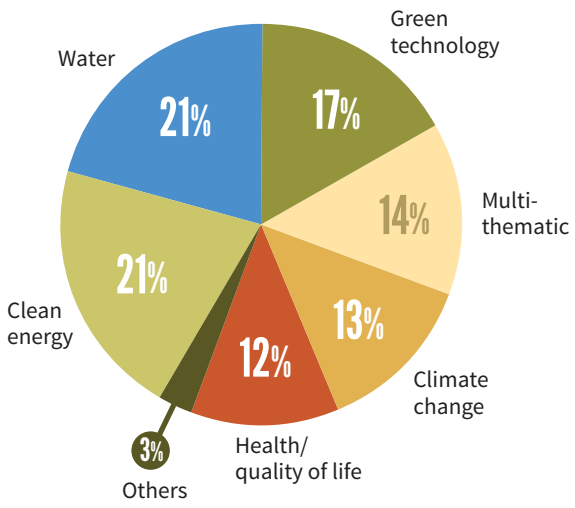
High-net-worth individuals and family offices. High-net-worth individuals (HNWIs) currently have a wide range of impact investment opportunities at their disposal. According to a survey by the European Sustainable Investment Forum (Eurosif, 2012), the allocation of European HNWIs to investment in sustainability increased by 58 percent over the period 2010–2012, rising from EUR 729 billion (~USD 828 billion) to EUR 1.15 trillion (~USD 1.3 trillion). The most popular fields for these investments were clean energy, water and green technology (Figure 18). Since forestry was categorized under "Others" (together with agriculture, infrastructure and commodities), FLR is thus poorly represented in HNWI investment strategies. This tendency could be modified by developing investment products connected to FLR. Most commercial banks have a specific unit for HNWIs, and their investment portfolio could be completed with FLR-related assets. Indeed most sustainability-related fields, such as climate change and water, potentially have a strong connection with FLR.

Because of their high net worth and the way their assets are generated, HNWIs are often considered to have characteristics similar to institutional investors and can be easily connected to private equity impact funds and other traditional investment vehicles.

The BNP Paribas Individual Philanthropy Index indicates that experienced philanthropic HNWIs and family offices expect positive impacts of their investment in a long-term perspective (more than 25 years) (BNP Paribas and Forbes, 2014). The time span of this expectation matches well with FLR horizons.

A promising experience has been the development by Credit Suisse of a financial product targeting HNWIs, the Nature Conservation Notes. These notes made it possible to raise EUR 15 million (~USD 17 million) in ten days with entry tickets starting at EUR 100 000 (~USD 114 000) (Environmental Finance, 2015). The high demand for these notes suggests that it would be possible to target this type of financial product for FLR initiatives.

FIGURE 18
Sustainability-related impact investments by high-net-worth individuals



Source: Eurosif, 2012

Traditional investment for financing large-scale restoration

The financial return of FLR no longer needs to be proved. Agricultural, agroforestry and forest value chains have been shown to be highly profitable. However, traditional investors are still reluctant to engage in FLR at scale; they need more successful business cases and proven risk mitigation mechanisms. With the growing number of private equity impact funds now investing in large-scale FLR projects, it will soon be possible to compile a data bank of good practices in FLR investment, and these cases can provide inspiration for traditional investors.

Among other financing vehicles, traditional investors are studying the relevance of green bonds for restoration objectives. The Climate Bonds Initiative (www.climatebonds.net) and its working group on Agriculture, Forestry, and Other Land Use are pioneering research and development for restoration bonds.

Timber investment management organizations (TIMOs) are traditional investors that have been involved in financing large-scale FLR for years. Indeed, timber has been called "a near perfect asset" (Sturm, n.d.). Having outperformed stocks, bonds and other commodities for the last 30 years, timber is a low-

risk, low-volatility, high-return asset (Willow Rivers Wealth, 2014). A study in the United States of America showed that a diversified timber portfolio returned 13.3 percent annually over 40 years, compared with 11.6 percent for the Standard & Poor's 500 (Hancock Timber Resource Group, 2003). However, the Collaborative Partnership on Forests (CPF, 2012) points out that investments in the forest sector also have high risk due to the long-term time horizon of the investments, the often unclear land tenure and legal frameworks, political instability and risks of natural disasters. A key factor for the high rentability of timber is the increase in global demand for hardwood (multiplied 25 times in the last 40 years) coupled with ever-increasing population growth rates; the increased demand relative to supply is likely to drive timber prices higher in the years to come.

Corporate engagement in value chains

More and more private companies are working to clean their supply chains to prevent negative impacts on forests and landscapes. Sustainable sourcing engagements are crucial to safeguard results and impacts from FLR initiatives and to avoid leakage from harmful practices.

The Consumer Goods Forum (CGF; www.theconsumergoodsforum.com) has resolved to mobilize resources to help achieve zero net deforestation by 2020, both through individual company initiatives and through partnership with governments and NGOs. CGF's objectives include:

- developing specific, time-bound and cost-effective action plans for the different challenges in sustainable sourcing of commodities such as palm oil, soybean, beef, paper and board;
- designing funding mechanisms and other practical schemes that will incentivize and assist forested countries to conserve their natural assets and enable them to achieve zero net deforestation while meeting their goals for economic development.

"Forest and landscape restoration won't happen at scale without mobilization of the private sector. Businesses can contribute by reducing negative local impacts, by improving the sustainability of their value chains – which includes working with suppliers on the ground – and by contributing to the financing of new restoration projects. New policies and regulations will be needed to support and incentivize business engagement in forest and landscape restoration."

–Violaine Berger, WBCSD

Through its "Road to Ankara" road map, the World Business Council for Sustainable Development (WBCSD) aims to mobilize companies to create a business-led global movement towards land degradation neutrality (LDN), which is one of the SDG targets. In particular, WBCSD focuses on the different ways business can contribute to global and national LDN targets as well as on the policy frameworks that can best incentivize businesses to implement sustainable land management and rehabilitate or restore degraded land (WBCSD, 2015). Through its Forest Solutions Group, the WBCSD is also collaborating with The Forests Dialogue to clarify how global deforestation-free commitments translate at the local level (The Forests Dialogue, 2015).

Payments for ecosystem services and restoration bonds

Most companies rely on the sustainable provision of ecosystem goods and services. When resources are scarce and under pressure, incentive schemes may support the protection of the concerned ecosystem services towards long-term provision. The French mineral water enterprise Vittel, for example, provides incentives to farmers in upstream watersheds to adapt their farming practices for cleaner water (Box 24). In Portugal, Coca Cola supports cork oak restoration to preserve water quality and availability in watersheds of interest (Bugalho and Silva, 2014). Hydroelectric companies have also initiated PES schemes to pay upstream farmers for undertaking forest ecosystem restoration to reduce soil erosion.

As PES mechanisms are intersectoral and integrated approaches and are adapted for mobilizing key stakeholders at the landscape level, they could contribute to creating an enabling environment for FLR investments.

Ecological compensation

Ecological compensation represents an opportunity (or obligation when required by law) for companies to compensate their negative impacts on ecosystems. According to the sequence "avoid, reduce, compensate", compensation is the last resort if negative impacts remain after efforts have been made to avoid or reduce them.

Mitigation banks specialize in offering companies compensation solutions. They purchase

BOX 24

Vittel PES scheme, France

The French company Vittel, a mineral water enterprise, signed long-term contract agreements (30 years) to incentivize farmers in upstream watersheds to reduce their use of chemicals for decreased water contamination. The following package of incentives was developed collaboratively with farmers:

- long-term security through 18- or 30-year contracts;
- abolition of debt linked to land acquisition, and land acquired by Vittel left in usufruct for up to 30 years;
- subsidy of, on average, about EUR 200 (~USD 227 000) per hectare per year over five years (exact amount negotiated for each farm), to ensure a guaranteed income during the transition period and reimburse the debt contracted for acquisition of farm equipment before entry into the programme;
- up to EUR 150 000 (~USD 170 000) per farm to cover the cost of all new farm equipment and building modernization;
- free labour to apply compost in farmers' fields, to address the labour bottleneck and ensure optimal amounts are applied on each plot (calculated for each plot for each farm every year);
- free technical assistance, including for the development of annual individual farm plans, and introduction to new social and professional networks – which is particularly important as giving up the intensive agricultural system distances farmers from traditional farming networks and support organizations.

Source: Perot-Maître, 2006

and rehabilitate ecosystems to offer compensation units to offset degraded ecosystems; the equivalence of the rehabilitated ecosystem to the degraded ecosystem must be proved. Examples of operational mitigation banks include the Colbert Cameron Mitigation Bank, one of the pioneer wetland mitigation banks in Florida, United States of America, and CDC Biodiversité (www.cdc-biodiversite.fr) in France. Another interesting concept is the Legal Reserve requirement in Brazil, where landowners have to keep or restore a minimum percentage of their land as forest or pay a compensation fee. This mechanism is at the heart of Brazil's National Policy on the Restoration of Degraded Land (PLANAVEG) (MMA, 2014).

When developed appropriately, compensation mechanisms can be seen as indirect restoration efforts financed by companies. To be considered additional, compensation efforts should correspond to larger surfaces and higher ecosystem quality standards than the ecosystem destroyed.

Green bonds for restoration

Restoration bonds build on the concept of green bonds – innovative financing instruments in which the issuance of the bond is linked to environmentally friendly investments. In the context of financial resource shortage, restoration bonds could provide incentives for small-scale landowners and farmers to restore land on a large scale, e.g. through aggregation practices.

Markets for green bonds are reportedly booming; in 2012 some USD 3 billion of green bonds were sold and it was projected that the market would account for USD 50 billion in investment by the end of 2014 (Ozment, Ranganathan and Reig, 2015). The Landscape Fund being developed under the leadership of CIFOR (Wollenberg, 2014) is one of the first initiatives to build investment vehicles based on restoration bonds.

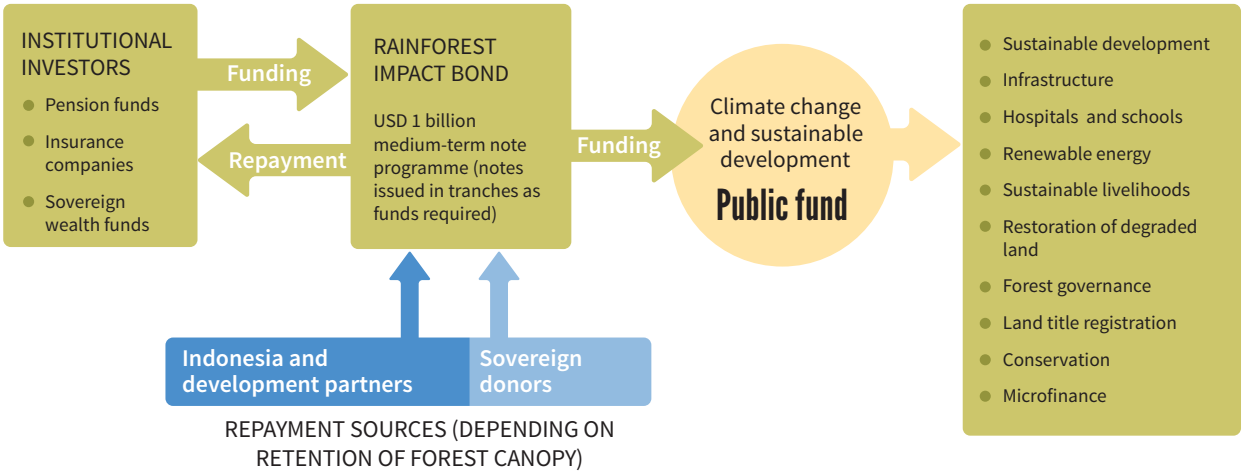
Similarly, at the Tropical Landscapes Summit in April 2015, the investment bank ADM Capital announced a USD 1 billion bond programme to provide needed finance for forest conservation and development. The Rainforest Impact Bond would support a finance mechanism to protect forests, offering investors the means to help countries cut deforestation and reduce global carbon emissions (Figure 19).

Key messages on private sector funding

- Numerous case studies show successful private-sector investment on all continents. Success stories should be shared and replicated among business communities, associations and leagues. Investment strategies are manifold, ranging from those seeking environmental and social impact to those emphasizing financial impact. FLR project portfolios offer diverse opportunities, combining financial benefits as well as a number of social and environmental co-benefits. Thus both traditional and impact investors will find strong incentives to invest in FLR.
- CSR-related corporate engagement for FLR offers abundant potential, with several possible strategies including philanthropy and sponsoring, insetting and impact marketing.
- Impact marketing and insetting strategies should be promoted to maximize resource mobilization for FLR. These approaches directly address the core business of the company and give rise to financial as well as environmental and social improvements along the business value chain and in the operations of related stakeholders.

FIGURE 19

The Rainforest Impact Bond: a possible model for a restoration bond programme



Source: Market Wired, 2015

- Projects supported by single businesses in the framework of CSR are small to medium sized. CSR platforms and social companies amalgamating corporate engagement facilitate large-scale initiatives.
- Several private impact funds for FLR are already operational. These funds attract different kinds of investors, including institutional investors, cooperation agencies, high-net-worth individuals, pension funds and private foundations, among others. Financial returns can be ensured through generation of carbon credits or through a mix of value chain related products and carbon.
- More FLR investment products should be offered to HNWIs, for example by linking existing private funds for FLR with commercial banks that have HNWI units.
- Coverage of risks linked to FLR investments is necessary to attract investors. Partial risk guarantee programmes can be designed for large-scale restoration projects, and insurance/reinsurance companies are called on to design adapted schemes for securing FLR investment patterns in the face of climate change, extreme weather events or other contingency.
- A variety of innovative approaches involving the private sector – such as zero net deforestation initiatives, ecological compensation, payments for ecosystem services and restoration bonds – represent key drivers for FLR.

10

Non-traditional or innovative funding for FLR

Citizen-based initiatives such as crowdfunding platforms are emerging as innovative approaches for funding FLR projects. Catalysed through NGOs or social companies, these initiatives target individuals willing to make a change through relatively small cash contributions. Addressing the bottom of the pyramid through communication campaigns, these financing instruments are excellent vectors for awareness raising among the general public.

This chapter examines how using these increasingly popular platforms can unlock new financing opportunities for FLR.

Crowdfunding for FLR: federating and involving citizens

Crowdfunding is a financing approach based on individual voluntary financial contributions. Funds are raised through the collection of small contributions from the general public (known as the crowd) using the Internet and social media. Web platforms systematize the collection of funds for specific projects and can potentially enable the mobilization of a significant volume of funding in a relatively short period. The communication and diffusion potential of the Internet makes it possible to target a wide audience.

Crowdfunding approaches can have three different models: donations, lending or investment (CMF, 2015). Some examples of the use of crowdfunding in FLR are described below and summarized in Table 13.

Donations

In the donation model, individuals make a financial contribution to a project without any expectation of a financial return on that contribution. Projects and platforms that employ the donation model typically use an incentive system to help stimulate contributions, whereby contributors are thanked for their support with a small reward. Rewards or incentives vary from recognition in the project's credits to branded merchandise or opportunities to meet with creators and/or attend special events such as a launch party or a premiere screening event. Rewards or incentives often increase in number and/or value in accordance with the amount of the contribution given.

A number of crowdfunding platforms targeting micro-donations for FLR are already in place. Examples include:

- Mirlo Positive Nature in Spain (discussed in the context of CSR platforms in Chapter 9);
- the Million Tree Challenge in London, Ontario, Canada (Box 25);
- the USAID-supported Stand for Trees initiative (Box 25);
- Treez, a crowdfunding platform that supports reforestation projects in Brazil, France, Ghana, Peru and Thailand, offering a bracelet as a reward to contributors; its plantation target is to reach 1 million trees in 2017.

Other generalist crowdfunding platforms offer possibilities to register FLR projects. For example, the platform Microprojets.org proposes to support community reforestation and agroforestry projects, among a very intersectoral project portfolio.

TABLE 13
Categorization of existing crowdfunding initiatives for FLR

Model/type	Examples	Legal status	Financial reward	In-kind reward
DONATION				
Specialized platform with multiple projects (multiple geographical focus)	Stand for Trees https://standfortrees.org/en	NGO	No	Stand for Trees Certificate
	Treez www.treez.org	Social company	No	Bracelet
Specialized platform with a single project (single geographical focus)	Mirlo Positive Nature http://mirlo.co	Social company	No	Certificate
	Million Tree Challenge, London, Ontario, Canada www.milliontrees.ca	NGO	No	Certificate and name on Web site
	Plant a tree in Israel (Jewish National Fund) www.jnf.org	State agency	No	Certificate
Generalist platform	Microprojets agency www.microprojets.org	NGO	Fiscal deduction	No
LENDING				
Traditional lending agreement	ForestFinance www.forestfinance.de	Social company	IRR 5–7%	No
INVESTMENT/EQUITY				
No example known				

Lending (debt-based crowdfunding)

This crowdfunding model is similar to any typical lending scenario, where individuals lend money to a project or company with the expectation that it will be repaid. In the context of crowdfunding, the lending model can take a number of forms:

- Traditional lending agreement: Standard terms are used and there is an expectation for a monetary reimbursement in the form of interest. In this case, the loans may or may not be guaranteed, depending on the crowdfunding platform used.
- Forgivable loan: Contributions are reimbursed to the lender only if and when one of two conditions is met: the project begins to generate revenue, or the project begins to make a profit.
- Pre-sales: The finished product is promised in return for the contributor's pledge. Contribution amounts are determined according to an assessment of the fair market value of the product. Larger contributions are typically compensated by more units of the product. Pre-sales are often combined with a rewards-based donation model.

Business models already exist to enable individuals to support specific forestry projects and be rewarded through a financial return on investment. For example, the company Forest Finance operates with a crowdfunding-like model and finances forestry projects all around the world, offering an internal rate of return of between 5 and 7 percent. Investments are generally in productive landscapes; examples of supported projects include acacia reforestation and cocoa plantations.

Investment model

As in a standard equity investment, in this crowdfunding model an individual receives equity in an entity in return for financing. This model has two standard subcategories:

- Securities investment model: Investors buy shares in the entity, i.e. ownership in a parent company or rights in a project.
- Profit or revenue-sharing model: Investors earn a share of the revenue or profits of the project, as opposed to shares in the underlying company. This is also known as a "collective investment scheme".

BOX 25

Examples of crowdfunding initiatives for FLR

The **Million Tree Challenge** in London, Ontario, Canada (known as the "Forest City") is a community-wide initiative to plant 1 million new trees across the city, with the aim of purifying water, cleaning air, stocking carbon, reducing heating and cooling costs, increasing home values and greening downtown and recreation areas. Individuals, organizations and companies are invited to contribute to the challenge either by launching their own plantation campaign or by making a financial contribution on the Web platform to "buy" a given number of trees. The initiative has already raised enough resources to plant more than 250 000 trees.

The **Stand for Trees** initiative uses carbon metrics and the REDD+ approach to propose Stand for Trees Certificates corresponding to 1 tonne of CO_2 each. Certificates are sold to individuals for USD 10, with the slogan, "When you buy a Stand for Trees Certificate, you do a tonne of good". The certificates represent high-quality verified carbon credits and meet the rigorous standards set by the Verified Carbon Standard (VCS) and the Climate Community and Biodiversity Alliance (CCBA). The credits are registered on the world's largest environmental registry services provider, Markit, and meet the peer-reviewed international Code of Conduct of its founding organization, Code REDD. Projects are developed in a variety of locations, including Brazil, Colombia, Indonesia, Zambia and Zimbabwe.

So far, no examples of equity-based crowdfunding have been observed in ecosystem restoration projects, but business models may be developed for this modality in the near future. Pooling of crowdfunding capital for large-scale FLR projects may be feasible and profitable given the internal rate of return that different ecosystem restoration projects could potentially yield in different biomes depending on the specific climatic and biophysical site conditions. Contrary to lending crowdfunding (Futko, 2014), the IRR may not be guaranteed, and the benefit may be granted in the longer term (when values of shares have increased). A possible model of equity-based crowdfunding for large-scale FLR projects may give a coordinating role to a public-owned company with legitimacy for intersectoral land management.

Green bank cards: turning the money saver into a good-doer

Green cards are bank cards serving a sustainable development purpose. Several models exist. For instance, the Costa Rican National Bank has developed a green credit card in partnership with FONAFIFO (reddcr.go.cr/fbs/tarjeta-verde-credito) (Figure 20). On each withdrawal or payment, a fee on the interbank rate is applied (10 percent), feeding into a sustainable biodiversity fund. This system operates both with debit and credit cards. Revenues generated are primarily used for maintaining and valorizing biodiversity assets, especially within the protected areas system of Costa Rica.

In Lebanon, Banque Libano-Française (BLF) launched an ecological bank card, the "Earth Card", in partnership with UNDP in 2011 (http://eblf.com/fr/Les-services-de-cartes-bancaires-Earth-Card). Revenues generated by the Earth Card are invested in worthy environmental projects identified through regular open competitions organized by BLF. FLR projects are eligible. In 2014 the winning project was entitled "Assistance to the community of Baabda affected by the fire" and was proposed by the Association for Forests, Development and Conservation (AFDC), a Lebanese NGO. For the Earth Card initiative BLF received the first National Green Award from the Lebanese Ministry of Environment.

Other examples include WWF credit cards in partnership with the Bank of America, the Bank of Montreal (Canada) and Citibank in India.

FIGURE 20

Green card – feeding the Sustainable Biodiversity Fund in Costa Rica

Key messages on non-traditional funding mechanisms

- Citizen-to-citizen financing approaches need to be developed for FLR. Crowdfunding platforms may be appropriate tools. Beyond enabling the financing of small-scale projects, crowdfunding can play a role in supporting readiness phases in view of larger investments.
- Crowdfunding models based on debts and equity need to be tested and developed where applicable.
- Green business cards have proved to be efficient in raising funds for environmental purposes. Banks are called on to mobilize their customers through such tools and to implement mobilized funds for FLR.

PART 3

Improving investment in forest and landscape restoration

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11

Identification of priority areas for FLR investment

Investments in forests and landscape restoration can be made in a variety of ways, by a variety of actors, in a variety of landscapes and with a variety of purposes. Accordingly, the identification of priority areas for FLR investments will depend on a number of factors including, among others:

- opportunities: where is there ecological need and/or socio-economic demand for FLR interventions?
- type of landscape: where do local opportunities meet investors' scope?
- country and local restoration priorities: where do stakeholders' priorities meet investors' objectives?
- viability of the FLR intervention: what are the potential constraints and drivers of successful FLR implementation?
- risk of the investment: where will investments ensure an acceptable degree of return?

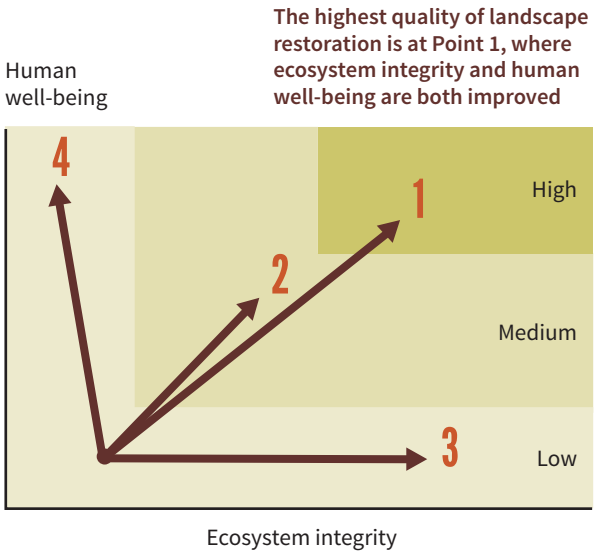
To answer these questions and provide a clear overview of where investments in FLR will be more feasible and potentially successful at the country or local level, it is necessary to collect, process and model relevant and available spatial and non-spatial information. This information constitutes a key element in the FLR investment decision-making process.

This chapter describes the analysis and related information required by prospective FLR investors and promoters to identify priority areas for investment in FLR. In particular, it suggests a number of tools, guidelines and sources of data and information that can support responses to the first four questions above; risk is addressed in Chapter 12. Further details about all of the information resources mentioned in this chapter can be found in Annex 7.

Assessing opportunities for FLR

Forest and landscape restoration is a process that aims at regaining ecological integrity and at enhancing human well-being in degraded landscapes (Figure 21). As such, opportunities and priorities for restoration exist in those areas where the degradation

FIGURE 21
Ecological integrity of restored or rehabilitated ecosystems and human well-being



Source: Lamb and Gilmour, 2003

of the landscape affects both the environmental services and the livelihood and well-being of local communities. Landscape degradation and local communities' well-being are thus the basic factors in assessing where there is a need for and interest in FLR. Such information can be collected directly from experts and stakeholders familiar with the assessment area; by using existing data sources such as relevant maps and other secondary data; and/or by commissioning surveys, satellite imagery analyses or other quantitative or qualitative assessments to fill specific data gaps, verify or ground truth existing data or update old data.

Environmentally priority areas

Deforested and degraded forest lands. A number of data sources, maps and reports can assist in identifying where deforested and degraded forest lands are located. Among the key ones are FAO's Global Forest Resources Assessment and WRI's Global Forest Watch, which provide data on forest cover loss and gain, among others. See FAO (2014a) for a comparison of these two main data sources. In addition, many countries regularly update their own national forest assessments with the objective of providing reliable forest resource information on local forest trends and changes.

Concerning concrete opportunities for forest restoration, WRI's *Atlas of forest landscape restoration opportunity* represents the first-ever global approximation of where deforested and degraded forest lands have the potential to be restored to reduce poverty, improve food security, mitigate climate change and protect the environment. However, this global-scale assessment must be interpreted with caution; it identifies as suitable for afforestation all lands potentially capable of supporting forests or woodlands, including grassy biomes whose afforestation would be incompatible with the conservation of their ecological role and biodiversity (see Veldman *et al.,* 2015; Laestadius *et al.*, 2015). National and subnational assessments are thus needed to determine which of the mapped non-forested areas are the result of a deforestation process and which are historically non-forest lands, and to identify interventions that are economically, ecologically and socially appropriate at the local scale, depending on the specific context.

Other degraded lands. Land degradation maps are helpful for identifying areas that are underperforming and may therefore be good candidates for landscape restoration. The level of degradation of an ecosystem can be measured by the reduction in a number of parameters: soil stability and productivity, carbon sequestration capacity, biodiversity, ecosystem functionality or capacity to provide ecosystem goods and services.

Regarding ecosystem services and goods provided, the Global Land Degradation Information System (GLADIS) provides a series of global maps on the status and trends of the main ecosystem services worldwide. However, more detailed information from the local level would need to be integrated to use it for national decision-making. The Ecosystem Services Partnership Visualization Tool, currently under development, is an interactive tool for facilitating the sharing of ecosystem service maps and mapping methodologies. UNEP's *Towards a global map of natural capital: key ecosystem assets* provides a composite map showing ecosystem assets such as freshwater resources, soil quality, terrestrial organic carbon and terrestrial and marine biodiversity. *Ecosystems and human well-being: current state and trends* (Millennium Ecosystem Assessment, 2005) assesses the consequences of ecosystem change for human well-being.

Useful information sources on soil degradation include the *New soil atlas* (Heinrich Böll Foundation and Institute for Advanced Sustainability Studies, 2015) and *Status of world soil resources*, to be published by the Intergovernmental Technical Panel on Soils (ITPS) by end 2015. Salinization of soils – another index of soil degradation – is addressed in the FAO map *Proportion of land salinized due to irrigation.*

Helpful resources on biodiversity loss and conservation include the online overview of biodiversity hotspots published by the Critical Ecosystem Partnership Fund (CEPF); CBD's *Global Biodiversity Outlook*; and *Biodiversity scenarios: projections of 21st century change in biodiversity and associated ecosystem services*, also published by CBD (see Annex 7).

Concerning ecosystem functionality, Freudenberger *et al.* (2012) recently published a global map of the functionality of terrestrial ecosystems, highlighting those that supply the most services to humanity.

In addition, national action plans or programmes related to the UN environmental conventions are available in most countries and can provide useful information on hotspots with regard to land degradation, loss of biodiversity and climate change mitigation and adaptation priorities.

Socio-economically priority areas

Socio-economic data and projections – such as those on population density, distribution of settlements,

economic conditions, energy provision and consumption, income generating activities, land uses and market prices – are crucial to understand where it is most urgent to invest while also making it possible to identify possible constraints (current and future) to successful implementation of any FLR project. In this regard, several global, regional and country maps and databases on inequality, education index, population density and distribution are available for download on the FAO GeoNetwork, including FAO's Food Insecurity, Poverty and Environment Global GIS Database, which provides a global analysis of food insecurity and poverty in relation to the environment.

Concerning local economy, local market data are an important indicator, especially for those FLR interventions aimed at generating incomes and particularly when their success is strictly linked to the integration of products into the local market. Poor market information can be a constraint to meeting demand with supply.

Type of landscape to be restored

Understanding the features of a landscape is key for evaluating the feasibility and potential success of any restoration intervention. To this end, the following factors need to be assessed through a combination of digital data and data collected *in situ*.

Biophysical features of the landscape. The present and projected future soil capacity, climate and rainfall averages, water infiltration data and the physical and productive potential of the landscape are all key features to be taken into account in assessing the suitability of an area to be restored for a given objective. A number of relevant maps and data sets can be downloaded from the Internet (see Annex 7). Several of these can be found on the FAO GeoNetwork.

Land-use and land management practices. The land uses in a given landscape are determined by both local natural conditions and cultural and socio-economic aspects, including institutional settings, infrastructure, education and market availability. Global and national land-use maps are available on the Web page of FAO's project on Land Degradation Assessment in Drylands (LADA). In addition, the World Overview of Conservation Approaches and Technologies (WOCAT) Web site provides a comprehensive global database of best practices for sustainable land management, including an overview of successful restoration techniques for different site conditions.

Landscape configuration. Assessing the landscape pattern (which land uses are present in the landscape and how they are spatially and functionally interrelated) is a key step for identifying restoration opportunities and implementation options. The different areas of the landscape mosaic can contribute in different ways to the implementation of FLR initiatives. The restoration options that can be considered will depend on the biophysical, ecological and socio-economic features of the landscape in addition to the main objective of the restoration.

Restoration options

The restoration option chosen, the species and genetic origin of the trees to be planted, the type and location of the different interventions and the proportion of the landscape to be devoted to each will depend on the spatial location of the different land uses as well as on the purpose of the restoration. In this regard, several publications provide useful information on site-level forest restoration options for different types of degraded ecosystems. One example is *Restoring forest landscapes: an introduction to the art and science of forest landscape restoration* (ITTO and IUCN, 2005). A number of maps available on the FAO GeoNetwork, for example on water availability, soil suitability for different types of crops and soil features, can be useful for this purpose. Drylands face their own specific challenges, with a combination of climate warming and population increase dangerously affecting local communities' livelihoods and well-being. The new *Global guidelines for the restoration of degraded forests and landscapes in drylands* (FAO, 2015d) can assist in decision-making for FLR in these areas.

The framework in Table 14 can assist in selecting the appropriate restoration option.

Country priorities and local restoration opportunities

As of 2015, over 20 countries have responded to the Bonn Challenge (www.bonnchallenge.org), expressing an ambition to restore more than 60 million hectares. Several countries have started implementing local assessments to evaluate local opportunities for FLR. In this regard, the Restoration Opportunities Assessment Methodology (ROAM) (IUCN and WRI, 2014) represents a valuable tool providing countries with a flexible and affordable framework that can help identify and assess local FLR potential, ensure local stakeholders' involvement

TABLE 14
FLR options framework according to GPFLR

Land use	Land subtype	General category of FLR option	Description
Forest land Land where forest is, or is planned to become, the dominant land use **Suitable for wide-scale restoration**	If the land is without trees, there are two options:	Planted forests and woodlots	Planting of trees on formerly forested land. Native species or exotics and for various purposes, fuelwood, timber, building, poles, fruit production, etc.
		Natural regeneration	Natural regeneration of formerly forested land. Often the site is highly degraded and no longer able to fulfil its past function – e.g. agriculture. If the site is heavily degraded and no longer has seed sources, some planting will probably be required.
	If the land is degraded forest:	Silviculture	Enhancement of existing forests and woodlands of diminished quality and stocking, e.g. by reducing fire and grazing and by liberation thinning, enrichment planting, etc.
Agricultural land Land that is being managed to produce food **Suitable for mosaic restoration**	If the land is under permanent management:	Agroforestry	Establishment and management of trees on active agricultural land (under shifting agriculture), either through planting or regeneration, to improve crop productivity, provide dry season fodder, increase soil fertility, enhance water retention, etc.
	If it is under intermittent management:	Improved fallow	Establishment and management of trees on fallow agricultural lands to improve productivity, e.g. through fire control, extending the fallow period, etc., with the knowledge and intention that eventually this land will revert back to active agriculture
Protective land and buffers Land that is vulnerable to, or critical in safeguarding against, catastrophic events **Suitable for mangrove restoration, watershed protection and erosion control**	If degraded mangrove:	Mangrove restoration	Establishment or enhancement of mangroves along coastal areas in estuaries
	If other protective land and buffer:	Watershed protection and erosion control	Establishment and enhancement of forests on very steep sloping land, along watercourses, in areas that naturally flood and around critical water bodies

Source: IUCN and WRI, 2014

in the process, locate specific areas of opportunity at the national or subnational scale, and assess the presence of key success factors for the implementation of the identified priority interventions. The Global Partnership for Forest And Landscape Restoration (GPFLR, 2013b) is developing a set of methodologies and tools to help move from a 2 billion hectare global estimate of landscape restoration potential to specific opportunities based on national or subnational data and information – National Assessment of Forest and Landscape Restoration Potential. As a global platform involving many organizations, GPFLR can play a role in facilitating FLR interventions at the country level, assisting potential investors to identify the most

suitable set of implementing partners for each country and to channel different types of FLR investments appropriately.

The 10-Year Strategic Plan of UNCCD calls upon countries to develop "integrated investment frameworks for leveraging national, bilateral and multilateral resources with a view to increasing the effectiveness and impact of interventions" (UNCCD, 2007). These SLM frameworks provide useful guidance on country priorities with regard to natural resource management, often including FLR.

Viability of the FLR intervention

The decision of where to implement FLR, and whether to invest in it, ultimately rests on the question of whether or not the restoration intervention can succeed in the long term. A critical analysis of existing barriers to the successful implementation of an FLR intervention is crucial to evaluate real investment opportunities. The following factors must be taken into account in planning restoration interventions.

- **Long-term sustainability:** Because of the long time scale characterizing restoration projects, social, economic and environmental conditions can change during the project lifetime, and this can create challenges. Past trends and projections of biophysical and climatic conditions – especially in light of anticipated climate change effects on temperature, water availability and yield potential – as well as human pressures must be taken into account to ensure long-term sustainability. It is also essential to balance public good and services provision with private benefits.
- **Participation of local players:** Many a project has failed because its purposes were not in line with the various motivations, expectations, pressures and needs of the concerned stakeholders or because local communities were not properly involved in its planning, design and implementation. *Guidelines on stakeholder engagement in REDD+ readiness with a focus on the participation of indigenous peoples and other forest-dependent communities* (Forest Carbon Partnership Facility and UN-REDD, 2012) is an example of the guidance available to assist countries in engaging stakeholders. In addition, the involvement of "local champions" – local players who are able and committed to implement activities on the ground – is a key factor for effective implementation of small- and large-scale FLR interventions. A clear understanding of the local context is necessary to help private investors identify suitable local champions. In this regard, the public sector could be helpful in providing precise information on opportunities at the local level.
- **Environmental vulnerability:** Assessment of the vulnerability of lands and systems to the effects of climate, environmental and socio-economic changes is extremely important for understanding and addressing the potential risks of investments in FLR. To this end projections of future local biophysical and climatic conditions are crucial. The World Bank's Climate Change Knowledge Portal, the IPCC Data Distribution Centre and FAO's Modelling System for Agricultural Impacts of Climate Change (MOSAICC) are useful resources for such analysis (see Annex 7), while Locatelli *et al.* (2008a) provide methodologies for assessing the vulnerability of a system to changes.
- **Legal, institutional and policy context:** Long-term FLR projects have a greater chance of success in conditions where policy, financial and social incentives supporting restoration are in place. Assessing the spatial pattern of land tenure systems can help in evaluating the feasibility of investment in a given area, as undefined land and water rights can represent a constraint for the implementation of projects (see *Voluntary guidelines on the responsible governance of tenure of land, fisheries and forests in the context of national food security* [FAO, 2012] and the related technical guide *Improving governance of forest tenure* [FAO and IIED, 2013]).

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12

Creating an enabling environment for FLR investments

Many barriers prevent investment in FLR, and a number of these are specific to the different financing sources (Box 26, Table 15). To achieve the required funding targets for FLR and drive sustainable change, it is critical to build an enabling environment for FLR investments at the landscape, national and global levels. This chapter provides a roadmap of recommended actions for creating such an environment. It focuses on four key ingredients:

- **Ensuring a favourable investment climate.** Effective governance can promote the conditions that favour robust investment such as effective marketing and financial arrangements, well-developed market drivers and stable socio-political circumstances.
- **Defining what makes a landscape intervention "ready for investment".** Investors need to check a number of criteria before investing. In marketing an FLR project or programme, better definition and communication of the required information would support investor decision-making.
- **Raising awareness of win–win opportunities.** Lack of engagement in FLR seems to be strongly linked to a lack of communication to investors, as well as to a limited understanding of FLR opportunities among project promoters and implementers. Awareness raising activities may help to bridge the gaps.
- **Securing investments and mitigating risks.** A number of risks prevent investors from engaging in FLR. Developing risk mitigation mechanisms and engaging the necessary policy reforms will build trust for better investor engagement.

BOX 26

Barriers to investment in FLR: the example of private-sector investment in developing countries

IUCN and WRI (2014) identify the following potential barriers to private investment in restoration in developing countries:

- **lack of investment opportunities**, with good returns, break-even years and profitable scale;
- **disconnected supply chains**, which may be an opportunity or a cost inefficiency;
- **insufficient infrastructure**, both "hard" (e.g. roads, other transportation networks, and power and irrigation systems) and "soft" (e.g. customs procedures or government cooperation);
- **undefined land and water rights**, needed to incentivize landowners to enhance land productivity;
- **low adoption of good FLR practices** due to inadequate human capital;
- **regulatory and political risk**, e.g. heavy regulation and excessive red tape (increasing costs and delays for investors) and corruption among public officials);
- **unsupportive macro-economic environment**, e.g. high inflation and unstable exchange rates;
- **underdeveloped capital markets**, which limit investors' exit options for equity-type investments.

Ensuring a favourable investment climate

Investments in FLR require good governance with an enabling policy environment, responsible regulation and reliable mechanisms to resolve conflicts among stakeholders (see the guide *Assessing forest governance* [Cowling, DeValue and Rosenbaum, 2014]).

TABLE 15

Impediments to better FLR investments, by financing source

Financing source	Donor/investor side	Beneficiary/project implementer side
Climate finance opportunities	Need for further development of vulnerability analyses, climate proofing tools and other methodologies for securing against climate impacts Disconnect between political and negotiation agenda of climate finance and climate-related ODA policies	Complex and constantly evolving funding mechanisms Transaction costs, related e.g. to MRV systems Insufficient coherence between climate change mitigation and adaptation objectives and economic and social agendas
International cooperation instruments	Fragmented financing channels Insufficient mainstreaming of FLR in technical and financial international cooperation strategies Lack of field-based technical FLR specialists Overly complex financing mechanisms Mismatch between donor priorities and criteria and developing countries' expectations (carbon versus economic and social development)	Lack of capacity for proactive screening of financing opportunities in land-based sectors Ineffective intersectoral coordination for project design, e.g. between land-based sectors and focal points of GEF and the UN conventions
Environmental funds	Lack of trust for channelling resources from taxes and institutional investors Too few solid project portfolios with interesting Return on investment to attract private investors Need for oversight and MRV systems	Need for compliance with financial and environmental, social and governance standards Difficulty of generating projects that meet environmental fund requirements
Non-governmental funding	Dependence on private and public donor networks Orientation towards communication over implementation	For some local NGOs, lack of capacity for raising funds and managing budgets
Public finance schemes	Corruption and law enforcement issues in the land-based sectors Need for MRV mechanisms with FLR-related metrics Lack of political support where land-based sectors lack political weight Lack of integration of FLR in economic and social development strategies, e.g. in inclusive green economy development policies and strategies Governance and tenure issues affecting forest and land resources Insufficient connection and coordination with the private sector and civil society organizations Public finance rules that fail to enable flexible mobilization of resources and design of new financing channels	Limited funds available for compensating opportunity costs for FLR Lack of capacity for adapting to condition-based transfer and retribution mechanisms such as PES Heavy administrative requirements, which may overload management capacities
Private sector (without expectation of return on investment)	Difficulty in understanding how a green image can attract new clients Impact marketing based on FLR not yet a norm in marketing practices	Approaches adapted to up-front investments and small-scale projects Need to comply with company expectations, e.g. in terms of image promotion

Financing source	Donor/investor side	Beneficiary/project implementer side
Private investors (with expectation of return on investment)	Short time horizons demanded by most investors for quick financial returns High investment risk versus return potential Deficient financial systems (i.e. difficulties in quantifying and capturing the full revenue-generating potential of forest- and land-related financing flows in other sectors)	Limited funds available for up-front and readiness investments Difficulty in providing expected returns owing to inherent FLR risks Insufficient technical knowledge on sustainable forestry and farming practices needed to generate expected returns When sustainability returns are expected, difficulties in integrating and contributing to MRV systems Need to aggregate small landowners to reach economy of scale favourable to desired return on investment
Non-traditional financing mechanisms	Need for specific information technology (IT) knowledge and tools Flexibility of the company to try new tools (e.g. green bank cards)	Uncertainty of funding volume Relatively small-scale funding opportunities

Lack of marketing and financial arrangements can prevent large-scale investment in forest and land restoration. Indeed, the existence of financial tools providing early rewards for investment (e.g. PES schemes) can be drivers of investment in FLR. Dewees *et al.* (2011) provide a comprehensive overview of financial factors that can encourage or discourage investments in FLR.

Market drivers such as well developed market infrastructures, the presence of complementary economic activities reducing barriers for the creation of new businesses, synergies between production and sustainability and rewards for products grown in an ecologically sustainable way all influence investments in FLR.

Absence of social strife or political instability is also a factor in FLR investment. Armed conflicts, which are often aggravated by desertification, land degradation and drought, can make investments in agriculture, agroforestry and forestry economic activities more risky. However, in post-conflict situations investments in restoration of natural resources can foster economic recovery and offer investors a potentially high impact for their investments.

Building landscape readiness for investment

Defining a shared landscape vision and strategy

A first step is to ensure that landscape stakeholders are aligned in a common understanding of the challenges and needs at the landscape level. A facilitating or coordinating entity is critical to mobilize all relevant stakeholders in a constructive dialogue and to support the design of and agreement on objectives, indicators and a monitoring, reporting and verification (MRV) system to build investor trust. The MRV systems built by intersectoral REDD+ initiatives at the national level may be a source of inspiration.

Building resilient value chains

Developing and strengthening resilient value chains requires organizational efforts to find the right synergies among value chains related to agriculture, forestry, agroforestry and other land uses. Policy dialogue between these sectors is necessary to identify win–win opportunities. The emerging issue of climate change, as a cross-sectoral challenge, may offer intersectoral fora where landscape issues can be discussed (e.g. national and regional climate change councils) and may provide opportunities to promote flagship value chains as landscape-based adaptation and mitigation solutions. Resilient value chains at the landscape level will contribute to sustainable development in terms of income generation and job creation.

At the local level, the first project serves as a nucleus on which others build to reach the landscape scale, as other landscape components are integrated into the flagship value chain.

Building profitable landscapes

The design of "bankable" projects that will attract both traditional and impact investors must ensure sustainable profitability that matches investors' return expectations as well as the expressed interests

and needs of local stakeholders. Depending on the project context, economies of scale may be sought (e.g. through aggregation of smallholders or increased project size) as well as gains in productivity (e.g. through seedling selection, fertilizers or mechanization). Returns from the project should be delivered according to the calendar agreed among all stakeholders, taking into account the potential of the land and sustainability standards. It is important that although efforts can be made to improve yields of productive landscapes, the landscape potential and natural equilibrium should not be forced. In other words, investors must adapt their expectations to the landscape potential and sustainability thresholds.

These considerations must include social and environmental aspects. Local communities must be central stakeholders and can even act as facilitators in defining and implementing the landscape vision and strategy. When local communities have limited capacity for such a role, then capacity development programmes should be put in place to support them. An example is the New Generation Plantations platform set up by WWF (www.newgenerationplantations.org), which organizes study tours, workshops and conferences to help participants ensure that plantations maintain ecosystem integrity, protect and enhance high conservation values, are developed through effective stakeholder involvement processes and contribute to economic growth and employment.

Landscape marketing through co-labelling and co-branding practices can help foster new market opportunities (Box 27).

BOX 27

Brand "Parque Natural de Andalucia"

The brand "Parque Natural de Andalucia" in Andalucia, Spain, established and coordinated by the Environment Council of the Andalusian Regional Government, can be granted to food products, restaurants, hotels, artisanal products, tourism activities and the like produced or operated at the landscape level. The brand's use is subject to a number of conditions and requisites which ensure brand quality and reputation. Such a co-branding approach at the landscape level promotes a common landscape vision and opens new market opportunities for local economic operators. The brand also offers a network for improved business and commercial practices.

Source: www.marcaparquenatural.com

Raising awareness of investors and project promoters and implementers

Improving cost-benefit analyses

Investors require good information on costs and benefits for investment proofing and decision-making. Both the quality and availability of data on FLR costs and benefits – both for market and non-market values – should be improved in order to attract the whole range of potential FLR investors: private, public, cooperation agencies, NGOs, individuals and others.

Furthermore, there is a need for a cost-benefit analysis (CBA) database compiling existing data on FLR costs and benefits, which should be made available to investors (Figure 22). Efforts to this end would also make it possible to develop *ex ante* decision-making tools. Methodologies, tools and guidelines for economic decision-making should be adapted to the diversity of investors, according to the distinctions shown in Table 16.

Good *ex ante* information on direct and indirect costs and benefits would also support FLR project promoters and implementers in designing relevant financing strategies, allowing them to screen which investor would be ready to finance specific costs and to purchase specific benefits.

The Wealth Accounting and the Valuation of Ecosystem Services (WAVES) partnership (www.wavespartnership.org) of the World Bank and UNDP's Biodiversity Finance Initiative (BIOFIN) (www.biodiversityfinance.net), among others, could contribute relevant expertise to the development of a CBA database and tools for FLR. Other important sources of methodologies and data for improving knowledge on the costs and benefits of FLR include TEEB, the Economics of Land Degradation Initiative (ELD) and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) (described in Annex 8). Data banks of reference economic values of goods and services provided by ecosystems include the Environmental Valuation Reference Inventory (EVRI; www.evri.ca) and the Ecosystem Services Value Database (EVSD; www.es-partnership.org).

The Restoration Opportunities Assessment Methodology (ROAM) (IUCN and WRI, 2014) and the ELD user guide for assessing the economics of land management (ELD, 2015) already provide methodologies for quick assessment of FLR costs and benefits. Further, the Integrated Valuation of Ecosystem Services and Tradeoffs (InVEST; www.naturalcapitalproject.org/InVEST.html) and Artificial

Intelligence for Ecosystem Services (ARIES; http://ariesonline.org) provide software models that make it possible to estimate the provision of multiple ecosystem services across a landscape, map the use of services and monetary value, and predict trends in service provision and value across the landscape. Using optimization methods such as Pareto optimization may also help in identifying areas that optimize multiple ecosystem services and biodiversity value (e.g. Bugalho *et al.*, 2015).

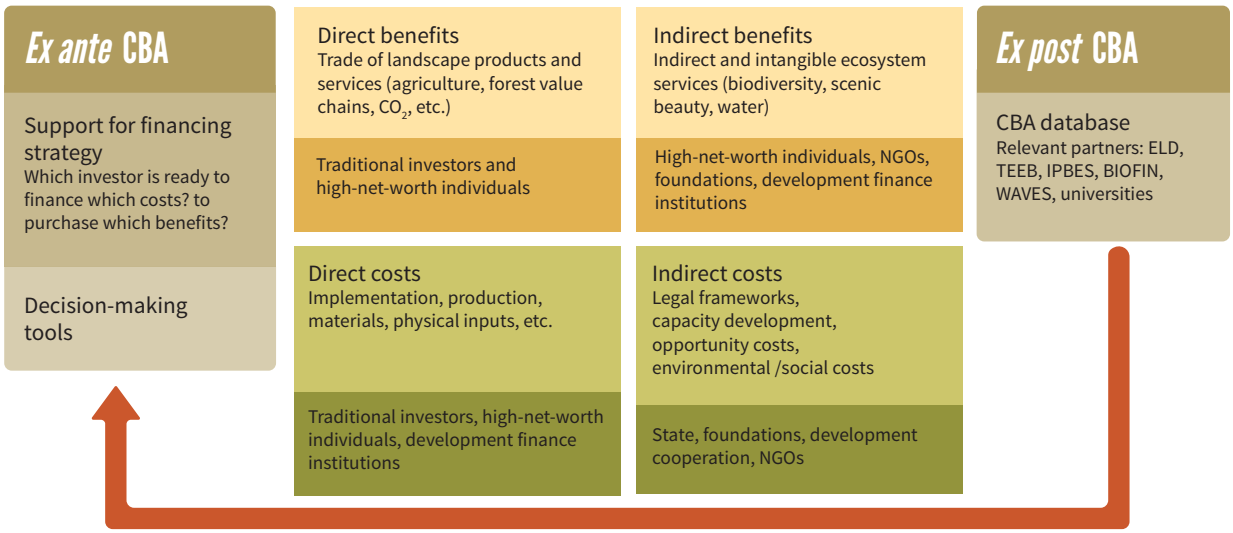
The Copenhagen Consensus Center (www.copenhagenconsensus.com) uses CBA to rank development measures and calculated cost-benefit ratio for forest carbon sequestration following different scenarios of protection and restoration (Sohngen, 2009). This work has shown that USD 1 spent on protecting forests brings back USD 10 (Lomborg, 2015).

The Close to Nature Planted Forest (CNPF) initiative piloted by the FAO Investment Centre (Thiel, 2015) conducted *ex post* CBA assessments on 12 case studies – an example of additional information that could contribute to improving *ex ante* CBA for FLR projects.

Communicating success stories and opportunities

A database of successful FLR business cases is needed to promote practical investment solutions that bring financial and sustainability returns, according to investor type and expectations. Private impact funds investing in FLR such as the Moringa Fund and the Terra Bella Fund (see Annex 6) are currently developing and implementing business cases, and the first

FIGURE 22
Cost-benefit analysis – a framework for action



ELD: The Economics of Land Degradation Initiative; TEEB: The Economics of Ecosystems and Biodiversity; IPBES: Intergovernmental Platform on Biodiversity and Ecosystem Services; BIOFIN: Biodiversity Finance Initiative; WAVES: Wealth Accounting and the Valuation of Ecosystem Services

TABLE 16
Towards economic decision-making tools for specific investors

Funding target/investor	Decision-making tools required
Public funds, foundations, NGOs	Complete CBA integrating indirect costs and benefits, which will provide information on positive environmental and social externalities that investors may be willing to support
Private investors	Financial CBA, specifying direct costs and benefits
	Complete CBA plus carbon and biodiversity-related opportunities, as well as all potentially positive environmental and social externalities, which the company can valorize as part of its CSR policy
NGOs, individuals (crowdfunding)	Qualitative assessment of costs and benefits
	Quantified socio-economic and environmental criteria and indicators

success stories may be available soon. Communicating the work and successes of private impact funds to traditional investors could be decisive to motivate commercial banks, pension funds and others to start investing intensively in FLR. Appropriate communication channels could include FLR initiatives (e.g. GPFLR and its members, including FAO, GM-UNCCD and IUCN, among others) and channels in the business and investment communities, e.g. sustainable investment associations, the investment press and journals such as the *Journal of World Investment and Trade*, *Journal of Alternative Investments* and *Journal of Investment Strategies*.

Building marketplaces

Fora for systematic meetings and dialogue among FLR stakeholders could catalyse fundraising by bringing investors and FLR operators together to identify win–win opportunities, discuss challenges and plan for practical investment operations and implementation. Such marketplaces could have different forms and scopes and could operate at several levels (landscape, national, regional, global) (Figure 23). Governments, NGOs and development cooperation agencies could have a facilitating or coordinating role.

Examples of existing marketplaces for forests could serve as inspiration; these include the OpenForests initiative (www.openforests.com), which presents a portfolio of projects seeking investors (http://marketplace.openforests.com) and the Forest Trends Ecosystem Marketplace (www.forest-trends.org/program.php?id=69), which presents news, data and analytics on markets and payments for ecosystem services (such as water quality, carbon sequestration and biodiversity). Notably, such marketplaces contribute to the development of public–private partnerships, which have an important role in addressing both tradeable and non-tradeable values of FLR.

It is also important to note the need for a common language between project promoters and investors. Efforts must be made to specify and harmonize the concepts, definitions and terminology used by both groups of stakeholders. Adoption of this common vocabulary should be encouraged through capacity building measures, especially using mass learning tools such as MOOCs (massive open online courses).

Securing investments and mitigating risks

Mobilizing up-front/readiness investment

Preparing the field for FLR private investments requires specific funding, in some cases with limited direct return expectations. Such financing requirements may be covered by foundations, technical cooperation agencies, family offices, crowdfunding or others. Private impact funds in some cases have their own readiness facilities (e.g. the Moringa Fund and its Technical Assistance Facility, the EcoBusiness Fund and its Development Facility).

FIGURE 23
Marketplace for landscape restoration

Payments for ecosystem services can also offer opportunities to prepare local stakeholders to adapt their practices to better sustainability standards and to integrate a landscape strategy (AfDB, 2015).

Risk mitigation strategies

Although motivated by different purposes, all investors expect a return (financial, social or environmental) on their investments. Too often, however, potential ecosystem and social benefits such as improved carbon sequestration, biodiversity conservation and increased farmers or landowners' livelihood and well-being are either underestimated or not properly valued as part of the opportunity costs. It is now widely acknowledged that landscape degradation entails both direct and indirect risk to business, and that the costs of inaction in failing to stop or reverse landscape degradation have been long underestimated as have the benefits of restoration. Underestimation of the benefits of a restoration intervention elevates the perceived investment risk, often discouraging investors from investing in FLR. This is particularly true in more degraded landscapes, where the direct economic benefits are not tangible enough to attract investments (Figure 24). FLR cost-benefit assessment should therefore include all the benefits from the implementation of a restoration intervention, both direct economic incomes and ecosystem services provided.

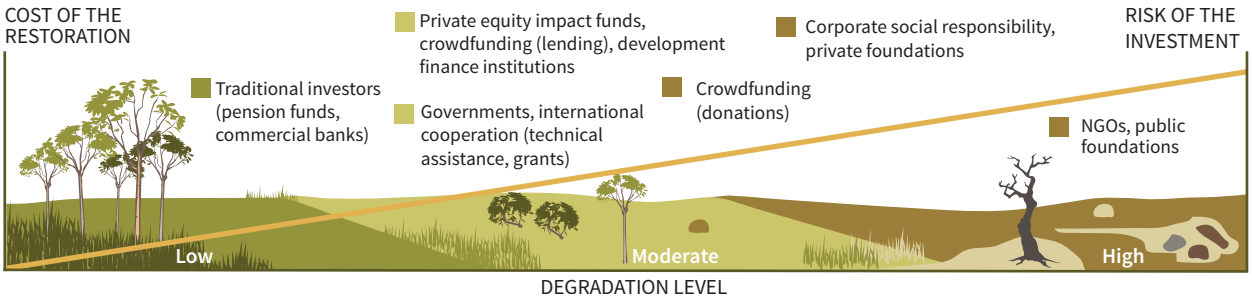
The World Business Council for Sustainable Development (WBCSD) has recently developed a comprehensive work programme aimed at translating land degradation neutrality into companies' strategies. Companies are invited to take action to prevent further land degradation and to restore degraded lands for the benefit of both the companies and local communities. The programme is based on the evidence that investing in FLR would allow private companies to secure their access to the ecosystem services that are critical for their work; to improve both local community livelihoods and company relations with the government, thus improving the image of the company at the local, national and international levels; and to help attain local sustainability goals.

In order to attract investors to FLR their risks should be covered, at least partially, to an acceptable level. The long time scales of landscape restoration and the possibility of changes in social, political and environmental conditions during a project's lifetime can make it difficult to obtain bank loans for implementing FLR projects, especially in countries that are more sensitive to environmental risks or where political and social instability is an issue. By helping to reduce risks and uncertainties related to possible changes in environmental conditions, re/insurance schemes can play a large part in encouraging and promoting investments in FLR.

Several companies have started developing market re/insurance business products aimed at mitigating the financial consequences of possible unforeseen events. Swiss Re and Munich Re are two examples of insurance groups that have been shaping specific agricultural re/insurance schemes aimed at protecting farmers from the consequences of possible environment-related risks. Such schemes allow farmers access to credit, as the banks have the guarantee that the insurance would refund them in case natural disasters destroy the farmers' harvest. Some of these products are now also applicable to emerging economies. Swiss Re is currently in the process of developing products to support all kinds of farmers – from smallholder to commercial – in sub-Saharan Africa with the goal of a more resilient farming sector.

Although most re/insurance schemes address the agriculture sector, some cover other types of

FIGURE 24
Investment risk is higher in more degraded landscapes

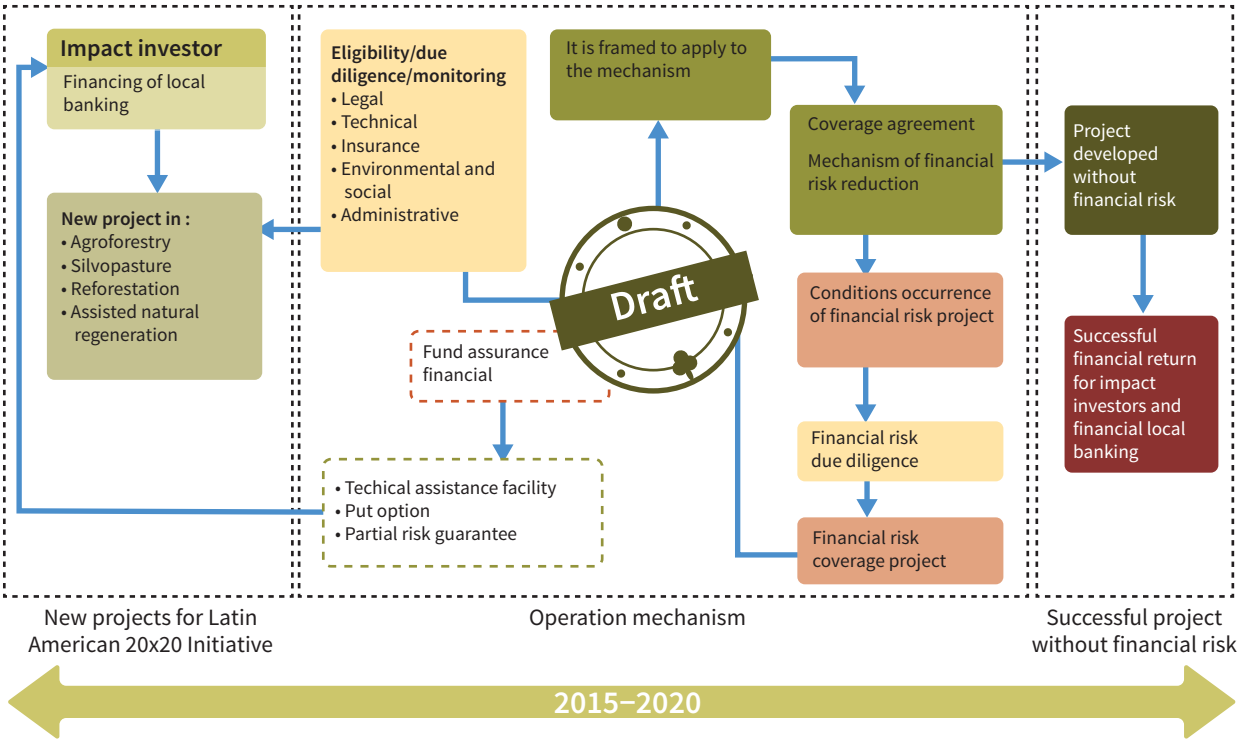


FLR-related activities. Concerning mine closure and reclamation, for instance, financial assurance is increasingly required by regulators as a guarantee that the funds needed for mine closure will be available in the event that the responsible company is unable to complete the closure as planned (Miningfacts.org, 2012). The International Council on Mining and Metals (ICMM, 2005) provides a broad overview of the current status of financial assurance as applied to mine closure and reclamation in important mining jurisdictions around the globe. Other insurance agencies support reforestation projects by providing landowners with cash flow that allows them to get back in business after a catastrophic fire or wind event. For instance, in South Carolina, United States of America, the Davis Garvin Insurance Agency provides re/insurance products for a broad range of potential investors, including family woodland owners, trusts, timber companies and forestry consultants.

As mentioned in Chapter 12, political instability can also represent a threat to the implementation of FLR projects. Political risk insurance can help reduce the risks associated with war, civil unrest and expropriation in countries considered to be politically unstable. Agencies such as the World Bank Group's Multilateral Investment Guarantee Agency (MIGA) and the Overseas Private Investment Corporation (OPIC) provide protection against these potential risks. So far the two agencies have insured carbon offset projects in some of the world's riskiest political and economic environments. MIGA, for example, by serving as a mediator between investors and the government, has helped reduce both the cost of capital and the chance of expropriation (see the example of the political risk insurance provided by MIGA to EcoPlanet Bamboo's carbon offset project in Nicaragua in Chapter 5, Box 11).

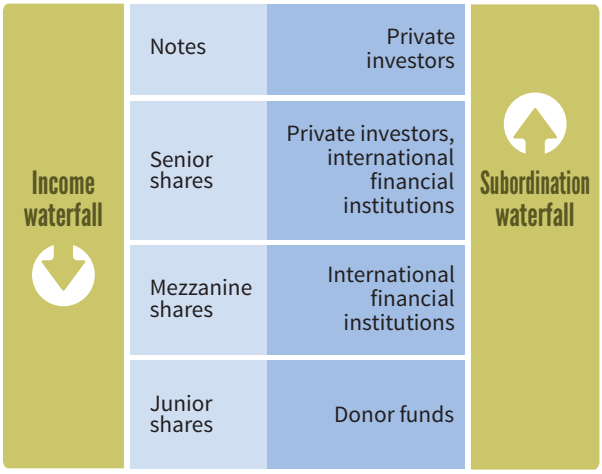
Private equity impact funds already have guarantee mechanisms in place. The Althelia Climate Fund, for example, has a risk guarantee mechanism supported by USAID. Initiative 20×20, a regional effort in Latin America, will benefit from a partial risk guarantee mechanism being set up by the Development Bank of Latin America (CAF) following the proposed structure shown in Figure 25. This mechanism offers in particular coverage of risks taken by private equity impact funds engaged in the initiative (e.g. the Moringa Fund and the Terra Bella Fund). Multilayered private funds provide assets of varying risk, making it possible to combine different types of investors in the same

FIGURE 25
Draft of a partial risk guarantee mechanism for Initiative 20×20



Source: Carrasquilla, 2015

FIGURE 26
Multilayered impact fund structure



Source: Finance in Motion, 2015

investment vehicle (Figure 26). This approach also reduces the risks for investors seeking higher returns (e.g. private investors buying notes and senior shares).

Guidance such as the *Principles for responsible investment in agriculture and food systems* (FAO, 2014b) and the Principles for Responsible Investments (PRI) initiative (www.unpri.org) may support investors in mitigating risks by promoting responsible investments.

Adapting and enforcing the legal framework

Clear and stable land tenure rights, benefit sharing mechanisms and investment regulations secure investments. In contexts where these features are poorly defined or lacking in stability, governments (supported when necessary by cooperation agencies) should try to bring about greater certainty by reforming and updating their policy and legal framework. A recent study, for instance, highlights how REDD+ finance could be used to support subsidy reforms (e.g. in the beef and soy sectors in Brazil and timber and palm oil industries in Indonesia) in order to increase agricultural productivity while avoiding forest loss (ODI, 2015). Yang *et al.* (2014) analyse how the coupling of forest tenure reform with an eco-compensation scheme in China can support, among others, the restoration of giant panda habitat and increase the panda population.

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13

Building and strengthening alliances

Alliances and partnerships are vital for the development of the catalytic and multistakeholder financing strategies needed to strengthen FLR finance. A number of alliances and partnerships contributing to sustainable land management and landscape approaches may be relevant platforms for attracting financing for FLR. The current and potential contributions of some key initiatives contributing to FLR finance are presented in Table 17. Analysis of these initiatives gives rise to the following observations.

- **A need to prioritize implementation.** The principal focus of the platforms is the development of an enabling environment for SLM, SFM and/or FLR. While the creation of an enabling environment can be meaningful if the impacts are tangible, these platforms could bring added value to FLR by mainstreaming restoration actions; investments should support implementation as well as enabling. The inclusion of result-based incentive approaches (e.g. PES mechanisms) within national project frameworks could assist in achieving tangible impacts in both enabling and implementation – helping to build private investors' trust in making landscape interventions "ready for investments".
- **Monitoring and evaluation.** The existing alliances and platforms do not seem to conduct systematic monitoring and evaluation; thus no real monitoring indicators are in place to verify improvement of the enabling environment. A recent evaluation of the TerrAfrica partnership (Scanteam, 2013) put emphasis on monitoring and evaluation as a crucial element for aligning the efforts of partners towards common objectives.
- **A need to increase private sector engagement.** Most of the platforms are mainly donor funded; thus their sustainability is questionable in the context of international cooperation funding shortages. It is thus critical to mobilize private funding sources more actively, i.e. to connect these platforms with private equity impact funds (e.g. Althelia Climate Fund, EcoEnterprises), private companies engaged in FLR-related value chains, and traditional investors showing interest in FLR (e.g. Credit Suisse, BNP Paribas and Meryl Lynch, which all attended the Global Landscapes Forum event "The Investment Case" in London, United Kingdom in June 2015). At the national level, the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) platform in the United Republic of Tanzania involves already a number of private-sector stakeholders from the financial and agro-industrial arenas.

Building on existing platforms

Efforts should be made to develop additional regional and national FLR alliances, replicating and adapting existing platforms. Initiative 20×20 is an example of a regional FLR-specific partnership which may be replicated (with adaptations) in other regions. The Asia-Pacific Network for Sustainable Forest Management and Rehabilitation (APFNet), though less oriented towards resource mobilization, is another FLR-specific regional platform, specifically oriented to high-level policy dialogue and capacity development. National FLR platforms could adapt the experience of the SAGCOT model, promoting public–

TABLE 17
Examples of alliances and partnerships for FLR

Alliances and partnerships	Donors and investors	Contribution to FLR	Potential future contributions to FLR
GLOBAL SCOPE			
Global Partnership on Forest and Landscape Restoration (GPFLR)	NGOs, UN agencies, development cooperation agencies, research centres and universities	Work on the economics of restoration Global outreach and communication on FLR issues	Further activities and processes on FLR finance Facilitating FLR partnership interventions at country level
Bonn Challenge	Commitments of 12+ countries	Supporting practical implementation of FLR projects	Further country commitments needed
Landscapes for People, Food and Nature Initiative (LPFN)	International NGOs, development agencies, public and private institutions	Working group on sustainable landscape finance Several publications on finance for integrated landscapes management (ILM)	Proposed landscape academy Further analysis on finance for FLR
FLR Mechanism (FAO)	Supported by Korea Forest Service, Swedish International Development Agency (SIDA)	Awareness raising and fundraising Preparing guidelines and standards for baselines and verification of successful efforts for more effective reporting	Design and implementation of national FLR projects through national multistakeholder FLR platforms
Forest Ecosystem Restoration Initiative (FERI)	Republic of Korea	Envisaged as a six-year initiative, supporting CBD Parties in achieving Aichi Biodiversity Targets 5, 11, 14 and 15 by maximizing restoration efforts through knowledge sharing and technical support in: • assessing potential costs and benefits of restoration; • identifying and assessing areas with ecosystem and forest degradation and high potential for forest and ecosystem restoration; • implementing appropriate restoration activities; • managing the complex dynamics inherent in forest and ecosystem restoration	To be determined upon operational implementation (first round of FERI co-funded projects being announced in late 2015)
Global Donor Platform for Rural Development (GDPRD)	34 states and cooperation agencies (bilateral and multilateral)	Exchanging information and knowledge Producing guidelines on responsible investments	More active inclusion of local/national stakeholders, with implementation responsibility Integrating FLR in its work (not present so far) Developing a communication channel for FLR (e.g. Web page on GDPRD Web site)
International Model Forest Network (IMFN)	Government of Canada Link a broad mix of stakeholders	Landscape and ecosystem management based on social, environmental and economic needs of local communities	Continued efforts to build an enabling environment for FLR at the local level Testing innovative financing solutions for FLR (e.g. PES schemes).

Alliances and partnerships	Donors and investors	Contribution to FLR	Potential future contributions to FLR
REGIONAL SCOPE			
Asia-Pacific Network for Sustainable Forest Management and Rehabilitation (APFNet)	Donors: China, Australia, USA 18 partner organizations	Regional capacity development Knowledge exchange and production High-level regional policy dialogue Development of demonstration projects, including FLR projects	Integrating FLR finance into capacity development trainings Upscaling demonstration projects through intensified partnerships with donor organizatons and the private sector Mobilizing the private sector in policy dialogues and capacity development on FLR
Initiative 20×20	International organizations and private equity impact funds	Creating enabling environment for successful FLR Capacity development and information sharing among partner countries Attracting private funds for FLR implementation	Sharing information and good practices with other regions Intensifying implementation at the local/national level Continuing fund mobilization to support the enabling environment Supporting private impact funds in communicating their success stories Attracting more traditional investors
Great Green Wall for the Sahara and the Sahel Initiative (GGWSSI)	Donors: EU, World Bank/ GEF	Building an enabling environment for FLR by providing communication platforms, enabling public–private partnerships Communicating financing opportunities	Catalysing funds for FLR implementation Upscaling pilot initiatives Mobilizing more private investments Integrating private investors (traditional and impact) into key activities Initiating result-based payments Reinforcing MRV systems for SLM/FLR projects
TerrAfrica	Donors: Norway, France, Netherlands, European Union	Exchanging information and knowledge (knowledge platform) Producing guidelines for best practices in SLM	Catalysing funds for FLR implementation Upscaling pilot initiatives Integrating private investors (traditional and impact) into key activities Initiating result-based payments Reinforcing MRV systems for SLM/FLR projects
Collaborative Partnership on Mediterranean Forests (CPMF)	Donors: Germany (BMZ) and France (FFEM)	Exchanging information and best practices on SFM Building an enabling environment, especially for climate finance, public–private partnerships, use of national forest funds	Integrating FLR as an area of work Mobilizing private investors to implement FLR (e.g. cork oak, cedar, argan ecosystems)

Continues

Table 17, continued

Alliances and partnerships	Donors and investors	Contribution to FLR	Potential future contributions to FLR
NATIONAL SCOPE			
Southern Agricultural Growth Corridor of Tanzania (SAGCOT)	60+ partners, national and international (organizations and companies)	Attracting investments for development of profitable small-scale farming on 350 000 ha Creating business linkages between smallholder farmers and value-chain buyers through SAGCOT Catalytic Trust Fund	Implementing FLR including agroforestry Reinforcing public–private partnerships Sharing good practices and lessons learned with neighbouring countries
Costa Rican National Forest Fund (FONAFIFO)	Self-financing (oil taxes, water tariffs, etc) World Bank and KfW loans	Support to reforestation, agroforestry, ecosystem conservation and restoration Innovative and multiple financing mechanisms and tools	Potential orientation towards a combination of production, conservation and restoration Further development of the mechanism Strengthening sustainability of the financing mechanisms through innovation
The Atlantic Forest Restoration Pact, Brazil	260+ members	New technologies to increase the efficiency and reduce the cost of large-scale restoration Strategic partnerships among organizations, businesses, governments and individuals Local capacity building and promotion of business engagement	Disseminating lessons learned to other national initiatives Further mobilization of resources, e.g. from the private sector
Collaborative Forest Landscape Restoration Program (CFLRP), USA	Federal funds Leverages local resources with national and private resources	Proposes FLR projects for implementation on public land 23 collaborative restoration projects to date	Sharing lessons learned with other national initiatives Potential development of public–private partnerships

private partnerships and multiple financing sources.

Opportunities should also be seized to integrate FLR into platforms that are not specific to FLR, such as the Global Donor Platform for Rural Development (GDPRD) and the Collaborative Partnership on Mediterranean Forests (CPMF).

Existing platforms could interact more, sharing good practices. However, some of the existing platforms seem to have overlapping mandates, especially at the regional level. Strategic fusions between components of some of the initiatives could achieve economies of scale and reduce transaction costs.

Combining local, regional and global levels in platforms and alliances

Models that ensure bottom-up and top-down exchange of information on project ideas and financing opportunities may be very adapted for mobilizing the three types of investment required for FLR: up-front, implementation and self-sustaining investments. The International Model Forest Network (IMFN; www.imfn.net) may be considered an example of a partnership building on local alliances ("model forests", i.e. local forest governance programmes) involving a wide range of partners from different sectors. Regional model forest networks, acting as intermediaries between the

global and local alliances, enable regular exchange of information and good practices among the local model forests. FAO's FLR Mechanism – open to a wide range of donors and public and private institutions, and oriented towards implementation through national FLR platforms – is an example of such a multilevel partnership.

At the national level, some national forest funds may operate as partnerships for FLR. In Costa Rica, for example, FONAFIFO has a governance committee composed of several ministries and operationalizes its projects through the support of local NGOs such as the Comisión de Desarrollo Forestal de San Carlos (CODEFORSA) and the Fundación para el Desarrollo de la Cordillera Volcánica Central (FUNDECOR). International cooperation agencies are invited to collaborate through specific loan programmes, donations and technical assistance projects. Such multistakeholder partnerships joining the national level to international funding and local implementers enable practical implementation on the ground.

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The way forward

This chapter highlights take-home messages for future work towards attaining sustainable financing for FLR activities. Stakeholders involved in FLR initiatives are invited to consider these recommendations – as appropriate within the scope of their respective mandates, capacities and levels of engagement – and to discuss with relevant partners how to get there.

Thinking out of the box to make it happen

The challenge of reaching sustainable financing for FLR activities varies within a wide range of scenarios depending on the scope, size and objectives of specific FLR interventions, the stakeholders involved, the ecological and socio-economic constraints, and the financial resources needed. The FLR community is responding to this challenge with innovative approaches that are pushing traditional operational boundaries for FLR.

In this context, FLR promoters and implementers need to be creative and think out of the box when approaching the issue of how to finance FLR activities, as well as to work beyond their traditional set of partners, donors and investors. This will require a change in mentality with respect to how FLR interventions have traditionally been planned, towards a more integrative, synergistic and sometimes even opportunistic approach. It means seizing each and every feasible opportunity to pool institutional, financial and technical resources towards meaningful FLR interventions on the ground, to obtain tangible outcomes contributing towards local, national and global restoration targets.

Partnerships: no need to reinvent the wheel, just get it rolling

Sustainable financing for FLR can be achieved both by strengthening FLR portfolios within existing initiatives and processes that already have an FLR-related mandate, and by mainstreaming FLR investments within new or emerging partnerships.

At the global and regional or subregional levels, many alliances, partnerships and initiatives are already well positioned to lead the promotion and scaling up of FLR investments (e.g. Forest Ecosystem Restoration Initiative [FERI], Forest and Landscape Restoration Mechanism [FLRM], Great Green Wall for the Sahara and the Sahel Initiative [GGWSSI], GPFLR, Initiative 20×20, TerrAfrica, WBCSD). At the national and local levels, numerous examples of successful partnerships between government agencies, NGOs, development agencies and sustainable business and investment associations, together with increasing engagement of private impact funds, are showing how effective partnerships can pave the way for FLR financing and implementation.

Capacity development: the best value for money

National ministries, farmer associations, investors, decentralized government, civil society and other organizations (research, finance, promotion agencies) require capacity building in diverse areas: to understand the complexity of investment instruments,

to facilitate multistakeholder platforms, to create and leverage partnerships and to monitor investments, to name a few. International, multilateral and bilateral development agencies can have a catalytic role in scaling up FLR investments by designing adequate technical cooperation measures to support capacity development activities for both FLR promoters and investors, in areas of both financing and implementation. Such activities will support the readiness of relevant stakeholders to design bankable FLR projects, and the increased understanding of traditional and impact investors about the full set of benefits and opportunities that FLR investment can yield. Capacity development programmes can be tailored to specific needs, for example those of targeted FLR stakeholders, South-South and triangular cooperation measures or scalable pilot projects.

Marketplaces for FLR investments

The creation of both formal and informal fora in which FLR promoters and investors can meet is critical to FLR finance. Such FLR marketplaces can facilitate the matching of offer and demand for FLR investments. They can take different forms (e.g. online platforms, face-to-face events, specialized institutions, dedicated partnerships) at different levels (local, national, subregional, regional, global).

In this context, FLR champions acting as brokers will be required to identify the right set of partners, facilitate exchanges and increase the likelihood of successful FLR business deals and investments. FLR marketplaces should have FLR investors and promoters at the centre and should allow for the efficient self-regulation of offer and demand market dynamics. In this sense, sustainable business and investment associations could be relevant brokers that could drive sustainable FLR financing, particularly at the local and national levels.

The decisive role of governments

The political commitment of governments is critical for FLR finance. The Bonn Challenge, for example, is politically driven; this is one of the reasons for the strong adhesion to it. The initial pledges received under this initiative had a clear catalytic effect, triggering additional commitments from other countries. However, about 60 percent of the target has yet to be pledged, and some regions are not yet represented.

As regulators of the environment in which most FLR investments take place, national and local governments have a decisive role in facilitating FLR initiatives and interventions. The Collaborative Forest Landscape Restoration Program in the United States of America is an example of an FLR initiative that has had high-level political support. In 2009, at the launch of the programme, the United States Secretary of Agriculture called for "complete commitment to restoration" (USDA Forest Service, n.d.).

Through the promotion of solid environmental governance schemes, the implementation of adequate regulatory and enforcement frameworks, the integration of local stakeholders in relevant decision-making processes and support to local financing solutions, governments create the enabling environment needed for:

- the development and delivery of effective FLR initiatives;
- the engagement of relevant donors and investors interested in FLR;
- the reduction of both the actual and perceived risks of FLR investments to facilitate such engagement;
- the development of effective partnerships with local stakeholders for FLR implementation on the ground.

Private sector, the missing piece

Rough estimates of FLR finance distribution highlight that in the current situation most funds are provided by States and national environmental funds, as well as by development cooperation finance and climate finance streams. Given current trends of private-sector engagement under the drive of private impact funds, the willingness to develop more leverage mechanisms for private capital and the current evolution in citizen-led initiatives (NGOs, crowdfunding platforms), a different distribution could be likely in the future (Figure 27).

Indeed, if the FLR community is to achieve the various and ambitious FLR targets currently established under relevant regional and international processes, it cannot happen without the effective and meaningful engagement of the private sector.

Key prerequisites for attracting private sector investments to FLR include a clear description of financial and non-financial benefits from FLR investments; the identification and scaling up of successful FLR business cases and investment models;

effective FLR marketplaces; identification of strategies for mitigating investment risks; and an enabling environment for FLR investments. In addition, means of identifying investable/bankable projects need to be developed. To this end there is a need to incubate and foster a local FLR economy, for example by supporting local (small and medium-sized) enterprises that could be invested in and scaled up.

In seeking private-sector stakeholders, the FLR community is looking for bold investors that can appreciate mid- and long-term benefits beyond short-term financial returns on investments; that are interested in having a positive impact at the landscape level; that are truly committed to a high standard of environmental performance and social responsibility in their business operations; and that understand that consumers increasingly care about businesses' footprint on the land, both for current and future generations.

The donor community: responsible for facilitating transformation?

Possessing a wide range of financing tools, development finance institutions can orient their instruments to reduce sectoral silos, limit and avoid undesired ecological and social impacts and benefit multiple stakeholders at the landscape scale. They can also design, adapt and implement innovative national and local financing mechanisms for FLR, for example through national and local forest funds, microfinance instruments and credit lines in public and private banks. They can use these local or national financing instruments to implement public incentive schemes (e.g. payment for ecosystem services mechanisms) and couple these schemes to investments in sustainable value chains to ensure a long-term self-sustaining financing strategy.

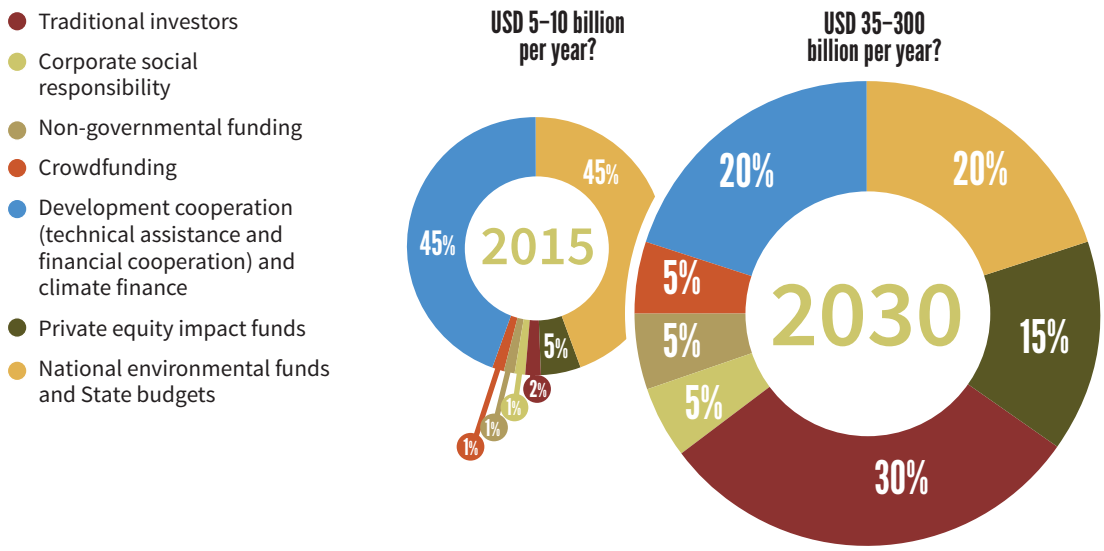
Technically, landscape finance can come from development partners; the question is how to propose an FLR project pipeline to them that corresponds to the priorities of the donor and is based on effective multistakeholder engagement at the landscape level. For this to be achieved, national counterparts will have to engage in FLR, demand increased donor support, and think beyond sectoral borders to design integrated and multifunctional FLR project proposals.

Opportunities are many in countries where value chains have development potential. In addition, many initiatives are already investing in landscape restoration, for example national forest funds. Development cooperation may support improvements and transformation where they are needed, applying technical assistance tools and funding mechanisms to obtain a large impact at the landscape level.

Citizens and individuals: a driving force for long-term change

Local communities and stakeholders must be at the centre of FLR. Targeted and well-crafted communication campaigns can raise the awareness of urban and rural populations on the importance of

FIGURE 27
Distribution of current and future FLR investment: a rough estimate



restoring degraded landscapes and can stimulate civic engagement which can be critical for FLR support. Citizen-led initiatives around the world show that FLR is a uniting theme that can mobilize people regardless of age, gender, religion, culture and nationality. Online crowdfunding platforms designed to support FLR activities offer boundless opportunities for financing small-scale FLR projects through a citizen-to-citizen approach. They may enable small-scale FLR project promoters and implementers at the community level to get rapid local impacts in an efficient way. Microfinance schemes could support such citizen-led FLR initiatives.

Local, national and international NGOs also play an important part in mainstreaming FLR issues in civil society and in designing adapted financing solutions for tangible local impacts.

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Annexes

Annex 1: Estimated costs and benefits of restoration projects in different biomes

Biome/ecosystem	Typical cost of restoration (high scenario) (USD/ha)	Estimated annual benefits from restoration (average scenario) (USD/ha)	Net present value of benefits over 40 years (USD/ha)	Internal rate of return (%)	Benefit/cost ratio
Coral reefs	542 500	129 200	1 166 000	7	2.8
Coastal	232 700	73 900	935 400	11	4.4
Mangroves	2 880	4 290	86 900	40	26.4
Inland wetlands	33 000	14 200	171 300	12	5.4
Lakes/rivers	4 000	3 800	69 700	27	15.5
Tropical forests	3 450	7 000	148 700	50	37.3
Other forests	2 390	1 620	26 300	20	10.3
Woodlands/shrublands	990	1 571	32 180	42	28.4
Grasslands	260	1 010	22 600	79	75.1

Source: TEEB, 2009

Annex 2: Interactions between financing sources (what A can bring to B)

B \ A	Climate finance	Development finance institutions (DFIs)	Environmental funds (EFs)	Non-governmental funding	National budget and resources	Private sector	Crowdfunding
Climate finance	Adaptation and mitigation windows in synergy for FLR	Adapting their own climate financing mechanisms to FLR	National climate change funds offer opportunities for local FLR investments	Implementing climate funds for local FLR projects	Including FLR measures in national climate policies (e.g. REDD+, NAMAs)	Climate-smart value chains in agriculture and forestry	Crowdfunding platforms raise funds for REDD+ local projects (e.g. Stand for Trees)
Development finance institutions	GCF selects implementing entities among DFIs Can channel funds to FLR (e.g. JMA projects)	Co-financing opportunities Stimulation of FLR partnerships and alliances	Can catalyse DFI funds Can help test DFI innovations	Implementing grant programmes	Adapting budget planning to innovations from DFIs	Value-chain stakeholders can offer pipeline opportunities Private funds' and investors' financial innovations can inspire DFIs	Opportunities to reach local FLR stakeholders (e.g. Agence des Microprojets)
Environmental funds	Channelling REDD+ funds into national forest funds	Offering loans and grants to EFs to facilitate implementation and ground operations	International, national and local EFs may work in synergy to channel funds to implementation	Support EFs in building a sound project pipeline	Some national forest funds channel State budget to FLR projects	Direct investment in intermediary EFs by private equity impact funds and traditional investors Project opportunities offered to EFs by value-chain stakeholders	Crowdfunding platforms can be connected directly to EFs
Non-governmental funding	Support to NGOs' FLR operations	Grants/ small grants programmes to support FLR field operations conducted by NGOs	Can provide funds to NGOs through grant schemes	International, national and local NGOs may work in synergy to channel funds to implementation	Providing State funds to NGOs through grant schemes	CSR operations offer opportunities to NGOs	Financing small-scale projects driven by NGOs
National budget and resources	Catalysing adaptation of national policies and budget planning for FLR	Offering loans, debt relief, grants, etc. to governments for work on FLR	Complementing State budgets (as EFs are generally extrabudgetary)	Testing innovations which the State may finance at larger scale	Reforming harmful subsidies Environmental fiscal reforms to enhance fundraising for FLR	Private funds and investors may complement national budgets and resources (e.g. public–private partnerships)	Can complement State budgets (e.g. Jewish National Fund)
Private sector	Eligibility of private companies as implementing entities under GCF	Offering loans, equity and guarantees to private companies involved in FLR value chains	Offering loans, equity and guarantees to private companies involved in FLR value chains	Awareness raising on private-sector opportunities in FLR Implementing CSR funds	Supporting private-sector integration in FLR through public subsidies, PES schemes and compensation payments Potential issuance of restoration bonds	Issuance of restoration bonds from private financial operators to individual or company holders	Small and medium-sized enterprises may obtain capital from crowdlending initiatives and seed funds from donation crowdfunding
Crowdfunding	Potential interest in supporting crowdfunding platforms to reach small-scale projects	Support to crowdfunding platforms to target funds to small-scale initiatives	Support to crowdfunding platforms to target funds to small-scale initiatives	Coordinating and operating crowdfunding platforms	Support to setup and design of crowdfunding platforms	Social companies can coordinate and operate crowdfunding platforms Local banks can operate as crowdlending intermediaries	International, national and local crowdfunding platforms may work in synergy to channel funds to implementation

Annex 3: Key development cooperation financing institutions

Multilateral development banks

Multilateral development banks (MDBs) are institutions that provide financial support and professional advice for economic and social development activities in developing countries. The term typically refers to the World Bank Group:

- International Bank for Reconstruction and Development
- International Development Association
- International Finance Corporation
- Multilateral Investment Guarantee Agency
- International Centre for Settlement of Investment Disputes

and these four regional development banks:

- African Development Bank
- Asian Development Bank
- European Bank for Reconstruction and Development
- Inter-American Development Bank Group

Multilateral financial institutions

Several other banks and funds that lend to developing countries are identified as multilateral development institutions and are often grouped together as other multilateral financial institutions (MFIs). They differ from the MDBs in that they have a narrower ownership or membership structure and they focus on special sectors or activities. Among these are:

- European Commission and European Investment Bank
- International Fund for Agricultural Development
- Islamic Development Bank
- Nordic Development Fund and Nordic Investment Bank
- The OPEC Fund for International Development

Bilateral development banks and key international cooperation agencies for international development

Among others:

- Australian Agency for International Development
- Austrian Development Agency
- Canadian International Development Agency
- Danish Development Agency
- Department for International Development Cooperation (Finland)
- Agence française de développement
- German Agency for International Cooperation
- Ireland Development Cooperation
- Japan Bank for International Cooperation
- Japan International Cooperation Agency
- Kreditanstalt fur Wiederaufbau
- Netherlands Development Cooperation
- New Zealand Official Development Assistance
- Norwegian Agency for Development Cooperation
- Swedish International Development Cooperation Agency
- Swiss Agency for Development and Cooperation
- Swiss State Secretariat for Economic Affairs
- United Kingdom Department for International Development
- United States Agency for International Development

Annex 4: Examples of FLR-relevant environmental funds with different geographical scope

Geographical scope	Contribution to FLR	Type of capital	Types of investments	Conditions for access
GLOBAL				
GEF	SLM and SFM funding windows	International public funds	Initial up-front Large scale	Submission of GEF project proposal according to GEF calendar Need for coordination with GEF and UN convention focal points
GCF	FLR is indirectly included in mitigation and adaptation performance measurement frameworks REDD+ result-based payments	International public funds, private donations (Private Sector Facility)	Mainstreamed up-front Large scale	National implementing entities are called for accreditation Possibility for forest administrations and national forest funds to be accredited
FFEM	SLM funding window Emphasis on innovative financing mechanisms for biodiversity	Public funds	Initial up-front and sustained financing Small to medium scale	Submitting FFEM project proposals according to FFEM calendar and requirements
LDN Fund	12 million hectares rehabilitated land per year	DFIs, institutional investors (banks, insurance companies), pension funds, private foundations, impact investment funds, HNWIs, others	Initial and mainstreamed up-front Mainly large scale; possibilities for small to medium scale Sustained financing *per se*	To be defined
REGIONAL				
Congo Basin Forest Fund	Afforestation, REDD+ readiness, stakeholder participation	Public funds (multilateral and bilateral cooperation)	Initial and mainstreamed up-front Medium to large scale	Regular calls for proposals opened to NGOs, public and private sectors
Amazon Fund	Afforestation, REDD+ readiness, stakeholder participation	Public funds (multilateral and bilateral cooperation)	Initial and mainstreamed up-front Medium to large scale	Regular calls for proposals opened to NGOs, public and private sectors.
NATIONAL				
FONAFIFO, Costa Rica	Afforestation, reforestation, PES, REDD+	Public funds (water tariff and oil tax), private donations, World Bank loans	Initial and mainstreamed up-front Medium to large scale Sustained financing *per se*	Application by local landowners to the PES programme Project selection by local FONAFIFO agencies
FONERWA, Rwanda	Afforestation, reforestation	National and international public funds (bilateral and multilateral cooperation)	Initial and mainstreamed up-front Medium to large scale Sustained financing *per se*	Regular calls for proposals opened to NGOs, public and private sectors.
LOCAL				
Forest Protection and Development Fund, Viet Nam – provincial REDD+ funds	Afforestation, reforestation, PES, REDD+,	Public funds, private donations, international financing (REDD+)	Initial and mainstreamed up-front Medium to large scale Sustained financing *per se*	Selection of projects at the provincial/ community level

Continues

Annex 4, continued

Geographical scope	Contribution to FLR	Type of capital	Types of investments	Conditions for access
LOCAL				
Northern Arizona Forest Fund, United States of America	Habitat improvement and re-vegetation projects, stream and wetland restoration, restoration of natural fire to the forest ecosystem	Public funds, private donations, citizen participation	Initial and mainstreamed up-front Medium to large scale Sustained financing *per se*	Funds awarded to selected local non-profit stewardship organizations and local contractors United States Forest Service to implement high priority projects in selected areas
Columbia Valley Local Conservation Fund, East Kootenay, Canada	Ecosystem restoration, including forest, grasslands, water ecosystems	Taxes on local properties	Initial and mainstreamed up-front Small to medium scale Sustained financing *per se*	Regular calls for proposals Selection by a committee hosted by the regional district with the support of the Kootenay Conservation Programme

Annex 5: Examples of FLR initiatives financed by or through national civil society organizations

TEMA Foundation, Turkey

www.tema.org.tr

TEMA, the Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats, is financed mainly by CSR partnerships and individual donations (online), for projects on reforestation and carbon sequestration, rural development, biodiversity conservation and combating desertification.

Utthan, India

www.utthan.in

In 1996 the Indian NGO Utthan, in partnership with the International Network for Bamboo and Rattan (INBAR), launched the programme Greening Red Earth, aimed at restoring lands degraded by soil removal for brick-making. Supported by 120 local NGOs, the project rehabilitated 85 000 ha of degraded land through bamboo plantation, in the process engaging 10 000 forest villages and helping to bring 5 million indigenous families out of poverty (INBAR, 2014).

Al Madanya, Tunisia

http://almadanya.org/green-tunisia

The Tunisian NGO Al Madanya was founded in 2011 to empower civil society in all development priorities of the country. In 2014 it launched the Green Tunisia Programme to plant 1 million trees on degraded lands, in the framework of the Pact for a Green Tunisia and in cooperation with the Ministry of Agriculture of Tunisia. A total of USD 675 000 is allocated to project activities over three years.

Habitat Conservation Trust Foundation (HCTF), British Columbia, Canada

www.hctf.ca

HCTF is a non-profit charitable foundation operating as trustee of the Habitat Conservation Trust Fund. Its funding for on-the-ground activities comes mainly from wildlife resource users through licence fees for fishing, hunting and trapping. Several projects address restoration issues, e.g. the Burrard Inlet Restoration Pilot Program created to restore ecosystems degraded by an oil spill in 2007.

Plant a Tree Today Foundation (PATT), United Kingdom and Thailand

www.pattfoundation.org

PATT is a Thai Foundation registered as a charity in the United Kingdom, operating in Southeast Asia. PATT initiates, develops and manages large-scale reforestation projects addressing deforestation and climate change. In conjunction with its reforestation projects, PATT conducts environmental education programmes for schoolchildren across the United Kingdom and Thailand. Funds are collected online through individual contributions.

American Forests, United States of America

www.americanforests.org

Since 1990, American Forests Global ReLeaf programme has restored forest ecosystems in all 50 states of the United States of America and 45 countries around the world, helping to plant nearly 50 million trees. The objectives of restoration include wildlife habitat improvement, response to wildfire and other threats, water resource protection and carbon offsets benefits. American Forests involves individuals, organizations, agencies and corporations in tree planting projects through local partnerships.

Annex 6: Private equity impact funds involved in FLR

Fund	Contributions to FLR	Geographical scope	Source of capital[a]	Expected environmental return	Expected economic return
Althelia Climate Fund	Large-scale mosaic projects combining conservation and restoration (about USD 10 million per project)	Africa, Asia, Latin America	Private- and public-sector institutions such as the Church of Sweden, European Investment Bank, Finnfund, FMO	High-quality carbon credits	Economic valorization of key value chains
Moringa Fund	Large-scale agroforestry projects (about USD 5–10 million per project)	Latin America, sub-Saharan Africa	Private investors: Compagnie Benjamin de Rothschild, Korys, Institutional investors: FISEA, CAF, Finnfund, FONPRODE, Korys, FMO, AfDB	High-quality carbon credits (environmental and social co-benefits targeted [impact measurement, etc.] but economic valorization marginal)	Economic valorization of key agroforestry value chains
Terra Bella Fund	Community-based forest and agricultural emission reduction projects (about USD 5–10 million per project)	Africa, Latin America, Southeast Asia	Private- and public-sector institutions	High-quality carbon credits and co-benefits	Revenue from agriculture, rural energy and/or emission reductions
Permian Global	Protection and recovery of natural forests	Africa, Latin America, Southeast Asia	Private- and public-sector institutions	High-quality carbon credits	No
Livelihoods Carbon Fund	Mangrove restoration, agroforestry and rural energy	Africa, Latin America, Southeast Asia	Private companies (e.g. Danone, SAP software, Michelin), developmental agencies, NGOs	High-quality carbon credits	No
Livelihoods Fund for Family Farming (Livelihoods 3F)	Large-scale sustainable agriculture projects (EUR 120 million [~USD 137 million] invested)	Africa, Latin America, Southeast Asia	Private companies (Danone, Mars), development agencies, NGOs	High-quality carbon credits	Positive long-term return on investment
Landscape Fund (under design)	Large portfolio of small-scale projects led by smallholders	Developing and developed countries	Private companies, public institutions, restoration bonds	Carbon sequestration/ storage and co-benefits, but no valorization expected	Economic revenues from agricultural value chains
Land Degradation Neutrality Fund (under design)	Large-scale land rehabilitation; activities include sustainable agriculture, sustainable forest management, renewable energy, ecotourism	Developing and developed countries, worldwide	Institutional investors, pension funds, private foundations, protected by DFI funding	Revenues from carbon credits	Return from increased value of land under management, which will be leased or sold

Fund	Contributions to FLR	Geographical scope	Source of capital[a]	Expected environmental return	Expected economic return
EcoBusiness Fund	Agriculture, agri-processing, forestry, fishery and aquaculture, ecotourism	Central and South America	KfW, BMZ, GLS Bank (Germany)		Revenue from companies' growth
Arbaro Forest Fund (under design)	Creation and management of new forestry projects, preferably in joint venture with local partners; investment in existing companies and management of existing (semi-mature or harvestable) forests	Central and South America, Eastern Africa	To be defined	Ecological and social value-added	Financial returns from diversified sources including sale of products (mainly timber), of forest and land assets and of shares in local companies
EcoEnterprises II	Organic agriculture (apiculture, aquaculture and community-based energy), ecotourism, sustainable forestry and non-wood forest products (USD 500 000 to 3 million per project)	Central and South America	TNC, IADB, Hivos-Triodos Fonds, Oikocredit, Calvert Foundation, Blue Moon Fund, family offices and private accredited investors	Carbon, climate change and biodiversity-related benefits (captured through monitoring and evaluation tool)	Focus on expansion/ growth stage companies with annual revenue of up to USD 5 million
Commonland (foundation, development companies, investment fund)	Development of landscape restoration projects: forestry, agriculture, tourism, restoring native vegetation, landscape governance	Investment in ventures in Australia, South Africa and Spain; scouting worldwide	Not available	Inspirational, social, natural and financial returns ("4 returns" framework)	Diversified returns from combinations of agriculture, forestry, water management, land assets, carbon, tourism, and new social and industrial developments associated with these
Global Environmental Fund (London)	Forest plantation and regeneration for wood production and transformation	Developing and developed countries	Private investors	Carbon credits	Economic revenues from forest value chains

[a] AfDB: African Development Bank; BMZ: Federal Ministry for Economic Cooperation and Development, Germany; CAF: Development Bank of Latin America; FISEA: Fonds d'investissement et de soutien aux entreprises en Afrique (dedicated to investment in sub-Saharan Africa owned by France's Agence Française de Développement and managed by its subsidiary PROPARCO); FMO: Dutch development bank; FONPRODE: Fund for Development Promotion of the Spanish Cooperation; GLS: Gemeinschaftsbank für Leihen und Schenken (community bank for loans and gifts); IADB: Inter-American Development Bank; KfW: Kreditanstalt für Wiederaufbau (reconstruction credit institute); TNC: The Nature Conservancy

Source: With inputs from LPFN & EcoAgriculturePartners, 2015

Annex 7: Some information resources, tools and guidelines on FLR

Resource	Brief description
PLATFORMS	
FAO GeoNetwork www.fao.org/geonetwork	Platform providing access to interactive downloadable maps, satellite imagery and related spatial databases maintained by FAO and its partners
UNEP Environmental Data Explorer http://geodata.grid.unep.ch	Online data sets containing more than 500 variables, which can be downloaded in different formats and are displayable on-the-fly as maps, graphs and data tables
WRI dataset www.wri.org/resources	Platform containing maps, charts, data sets, infographics and other visual resources produced on WRI's data and research.
eAtlas of Global Development (World Bank) data.worldbank.org/atlas-global	Interactive electronic atlas allowing users to map and graph indicators over time and across countries, to compare and animate maps and to import data
World Overview of Conservation Approaches and Technologies (WOCAT) www.wocat.net	Global online database for storage, search and exchange of SLM practices
Catalogue of Assessments on Biodiversity and Ecosystem Services (IPBES) http://catalog.ipbes.net	Source of information on assessments of biodiversity and ecosystem services from the global to the subnational scales
Climate Change Knowledge Portal (World Bank) http://sdwebx.worldbank.org/climateportal	Central hub of information, data and reports about or related to climate change from all over the world, allowing queries, mapping, comparison and chart development
IPCC Data Distribution Centre www.ipcc-data.org	Database providing climate, socio-economic and environmental data, including historical data as well as projected future scenarios
SPATIAL DATA SOURCES	
Global Forest Resources Assessment (FAO) www.fao.org/forestry/fra	Statistics on forest area and characteristics, forest production, protective functions, biodiversity/conservation, disturbance, sustainable forest management, economics/ownership, projections of future forest area
Global Forest Watch initiative (WRI) www.globalforestwatch.org	Collection of spatially explicit global, regional and national datasets presented in an interactive map viewer that allows users to select areas of interest, calculate statistics on tree cover loss, gain, and extent, subscribe to tree clearing alerts, and view and submit stories
Atlas of Forest Landscape Restoration Opportunity (WRI) www.wri.org/resources/maps	First global approximation of where deforested and degraded forest lands have potential to be restored for socio-economic and environmental benefits
World Ecological Land Units Map (ESRI & United States Geological Survey [USGS]) esriurl.com/globalelu	Systematic division and classification of ecological and physiographic information about land surface features Provides an accounting framework to assess ecosystem services, as well as risks
Global Land Degradation Information System (GLADIS) (FAO) www.fao.org/nr/lada/gladis/glad_ind	Information database for land degradation assessment at the global level providing access to downloadable global maps on the status and trends of the main land and ecosystem resources
Ecosystem Services Partnership (ESP) Visualization Tool http://esp-mapping.net	Interactive tool for sharing ecosystem service maps and mapping methodologies Currently under development
Global Assessment of Soil Degradation (GLASOD) (UNEP) www.isric.org/projects	World map of human-induced soil degradation

Resource	Brief description
Heinrich Böll Foundation & Institute for Advanced Sustainability Studies. 2015. *New soil atlas*	Maps and articles on land and soil issues; insights into the current state of soils and threats facing them
Food Insecurity, Poverty and Environment Global GIS Database (FGGD) (FAO) http://geonetwork3.fao.org/fggd	Global analysis of food insecurity and poverty in relation to environment
Biodiversity Hotspots (CEPF) www.cepf.net/resources/hotspots	Overview and maps of worldwide biodiversity hotspots
CBD. 2010. *Biodiversity scenarios: Projections of 21st century change in biodiversity and associated ecosystem services.* CBD Technical Series No. 50	Projections of biodiversity change modelled or extrapolated from experiments and observed trends
UNEP. 2014. *Towards a global map of natural capital: Key ecosystem assets*, by B. Dickson, R. Blaney, L. Miles, E. Regan, A. van Soesbergen, E. Väänänen, S. Blyth, M. Harfoot, C.S. Martin, C. McOwen, T. Newbold & J. van Bochove	Composite map with layers of key ecosystem assets (i.e. freshwater resources, soil quality for plant growth, terrestrial organic carbon, terrestrial and marine biodiversity, global fish catch)
Climate Change Knowledge Portal (World Bank) http://sdwebx.worldbank.org/climateportal	Central hub of information, data and reports about climate change Allows querying, mapping, comparing, developing charts and summarizing key climate and climate-related information from all over the world
Zomer, R.J., Trabucco, A., Coe, R., Place, F., van Noordwijk, M. & Xu, J.C. 2014. *Trees on farms: An update and reanalysis of agroforestry's global extent and socio-ecological characteristics.* Working Paper 179. World Agroforestry Centre (ICRAF) Southeast Asia Regional Program	Compares current levels of tree cover on agricultural lands with potential tree cover, defined on the basis of geographic region, climate and population density Suggests that several regions worldwide are below their potential in terms of tree cover and corresponding livelihood benefits and ecosystem services, and could be priority regions for investment in restoration
A global map of the functionality of terrestrial ecosystems (IBPES) http://catalog.ipbes.net/assessments/200	Map showing information on which continental areas have the highest functionality (supply most services to humanity and the biosphere) and deserve particular protection, especially with regard to climate change Proposes a global proxy-based index of ecosystem functionality
Global Land Cover Map (Climate Change Initiative [CCI]) http://ionia1.esrin.esa.int/page_landcoverdata.php	Makes use of available satellite sensor data to provide maps with an accurate land-cover classification that can serve the climate modelling community (legend based on the FAO/UNEP Land Cover Classification System)
Proportion of land salinized due to irrigation (FAO) www.fao.org/nr/solaw/maps-and-graphs	Map representing the spatial distribution of soil salinization (an index of soil degradation)
NON-SPATIAL DATA	
Status of world soil resources (Intergovernmental Technical Panel on Soils [ITPS], in preparation)	Assessment of global soil resources (current and projected soil conditions), threats to soil functions and the implications for food security, climate change, water quality and quantity, biodiversity, human health and well-being
Millennium Ecosystem Assessment. 2005. *Ecosystems and human well-being: Current state and trends*. Island Press	Assessment of the consequences of ecosystem change for human well-being; establishes the scientific basis for actions needed to enhance the conservation and sustainable use of ecosystems and their contributions to human well-being
UNEP. 2012. *GEO-5: Global Environment Outlook – Environment for the future we want*	Integrated environmental assessments reporting on the state, trends and outlooks of the environment Next edition (GEO-6) expected in mid-2017

Continues

Resource	Brief description
FAO. 2014. *State of the World's Forests 2014*	Analysis of forests' contribution to the environment and to people's livelihoods and well-being
IPCC. 2014. *Climate Change 2014: Impacts, adaptation, and vulnerability.* Cambridge University Press	Addresses climate change impacts that have already occurred and risks of future impacts
CBD. 2014. *Global Biodiversity Outlook 4 – A mid-term assessment of progress towards the implementation of the Strategic Plan for Biodiversity 2011–2020*	Overview of progress towards meeting the Aichi Biodiversity Targets and potential actions to accelerate that progress
Global Risk Forum GRF Davos for UNCCD. 2013. *The economics of desertification, land degradation and drought: Methodologies and analysis for decision-making*	Estimates the costs of desertification, land degradation and drought and the benefits of sustainable land management for different parts of the world, and provides a toolbox for assessing costs and benefits of SLM
Basque Centre for Climate Change. 2010. *Economic assessment of forest ecosystem services losses: Cost of policy inaction*	Bottom-up methodological framework for estimating some of the key ecosystem services provided by forests biomes worldwide
ITTO & IUCN. 2005. *Restoring forest landscapes: An introduction to the art and science of forest landscape restoration*	Site-level forest restoration options for different types of degraded ecosystems
PROFOR & World Bank. 2011. *Investing in trees and landscape restoration in Africa*	Overview of site-level forest restoration options for different types of degraded ecosystems
GUIDELINES	
IUCN & WRI. 2014. *A guide to the Restoration Opportunities Assessment Methodology (ROAM): Assessing forest landscape restoration opportunities at the national or sub-national level*	Affordable framework for analysing forest landscape restoration potential; ensuring local stakeholder involvement; locating areas of opportunity at national or subnational scale
Tool for National Assessment of Forest Landscape Restoration Potential (GPFLR, under development)	Methodology and tools for locating degraded lands and predicting benefits and costs of restoration
Locatelli, B., Herawati, H., Brockhaus, M., Idinoba, M. & Kanninen, M. 2008. *Methods and tools for assessing the vulnerability of forests and people to climate change: An introduction*. Working Paper No. 43. CIFOR	Overview of methods and tools suitable for assessing the vulnerability of forests, forest ecosystem services and forest-dependent people or sectors to climate change
Forest Carbon Partnership Facility & UN-REDD. 2012. Guidelines on Stakeholder Engagement in REDD+ Readiness with a Focus on the Participation of Indigenous Peoples and Other Forest-Dependent Communities	Guide to stakeholder engagement; identifies sites where marketing and financial arrangements can foster successful large-scale investment in trees and land restoration
FAO & PROFOR. 2014. *Assessing forest governance*	Guide for measuring and assessing forest governance based on previous experiences and providing useful practices and resources
FAO. 2012. *Voluntary guidelines on the responsible governance of tenure of land, fisheries and forests in the context of national food security*	A reference for improving tenure governance with the overarching goal of achieving food security and supporting the right to adequate food for all
WWF. 2007. *WWF: five years of experience in FLR – lessons learned*	Recommendations for implementation of forest restoration at a landscape scale for forest practitioners, conservationists and policy-makers
Thematic assessment on land degradation and restoration (IPBES, in preparation [by 2018])	Global status and trends in land degradation, by region and land cover type; effect of degradation on biodiversity values, ecosystem services and human well-being
FAO. 2015. *Global guidelines for the restoration of degraded forests and landscapes in drylands*	Analysis of the major issues, challenges and opportunities for dryland restoration and guidance for a wide range of users
FAO. 2010. *Grassland carbon sequestration: management, policy and economics*	13 contributions on measuring soil carbon in grassland systems and sustainable grassland management practices

Resource	Brief description
FAO. 2004. *Carbon sequestration in dryland soils.* World Soil Resources Reports No. 102	Analysis of potential for carbon sequestration in drylands Based on case studies Includes overview of policies and economic incentives regarding soil carbon sequestration
FAO. 2010. *Integrated crop management: Challenges and opportunities for carbon sequestration in grassland systems*	Components that could foster the inclusion of grasslands in a post-2012 climate agreement Development of policies to improve grassland management.
Environmental Law Institute (ELI) & The Nature Conservancy. 2014. *Prioritizing wetland and stream restoration and protection using landscape analysis tools*	Information to guide the development, establishment and refinement of geospatial tools for identifying restoration and protection priorities
ARCADIS. 2014. *Implementation of 2020 EU Biodiversity Strategy: Priorities for the restoration of ecosystems and their services in the EU*	Provides support to the EC and Member States on the implementation of Target 2 of the EU Biodiversity Strategy Development of the strategic framework for setting priorities for ecosystem restoration at subnational, national and EU level
MODELLING TOOLS	
Integrated Valuation of Ecosystem Services and Tradeoffs (InVEST) www.naturalcapitalproject.org/InVEST.html	Suite of software models for mapping and valuing goods and services from nature Enables decision-makers to quantify trade-offs of alternative management choices and to identify areas for investment
Artificial Intelligence for Ecosystem Services (ARIES) http://ariesonline.org	Web-based technology for rapid ecosystem service assessment and valuation (ESAV)
Modelling System for Agricultural Impacts of Climate Change (MOSAICC) (FAO) www.fao.org/climatechange/mosaicc	Integrated package of models for assessing the impact of climate change on agriculture, including variations in crop yields and effects on national economies
FAO. 2004. *Assessing carbon stocks and modelling win–win scenarios of carbon sequestration though land-use changes*, by R. Ponce-Hernandez	Models and tools for analysis of land-use change scenarios to identify, in a given area (watershed or district), land-use alternatives and land management practices that simultaneously maximize food production, soil carbon sequestration and biodiversity conservation and minimize land degradation

Annex 8: Initiatives related to the economics of ecosystems

Initiative	Brief description
The Economics of Ecosystems and Biodiversity www.teebweb.org	• Global initiative • Draws attention to the economic benefits of biodiversity, including the growing cost of biodiversity loss and ecosystem degradation • Presents an approach that can help decision-makers recognize, demonstrate and capture the values of ecosystem services and biodiversity
Biodiversity Finance Initiative (UNDP-BIOFIN) www.biodiversityfinance.net	• A USD 15 million initiative aiming to develop and pilot a new approach and methodology for leveraging increased biodiversity investment at the national level • Currently working in 19 countries • Supports governments to: review policies and institutions relevant for biodiversity finance; determine baseline investment and assess the costs of implementing National Biodiversity Strategies and Action Plans, thereby quantifying the biodiversity finance gap; and develop comprehensive national resource mobilization strategies and begin to implement them
Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) www.ipbes.net	• Established in 2012 as an independent intergovernmental body for assessing the state of the planet's biodiversity, its ecosystems and the essential services they provide to society • Open to all member countries of the United Nations • Transparent and expert synthesis, review, assessment and critical evaluation of relevant information and knowledge generated worldwide by governments, academia, scientific organizations, NGOs and indigenous communities • Aims to strengthen capacity for the effective use of science in decision-making at all levels, and to ensure synergy and complementarities among multilateral environmental agreements related to biodiversity and ecosystem services
Wealth Accounting and the Valuation of Ecosystem Services (WAVES) www.wavespartnership.org	• A global partnership of UN agencies, governments, international institutes and NGOs promoting sustainable development • Recognizes and reflects the importance of natural capital in national accounts • In part catalysed by TEEB
OECD's programme on economics and policies for biodiversity www.oecd.org/env/resources/biodiversity.htm	• Provides governments with analysis to support the development of biodiversity policies that are economically efficient, environmentally effective and distributionally equitable • Policy analysis focuses on the economic valuation of biodiversity and ecosystem services, and the use of economic instruments, incentives and other policy measures to promote the conservation and sustainable use of biodiversity and associated ecosystem services • Supports CBD
Economics of Land Degradation www.eld-initiative.org	• An open interdisciplinary partnership developing a holistic framework for considering the economic values of land in political decision-making processes • Specific objectives include: building a compelling economics case for economic benefits derived from sustainable land management from the local to the global level; estimating the economic benefits derived from adopting sustainable land-management practices and comparing them to the costs of these practices; sharpening awareness of the socio-economic value of land and related ecosystem services; and proposing effective solutions, policies and activities to reduce land degradation, mitigate climate change and deliver food, energy and water security worldwide
ValuES www.aboutvalues.net	• A global project supporting integration of ecosystem services into policy, planning and practice • Aimed at practitioners, advisors and decision-makers in ministries and other organizations • Promotes comparative analysis of valuation methods and training in their use • Promotes international exchange of experience
Environmental Valuation Reference Inventory (EVRI) www.evri.ca	• A searchable storehouse of empirical studies on the economic value of environmental benefits and human health effects • Developed as a tool to help policy analysts use the benefits transfer approach as an alternative to carrying out new valuation research
Ecosystem Services Value Database (EVSD) www.fsd.nl/esp/80763/5/0/50	• A database on monetary values of ecosystem services containing over 1 350 data points from over 300 case studies • Developed within the context of a TEEB project (2008–2010), supported by many members of the Ecosystem Services Partnership (ESP) (especially the Biome Expert Group leads) and TEEB researchers • Will be developed further as one of the main ESP activities

The degradation of land and forest resources threatens the livelihoods of the millions of people who depend on them. Every year, some 12 million hectares of land are degraded while 7.6 million hectares of forest are converted to other uses or lost through natural causes. Forest and landscape restoration (FLR) points towards reversing the degradation and upscaling the sustainable management of natural resources, including land, soil, forests and water.

The global community has shown strong commitment to FLR by embracing ambitious targets: the Bonn Challenge calls for restoring at least 150 million hectares of degraded land by 2020; Aichi Target 15 of the Convention on Biological Diversity (CBD) aims for restoration of at least 15% of degraded ecosystems by 2020; the New York Declaration on Forests targets the restoration of 350 million hectares by 2030; and target 15.3 of the Sustainable Development Goals aims to achieve land degradation neutrality by 2030. However, the mobilization and allocation of adequate financial resources remains one of the main constraints for the effective implementation of large-scale FLR activities on the ground.

In this context, FAO and the Global Mechanism of the UNCCD have joined efforts to prepare this discussion paper on sustainable financing for FLR. It provides an overview of existing funding sources and financial instruments that could be used and adapted specifically for the implementation of FLR efforts at the national, regional and global levels. It identifies innovative financing mechanisms to support the achievement of these global targets and discusses the main challenges for enhanced FLR financing. Based on lessons learned through many related initiatives, it also proposes solutions to support the enabling conditions needed for sound FLR investments.

This discussion paper will help FLR stakeholders better understand the financial architecture related to FLR and identify areas that need further action to unlock the potential of sustainable financing mechanisms for FLR.

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