Chapter 1
Introduction

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The relationships between *biodiversity*[1], *carbon*, *forests* and people are complex and interdependent. Reducing the rates of global *deforestation* and *forest degradation* will yield substantial gains for *climate change mitigation* and biodiversity conservation. Under appropriate conditions, it could also achieve significant social and economic gains. The degree to which these goals are met through a mechanism such as REDD+[2] will depend on the specific policies and practices employed. Should biodiversity and human well-being not be given sufficient consideration, there is a very real risk that REDD+ may fall short in achieving its objectives.

To ensure that benefits from REDD+ are achieved, it is important to understand the underlying scientific premises for reducing *emissions* from deforestation and forest degradation; the relationships between carbon, biodiversity and people and how these are affected by management, as well as the broader *governance* context which frames REDD+. This assessment report aims to further this understanding by providing recent and policy-relevant scientific information to support decision-making on activities for meeting REDD+ objectives.

1.1 Forests, carbon and biodiversity

Covering about a third of the earth's land surface (just over 4 billion hectares – FAO, 2010) forests play a major role in the global carbon cycle and contain a substantial proportion of the world's terrestrial biodiversity. Forests also provide a broad range of other *'ecosystem services'*- the benefits people obtain from *ecosystems*. These ecosystem services include supporting services such as nutrient cycling, soil formation and primary productivity; provisioning services such as food, water, timber and medicine; regulating services such as erosion control, climate regulation, flood mitigation, purification of water and air, pollination and pest and disease control; and cultural services such as recreation, ecotourism, educational and spiritual values (MA, 2005). Deforestation and forest degradation in the tropics and sub-tropics have a large negative impact on terrestrial biodiversity, and thus on the provision of those ecosystem services that are most closely linked to biodiversity.

One of the key supporting services provided by forests is carbon removal from the atmosphere (*sequestration*[3]) and the long-term storage of this carbon in *biomass*, dead organic matter and soil carbon pools. Of the global forest *carbon stocks*, an estimated 55 percent (471 Pg C) is stored in (sub-)tropical[4] forests, of which more than half is stored in biomass (Pan et al., 2011). The role of forests in sequestering carbon is evident when considering that 57 percent of the carbon emitted annually from global fossil fuel use and land-use change is absorbed by land and ocean sinks, cutting in half the rate of increase in atmospheric CO_2 concentrations over the past four decades (Le Quéré et al., 2009). Specifically, forests globally are estimated to have contributed a net sink of 1.1 Pg C yr^{-1} between 1990 and 2007. In (sub-)tropical regions, while intact forests absorb 1.2 Pg C yr^{-1}, this amount is offset by the net emissions resulting from land-use changes (i.e., deforestation and clearing emissions minus regrowth storage) of 1.3 Pg C yr^{-1} (Pan et al., 2011), making (sub-)tropical forest regions a net source of atmospheric carbon of approximately 0.1 Pg C yr^{-1} (Pan et al., 2011). These figures highlight the very fine line between the (sub-)tropical regions acting as a net source of *carbon emissions* or a net *carbon sink*.

Today, more than ever, the future of the global forest carbon sink is highly uncertain. The loss of biodiversity, linked to deforestation and forest degradation, could further diminish the ability of forests to effectively provide multiple ecosystem services, including, carbon sequestration. As a result, human well-being - particularly for those most dependent on forests and most vulnerable - could be significantly and adversely impacted. Equally the loss of biodiversity could further tip the balance leading to (sub-)

[1] Throughout this assessment report, all terms that are defined in the glossary are introduced for the first time in a chapter using *italics*.
[2] Reducing emissions from deforestation and forest degradation, and enhancing forest carbon stocks in developing countries.
[3] Throughout this assessment report, '(sub-)tropical' includes both tropical and sub-tropical regions.

tropical forested regions becoming growing sources of carbon emissions. In this context, efforts to reduce deforestation and forest degradation are of critical value.

1.2 Impacts of deforestation and forest degradation

Deforestation, resulting mainly from conversion of forests to agriculture, has been estimated at between 13 to 16 million hectares (Mha) per year between 1990 and 2010 (FAO, 2010). However, as a result of large-scale forest planting efforts, natural expansion of forests, and successes in slowing deforestation rates in some countries, the net global loss in forest area has slowed from 8.3 million ha (1990 to 2000) to 5.2 Mha (2000-2010) (FAO, 2010). Forest loss is the second largest anthropogenic source of carbon dioxide emissions to the atmosphere, contributing the equivalent of about 12 percent of fossil fuel emissions in 2008 (van der Werf et al., 2009; Pan et al., 2011). Deforestation results in immediate CO_2 emissions (with small amounts of CO, CH_4 and N_2O) when biomass and dead organic matter is burned, and in slower releases when biomass and dead organic matter decay. At the same time, deforestation is the major cause of global biodiversity loss in terrestrial ecosystems (SCBD, 2010). The loss of forest cover and related ecosystem services has a range of negative repercussions on local stakeholders, including the poor and most vulnerable.

Forest degradation - or changes in forest condition that result in the reduction of the capacity of a forest to provide goods and services - also contributes to global anthropogenic CO_2 emissions, as well as reductions in biodiversity. It has been estimated that the area of degraded forests[4] in tropical regions increased by 2.4 million ha yr^{-1} during the 1990s (Nabuurs et al., 2007).

The Intergovernmental Panel on Climate Change (IPCC) has stated that forest-related mitigation activities can considerably reduce emissions from sources and increase CO_2 removals by sinks at low costs, and can be designed to create synergies with *adaptation* and sustainable development (IPCC, 2007). Reducing or reversing forest degradation in (sub-)tropical regions will also contribute to climate change mitigation given the significant impacts of forest degradation on global biodiversity and ecosystem services, including carbon sequestration. Yet the means by which reductions in deforestation and forest degradation are accomplished will determine the rate of change, and the extent and type of impacts on forest biodiversity and on the broader range of services provided by forests at local to global scales.

Actions taken to enhance the role of forests in climate change mitigation may have positive, neutral or negative impacts on the capacity of forests to provide specific benefits to society. The REDD+ interventions themselves can have substantial socio-economic consequences, both positive (such as increased financial flows to poor communities) and negative (such as the loss of access to forest resources). They may also have consequences beyond forests, for example, altering the distribution of and incentives for other forms of land use, including agriculture. Further, if actions to enhance the role of forests in climate change mitigation are to be effective and long-lasting they must adequately address the underlying causes of deforestation and forest degradation, including increased demand for agricultural land, timber and other forest products, lack of inter-sectoral policy coordination and weak governance. The interactions, relationships and potential trade-offs and compromises among mitigation objectives, biodiversity and ecosystem services outcomes, and the needs and aspirations of stakeholders need to be understood, negotiated and reconciled.

1.3 REDD+: A moving target

Reducing emissions from deforestation and forest degradation, and enhancing forest carbon stocks in developing countries (REDD+) is a proposed mechanism for climate change mitigation. It has been designed to encourage developing countries to contribute to climate change mitigation through the following five sets of (non-exclusive) activities: reduction of emissions from deforestation and forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks.

The notion of REDD+ means different things to different countries, organisations and individuals. Its strongest proponents see it as a quick, relatively inexpensive option for mitigating climate change that will mobilise significant resources and successfully achieve its objectives. Many hope that it will also stimulate efforts to transform national policies and governance systems to meet biodiversity conservation goals and improve the livelihoods of people through, for example, more sustainable management of forests and forest landscapes, resolution of long-standing land tenure issues, and improved coordination of policies between forest, agriculture, energy and other sectors. By contrast, the critics of REDD+ hold different views, emphasising a lack of clarity regarding the eventual architecture of the international REDD+ regime and the international financial mechanisms that will underpin it, the environmental and social risks and inequity associated with various aspects of REDD+ policy development, planning and implementation (e.g., issues of sovereignty, risk of 'land grabs') and long-standing difficulties in addressing the underlying causes of deforestation and forest degradation.

The topic of reducing emissions from deforestation and forest degradation in developing countries was first introduced at the eleventh session of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) in Montreal in December 2005. The 'Bali Action Plan' which emerged from the 13th session of the Conference of the Parties to the UNFCCC in December 2007, acknowledged that

[4] When defined as a decrease in forest stand density or increase of disturbance in forest classes

reducing *greenhouse gas* emissions from deforestation and forest degradation (i.e., REDD) could potentially yield a range of environmental and social 'co-benefits' that could complement the aims and objectives of other multilateral agreements (discussed in Chapter 5 of this report).

Three years later, in December 2010, at the 16th session of the UNFCCC Conference of the Parties in Cancún, Mexico, an agreement was reached on policy approaches and positive incentives on issues relating to reducing greenhouse gas emissions from forests. The Cancún decision on REDD+ (Decision 1/CP.16 paragraph 70) specifically encourages developing country Parties to contribute to mitigation actions in the forest sector by undertaking the following activities, as deemed appropriate by each Party and in accordance with their respective capabilities and national circumstances:

a) Reducing emissions from deforestation;
b) Reducing emissions from forest degradation;
c) Conservation of forest carbon stocks;
d) Sustainable management of forests;
e) Enhancement of forest carbon stocks.

These five REDD+ activities should:

- Be country-driven and be considered options available to Parties (Appendix I, para. 1a);
- Be consistent with the objective of environmental integrity and take into account the multiple functions of forests and other ecosystems (Appendix I, para. 1c);
- Be implemented in the context of sustainable development and reducing poverty, while responding to climate change (Appendix I, para. 1g);
- Be consistent with the adaptation needs of the country (Appendix I, para. 1h);
- Be results-based (Appendix I, para. 1j);
- Promote sustainable management of forests (Appendix I, para. 1k).

Of particular relevance to this assessment report, are questions related to impacts of REDD+ activities on biodiversity and forest ecosystem services. It is generally accepted that of the five REDD+ activities, reducing deforestation and forest degradation have by far the greatest potential to yield positive carbon and biodiversity outcomes. As a means to enhance forest carbon stocks, forest *restoration* to create corridors and improve forest connectivity in fragmented landscapes can provide substantial benefits for biodiversity. There is much uncertainty, however, about the potential impacts on biodiversity of other activities to enhance forest carbon stocks and those related to the sustainable management of forests. Further, there is uncertainty and concern about how all REDD+ activities may directly and indirectly affect the well-being of people, especially indigenous and local communities.

Opportunities envisaged through REDD+ include, among others, increased policy support, incentives and financial resources to: improve *in situ* conservation and maintain vital ecosystem services and production *forest management* practices; improve livelihoods and forest governance; and support better monitoring and reporting of forests and their biodiversity and ecosystem services. On the other hand, some REDD+ activities could negatively affect both biodiversity and people including conversion of forests of high biodiversity value to other types of forest, the *afforestation* (i.e., conversion) of non-forest ecosystems such as grasslands and savannahs, the displacement or disenfranchisement of rural communities, and increased social inequities. Other concerns related to the potential indirect impacts of REDD+ activities on biodiversity include risks of displacement of deforestation and forest degradation to new areas that may have high biodiversity value.

Uapaca sp., Parc National de l'Ivindo, Gabon
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In response to concerns about the potential negative impacts of REDD+ activities on biodiversity and local people, UNFCCC Decision 1/CP.16 (Appendix I) states that the following safeguards should be promoted and supported when undertaking REDD+ activities:

- That actions complement or are consistent with the objectives of national forest programmes and relevant international conventions and agreements (para. 2a);
- Transparent and effective national forest governance structures, taking into account national legislation and sovereignty (para. 2b);
- Respect for the knowledge and rights of indigenous peoples and members of local communities, by taking into account relevant international obligations, national circumstances and laws, and noting that the United Nations General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples (para. 2c);
- The full and effective participation of relevant stakeholders, in particular, indigenous peoples and local communities (para. 2d);

- That actions are consistent with the conservation of natural forests and biological diversity, ensuring that [REDD+] activities are not used for the conversion of natural forests, but are instead used to incentivise the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits (para. 2e);
- Actions to address the risks of reversals (para. 2f);
- Actions to reduce displacement of emissions (para. 2g).

At the UNFCCC's 17th Conference of the Parties in Durban, South Africa, in November/December 2011, the COP 16 decision was elaborated and guidance offered on systems for providing information on how environmental and social safeguards related to REDD+ activities are addressed and respected.

In the same decision, UNFCCC Parties also agreed on modalities for reference levels for forests and forest emissions as benchmarks for assessing each country's performance in implementing REDD+ activities. The conferences in Cancun and Durban also explored financing options for the implementation of results-based REDD+ actions, including establishment of the 'Green Climate Fund'. Progress on these issues will be reported at UNFCCC's 18th session of the Conference of the Parties in Doha, Qatar in November/December 2012. Negotiations at this meeting are also expected to identify policy instruments that could address national and international drivers of deforestation and forest degradation (e.g., agriculture), and existing perverse policy incentives.

The evolution of the international REDD+ regime, and development of 'safeguards', is of considerable interest to the Convention on Biological Diversity (CBD), the Food and Agriculture Organization of the United Nations (FAO), the United Nations Forum on Forests (UNFF), other members of the Collaborative Partnership on Forests and to a broad spectrum of other organisations promoting the conservation and sustainable use of biological diversity as well as the rights and interests of indigenous and local communities who may have the most to gain, or lose, from REDD+ implementation. Within the CBD, discussions on the linkages between REDD+ and biodiversity conservation have increased in recent years (as discussed in Chapter 5).

1.4 Purpose and scope of this assessment report

The likelihood of REDD+ activities delivering positive climate mitigation results and social and environmental co-benefits, will hinge on key choices made by decision-makers (policy-makers, investors, planners, land managers and other relevant stakeholders), since the management of forest stands and forest landscapes for net positive carbon benefits will have implications for biodiversity and ecosystem services other than carbon sequestration. These choices, which will inevitably involve trade-offs among land uses and forest-based ecosystem services, and among stakeholders at all levels, need to be understood and integrated into REDD+ decision-making, planning and management processes. They concern, for example, the selection and design of the most appropriate REDD+ activities to be implemented, the scale at which to implement them, objectives of the investors, and the balance between local and international impacts (particularly as they relate to land use and food security). If they are to lead to desired outcomes, these choices should be informed by the best available knowledge regarding the likely impacts (ecological and socio-economic) of REDD+ actions.

1.4.1 Terms of reference

The thematic 'Expert Panel on Biodiversity, Forest Management and REDD+' was established in December 2011 by the Collaborative Partnership on Forests[5] (CPF), through its Global Forest Expert Panel initiative (GFEP[6]). Like previous GFEP Expert Panels, the aim of this Panel is to provide policy-relevant scientific information to intergovernmental processes and institutions related to forests and trees, thereby supporting more informed decision making by policy makers, investors, donors and other stakeholders, and contributing to the achievement of international forest-related commitments and internationally-agreed development goals. The specific objectives of this assessment, as defined by the terms of reference approved by the CPF's Global Forest Expert Panel Steering Committee, were to:

- Clarify the interactions between biodiversity[7], carbon[8] and forest management[9], for different types of forests[10];
- In relation to these interactions, analyse the social, economic and environmental synergies and trade-offs under REDD+ implementation;

[5] The Collaborative Partnership on Forests (CPF) is an informal, voluntary arrangement among 14 international organisations and secretariats with substantial programmes on forests (http://www.cpfweb.org/en/). They collaborate to streamline and align their work and to find ways of improving forest management and conservation and the production and trade of forest products. The mission of the CPF is to promote sustainable management of all types of forests and to strengthen long-term political commitment to this end.

[6] GFEP was established in the year 2006 within the framework of the Collaborative Partnership on Forests (CPF) and is led and coordinated by the International Union of Forest Research Organizations (IUFRO). It builds on the political recognition provided by the United Nations Forum on Forests (ECOSOC Resolution 2006/49) and the Convention on Biological Diversity (CBD Decision IX/16).

[7] As defined by the Convention on Biological Diversity

[8] In this assessment report 'carbon' refers to the net balance of CO_2 and non-CO_2 greenhouse gas emissions and removals.

[9] Activities aimed at conservation, sustainable management of forests, and enhancement of forest carbon stocks to meet REDD+ intentions.

[10] According to FAO definitions and FAO Global Ecological Zone classification system (FAO, 2001)

- Identify governance and policy options for REDD+ activities that capture synergies between biodiversity and carbon, and avoid perverse outcomes.

The Expert Panel was comprised of 24 scientists with recognised expertise in the biophysical and social sciences. Additional criteria for selecting Panel Members included necessary regional balance, cultural diversity and gender balance. Panel Members participated in this process in their capacity as scientific experts and did not necessarily represent the views of their institutions or organisations. In addition to the Panel Members, 18 contributing authors added their expertise to the assessment.

Authors used published, peer-reviewed scientific literature, as well as other relevant and reliable sources of information. The assessment report was subject to expert peer review prior to its completion.

1.4.2 Audience and contribution of the assessment report

A number of excellent syntheses have been published that are relevant to specific environmental, socio-economic and policy aspects of REDD+ (e.g., SCBD, 2011; Angelsen et al., 2009; 2012). This GFEP assessment report makes an important contribution to advancing REDD+ by evaluating the implications of forest management interventions under REDD+ activities in a multi-dimensional and integrated fashion and by summarising the most up-to-date scientific literature on forest biodiversity, climate change and forest management. It seeks to provide its readers with a broad science-based perspective on relationships between forest biodiversity and carbon (and other ecosystem services) and how these complex relationships may be affected by management activities implemented to achieve REDD+ objectives. Based on this knowledge, it assesses the potential synergies and trade-offs between and among environmental and socio-economic objectives, and their relationship to governance issues at multiple scales.

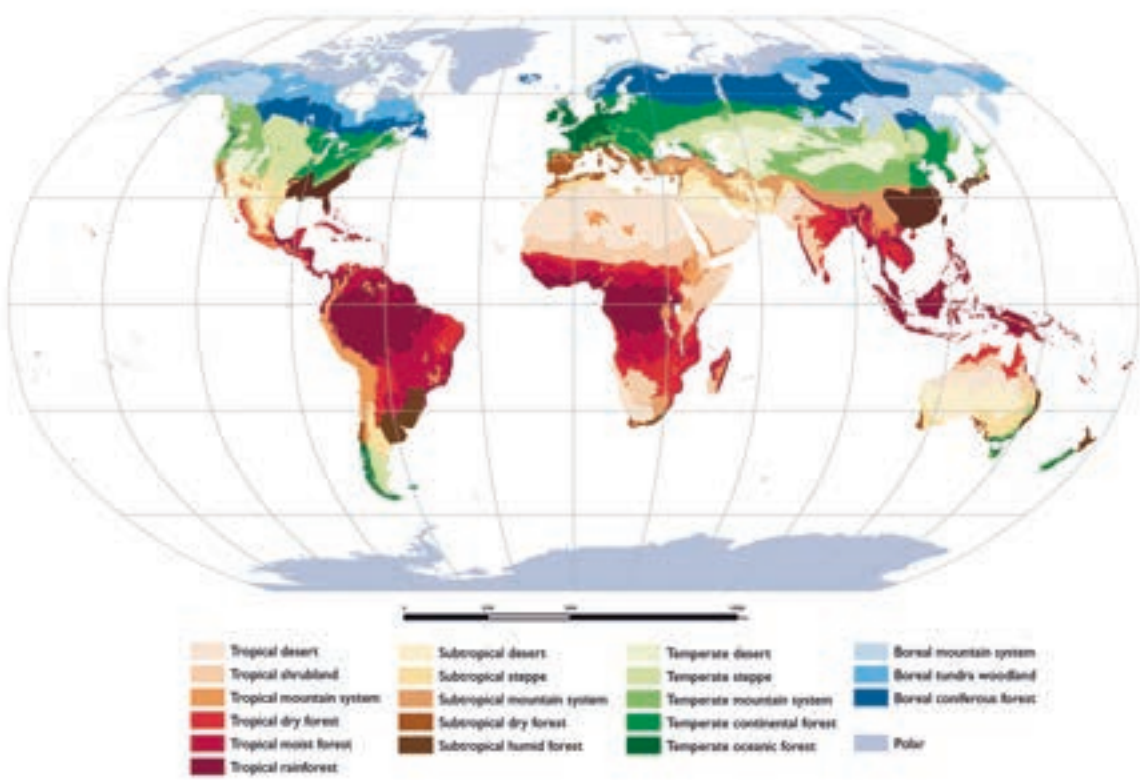
In addition to synthesising the existing scientific knowledge on these topics, the report identifies areas of uncertainty and/or risk, and how these might be reduced, based on an analysis of current scientific understanding. By doing so, this assessment report seeks to provide a sound scientific basis for informed decision-making by policy-makers, investors, donors and other interested stakeholders with respect to REDD+ implementation. It is to this audience, and their scientific and technical advisors, that the report is primarily addressed.

1.5 Geographical scope, scale and terminology

1.5.1 Geographical scope and forest types included in this assessment

This assessment focuses on most regions of the world in which REDD+ activities would be implemented, i.e., developing countries (non-Annex I Parties to the UNFCCC).

FAO Global Ecological Zone classification system (Iremonger and Gerrand, 2011) Figure 1.1



Although the countries in which REDD+ activities may be undertaken include tropical, sub-tropical and temperate ecological zones, we focus on the forest types within the tropical and sub-tropical domains only, according to the FAO classification (Figure 1.1; Iremonger and Gerrand, 2011). However, much of the science that underpins our understanding of forest processes, forest restoration and forest recovery applies to all forest types. The general features of the forest types in these regions are discussed in Chapter 2.

Where relevant, we also consider knowledge and experience from other regions where REDD+ activities are being planned. These would include some temperate regions, particularly those within largely (sub-)tropical countries, or the temperate, as well as montane, forest regions stretching from the Caucasus to Central Asia, the Himalayas and southwestern China.

1.5.2 Spatial and temporal scales

Existing guidance and emerging practice related to REDD+ activities do not consistently define or delimit the spatial or temporal scales over which such projects would be carried out, monitored and accounted for. This assessment report nonetheless recognises the importance of both spatial and temporal scales in its evaluations of the key questions under consideration. Throughout this report we distinguish between local (i.e., site- or stand-level) and broader (landscape-level) characteristics, relationships and impacts. For example, REDD+ activities undertaken at a management-unit level may influence carbon, biodiversity and/or non-carbon ecosystem services over a larger geographical area such as a watershed; equally, the impacts of landscape-wide management interventions may be disproportionally felt at a given site.

We also distinguish between short-term (< 20 years), medium-term (20-50 years) and long-term (> 50 years) impacts or outcomes, and their relevance for assessment of impacts of REDD+ actions on biodiversity, carbon, other ecosystem services, and environmental, economic and social synergies and trade-offs.

1.5.3 Terminology used in this report

One of the challenges related to the interpretation of UNFCCC decision language and guidance on REDD+, concerns the lack of clear, commonly-accepted definitions of some key terms. Some terms, including 'forest', 'forest degradation' and 'sustainable forest management' have been under discussion in international forums for many years without any broad consensus as yet regarding their definition. Key terms and phrases in the Cancún decision on REDD+ remain subject to continued debate as to their meaning (*deforestation*, *forest degradation*) and scope (sustainable management of forests; enhancement of forest carbon stocks).

Given this situation, the authors of this report have used definitions for key terms that, while not universally accepted, are widely recognised and used internationally, particularly within the UNFCCC, CBD, FAO and/or the United Nations Forum on Forests (UNFF). 'Carbon', except where used more explicitly to refer to specific stocks and fluxes associated with forest ecosystems, refers to the net balance of CO_2 and non-CO_2 greenhouse gas emissions and removals. Biodiversity (*biological diversity*) is defined by the Convention on Biological Diversity (Article 2) as "*the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems*". In this assessment report, the focus is largely confined to forest biodiversity between species and of ecosystems (with little consideration of diversity within species). Forest management refers to the processes of planning and implementing practices for the stewardship and use of forests and other wooded land aimed at achieving specific environmental, economic, social and/or cultural objectives. Other forms of land management, including agricultural practices and land use planning that are likely to be important in REDD+ implementation, are also considered in this assessment report.

The definitions of forest, forest cover and related terminology generally follow those used by FAO's Global Forest Resources Assessment (FAO, 2010). Terminology related to carbon stocks and fluxes generally follows that of the Intergovernmental Panel on Climate Change, except where noted. A complete listing of technical terminology used may be found in the Glossary (Appendix 2). Readers are encouraged to refer to this glossary as they read the text.

1.6 Overview of the assessment report

The structure of the report was conceptualised as a progression of building blocks which start with the ecological fundamentals of forests as they relate to biodiversity, carbon sequestration and other ecosystem services. The report then explores the different forest management options under REDD+ and seeks to highlight their main biodiversity and carbon impacts. It then considers the socio-economic dimension of these forest-related interventions and finally reviews the governance underpinnings of REDD+.

Specifically, *Chapter 2* examines the role of biodiversity in the provision of ecosystem goods and services and describes the forest types of key interest to REDD+. The chapter provides a broad overview of biodiversity and carbon relationships across the range of forest types occurring in regions where REDD+ programmes may be developed. It considers the impacts of deforestation and degradation on carbon and other ecosystem services.

Chapter 3 explores what is known about the impacts on biodiversity and carbon of the various management approaches and specific actions that are likely to be employed to achieve REDD+ objectives, based on the understanding developed in Chapter 2. The chapter identifies, insofar as possible, the circumstances under which management activities may have positive impacts on both biodiversity and carbon, and the evidence regarding

linkages, synergies and trade-offs between carbon and biodiversity objectives associated with their implementation. The chapter also examines key considerations for the design and implementation of monitoring and assessment processes, including selection of appropriate indicators, to measure and report on changes in both carbon and biodiversity.

Chapter 4 examines social and economic considerations related to REDD+, discussing how REDD+ strategies can be informed by previous land use and forest management interventions. It highlights the role of mediating factors such as structures of governance and the exercise of authority; the nature of rules and institutions for resource management; as well as types of tenure and property rights regimes, with a special focus on the most vulnerable groups. It reviews the social and economic impacts of current patterns of deforestation and forest degradation, and reviews the experience and socio-economic outcomes of previous agriculture and forest-based interventions. The chapter discusses the growing role of decentralisation and participatory forms of forest governance and management, and ways in which forest-sector interventions have attempted to incentivise behavioural change for stakeholders, drawing particularly on experience with *payments for ecosystem* (*or environmental*) *services* (PES) schemes, and forest certification. The chapter explores the implications of these previous interventions for strategies that seek to find synergies between reductions in greenhouse gases, improvements in biodiversity and positive social and economic outcomes, and identifies some key lessons of relevance to REDD+.

Chapter 5 examines the broad array of governance instruments of direct relevance to forests, carbon and biodiversity in the context of REDD+, and analyses how different actors, interests and ideas are shaping that landscape. At the international level, it considers how intergovernmental processes have generated few binding commitments and favoured strategies that enhance sovereign authority, while non-state actors have spearheaded market-based mechanisms and pressured financial institutions to develop environmental and social safeguards. This is followed by a review of international policy options and an assessment as to how these might foster synergies between REDD+ and biodiversity protection. The chapter concludes with an examination of the intersection of international forest governance with national and local agendas, and conflicting pressures for international standardisation, sovereignty and local autonomy, illustrated by case studies from Brazil, the Congo Basin, Indonesia and Nepal.

To conclude, *Chapter 6* provides a synthesis of the main findings of the assessment, and identifies key areas requiring further research.

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